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# Occupational Radiation Exposure at Commercial Nuclear Power Reactors 1980

## Annual Report

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B. G. Brooks

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Licensee Operations Evaluation Branch  
Office of Management and Program Analysis  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



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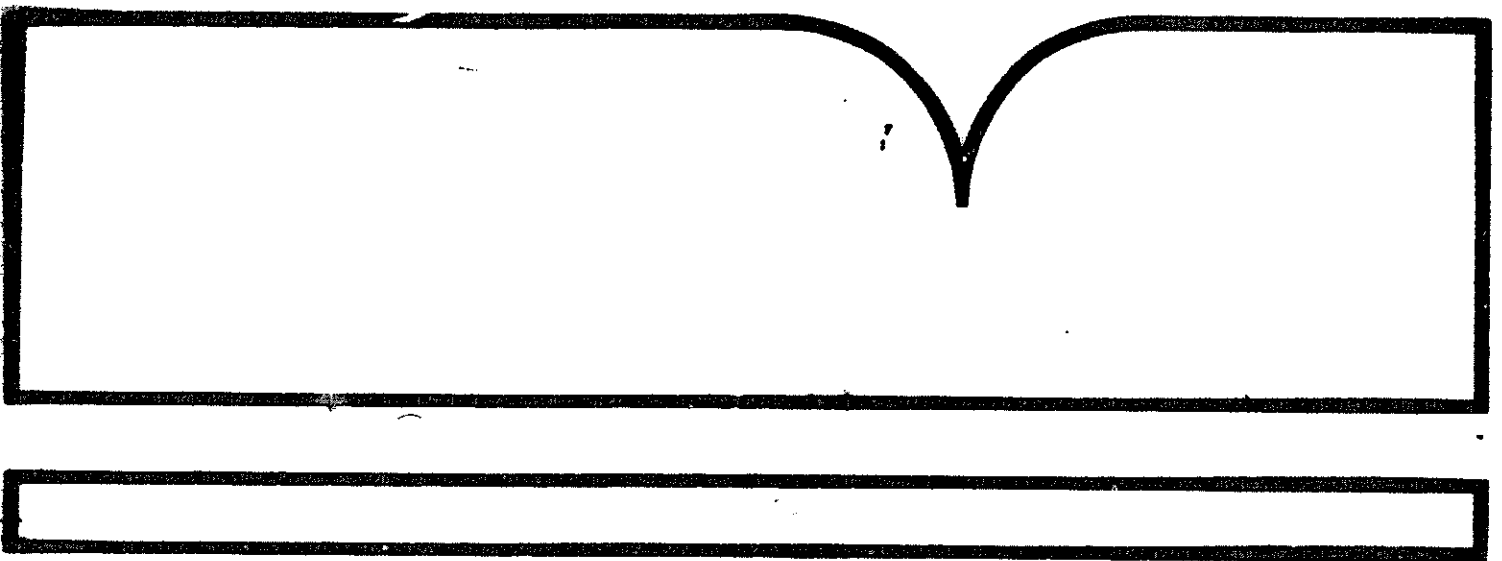
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Annual Report

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**U.S. Nuclear Regulatory  
Commission**

**Office of Management and Program Analysis**

B. G. Brooks

## PREVIOUS REPORTS IN SERIES

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

## ABSTRACT

This report presents an updated compilation of occupational radiation exposures at commercial nuclear power reactors for the years 1969 through 1980. It is 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 report now contains data received from the 68 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, 1979. This represents an increase of two reactors over the number contained in last year's report. Both the total number of personnel monitored at LWRs and the number of workers that received measurable doses during 1980 increased by about 25% to values of 133,878 and 80,331, respectively. The total collective dose at LWRs for 1980 is estimated to be 53,796 man-rem, which is a 35% increase over the 1979 value of 39,759. The result was that the average dose per worker increased slightly to 0.67 rem, while the average collective dose per reactor increased by approximately 33% to a value of 791 man-rem. The collective dose per megawatt-year of generated electricity by each reactor also increased to an average value of 1.8 man-rem per megawatt-year from last year's value of 1.3. A brief prospective on the health implications of these annual occupational doses is also provided for the first time. The staff found that should a worker receive 0.67 rem each year during his entire working career, his risk of dying from cancer would increase by about 2% of the normal risk.

The report also presents a summary and some analyses of the exposure data contained in the "termination reports" that have been submitted to the Commission pursuant to 10 CFR §20.408 by nuclear power licensees. As of December 31, 1980, personal identification and exposure information had been collected and computerized for some 170,000 of these terminating reactor personnel. Analysis of these data indicate that there are now about 1700 quarterly transient\* workers each year who incur an average dose of 0.44 rem and some 3,700 yearly transient\* workers who incur an average dose of 1.03 rem.

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





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# OCCUPATIONAL RADIATION EXPOSURE AT COMMERCIAL NUCLEAR POWER REACTORS 1980

## 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 1980.

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 reports 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 year after 1972 may be found in a series of reports, "Nuclear Power Plant Operating Experience" (Refs. 3, 4, 5, 6, 7 and 8). The next report in this series (NUREG/CR-2378), which contains data for 1980, should be published in December 1981. 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.

## 2. SUMMARY OF OCCUPATIONAL MONITORING DATA AND POWER GENERATION

### 2.1 Definitions of Terms and Sources of Data

#### 2.1.1 Number of Reactors

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

#### 2.1.2 Collective Dose

The collective doses (in man-rem) shown for 1969 through 1972 were obtained by special request 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 pursuant to their technical specifications (the first number in the last column in Appendix C) was determined. (2) The ratio of this dose to the total collective dose (the last number in the last column in Appendix C) was calculated and multiplied by the total collective dose that had been estimated using the §20.407-type annual reports. This

**TABLE 1**  
**SUMMARY OF ANNUAL INFORMATION REPORTED BY**  
**COMMERCIAL BOILING WATER REACTORS**

1969 - 1980

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electric 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 (MW <sub>e</sub> ) Net
1969	3 (2)	586 (300)	280*	192	1.03*	185	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)	2,858 (2,130)	2,258*	3,058	0.94*	286	323*	0.9	306	434
1973	12	4,564	5,340	3,394	0.85	380	445	1.3	283	459
1974	14	7,095	8,769	4,059	0.81	807	628	1.7	290	513
1975	18	12,011	14,807	5,786	0.66	701	812	2.2	321	611
1976	23	12,626	17,553	8,586	0.71	549	776	1.5	373	647
1977	23	19,042	21,388	9,098	0.89	828	930	2.1	396	645
1978	25	15,096	20,278	11,774	0.74	604	811	1.3	471	668
1979	26	18,322	25,245	11,671	0.73	733	1,010	1.6	467	669
1980	26	29,530	34,084	10,956	0.87	1,136	1,311	2.7	418	664

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

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

1969 - 1980

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electric 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 (MW <sub>e</sub> ) Net
1969	4 (3)	661 (363)	454*	1,097	0.80*	165	151*	0.6	274	349
1970	4 (3)	2,738 (1,099)	1,340*	979	0.82*	684	447*	2.8	245	349
1971	6 (4)	1,844 (612)	905*	1,912	1.01*	307	226*	1.0	319	399
1972	8 (6)	3,708 (2,083)	1,865*	2,544	1.11*	484	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	6,924	0.68	331	485	1.0	341	619
1975	26	8,268	10,884	11,083	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	21,437	38,828	18,249	0.55	510	924	1.2	434	729
1980	42	24,266	46,237	18,287	0.52	578	1,101	1.3	435	721

\*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 column 3, 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 those appearing in earlier NUREG documents.

**TABLE 3**  
**SUMMARY OF ANNUAL INFORMATION REPORTED**  
**BY COMMERCIAL LIGHT WATER COOLED REACTORS**

1969 - 1980

Year	Number Of Reactors Included	Annual Collective Doses (Man-rem)	No. of Workers With Measurable Doses	Gross MW-Yrs Electric 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 (MWs) Net
1969	7 (5)	1,247 (663)	744*	1,289	0.89*	178	149*	1.0	184	247
1970	10 (7)	3,502 (1,809)	2,881*	1,892	0.80*	380	380*	1.9	189	300
1971	13 (8)	3,628 (1,981)	2,778*	3,220	0.71*	280	309*	1.1	248	367
1972	18 (12)	6,586 (4,213)	4,143*	5,602	1.02*	365	345*	1.2	311	408
1973	24	13,963	14,780	7,164	0.94	582	616	1.9	299	496
1974	34	13,722	18,486	10,883	0.74	404	543	1.3	320	575
1975	44	20,879	25,491	17,769	0.82	475	579	1.2	404	830
1976	53	26,433	35,447	21,911	0.75	499	689	1.2	413	663
1977	57	32,511	42,266	26,444	0.77	570	742	1.2	484	877
1978	64	31,809	45,998	31,814	0.69	497	719	1.0	494	702
1979	67	39,759	64,073	29,920	0.62	593	956	1.3	447	705
1980	68	53,796	80,331	29,155	0.67	791	1,181	1.8	429	699

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

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-Yrs) 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 8,784, 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-Yrs) 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 through 3 is graphically displayed in Figure 1 where one can see that the average collective dose and average number of workers per BWR has been higher than that for PWRs for the last six years and that the values of both parameters have, in general, continued to rise at both types of facilities. At BWRs in 1980, the average collective dose, average number of workers, and collective dose per megawatt-year (Tables 1-3) reached the all-time high values of 1,136, 1,311, and 2.7, respectively. Table 1 shows that the average dose per worker also rose from last year's value of 0.73 rems to 0.87 rems. At PWRs, the values of these three parameters increased to values (578 man-rems per reactors, 1,101 workers per reactor, and 1.3 man-rems per megawatt-year) higher than those reported for the previous six years, while the average dose per worker (Table 2) decreased slightly to 0.52 rems.

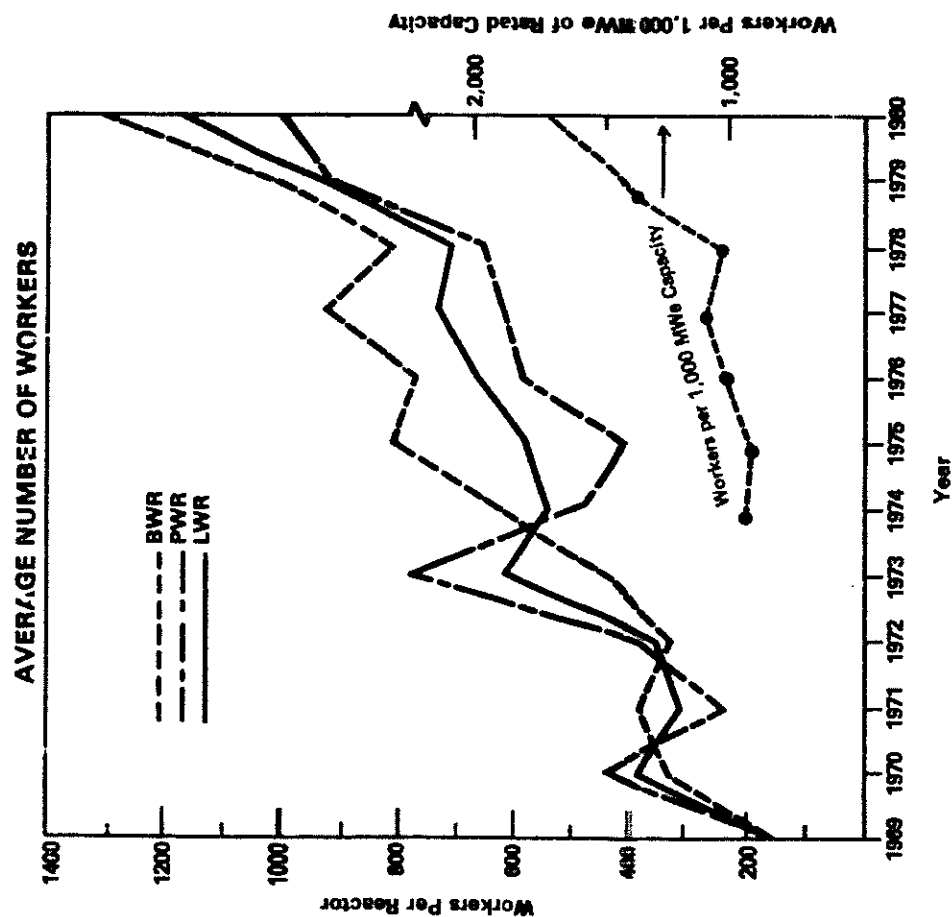
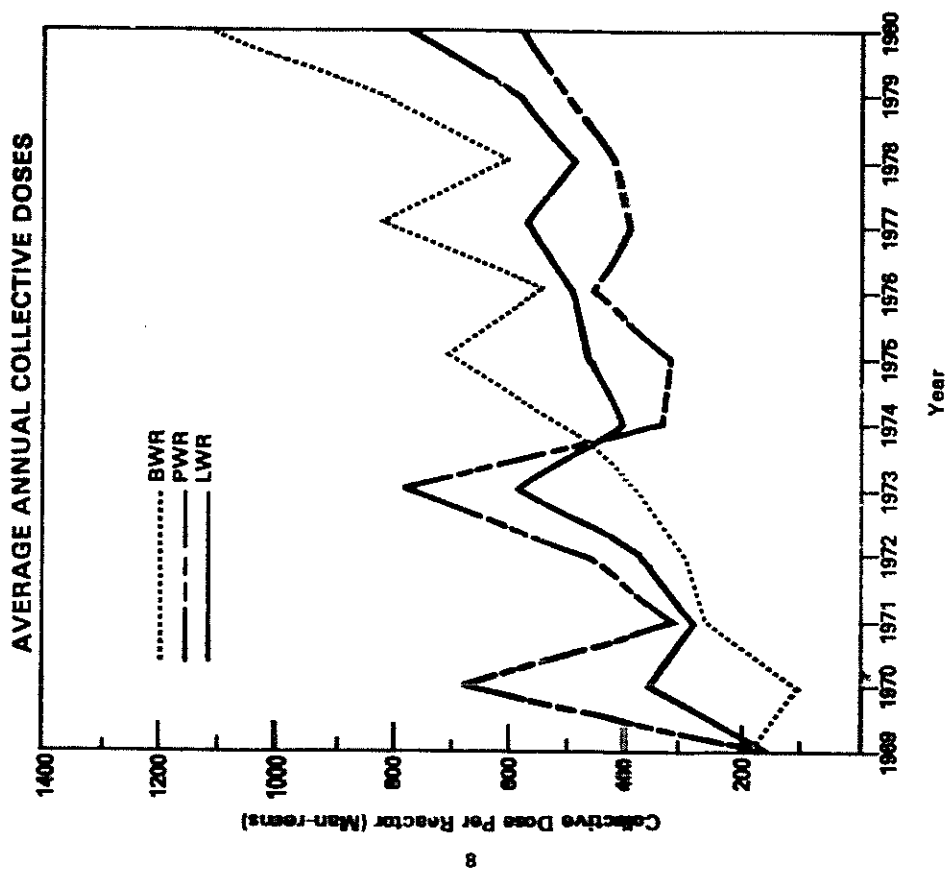
Also in Figure 1, a plot of the number of workers per 1,000 megawatts electric (rated capacity) installed is shown in order to examine the possibility that these parameters may be dependent on the installed power. One can see that for several years the ratios were relatively constant. However, the increase in the values for the last two years implies that other factors, such as the type of plant, the number of years that the plant has been in operation (Ref. 9), special inspections, repairs, and other activities deemed necessary by regulatory bodies and others affect these parameters as well.

To further assist in the identification of any trends that might exist in the two parameters - the average and the median collective dose per reactor - Figure 2 is presented. It displays the average and median\* values of the collective dose per reactor for BWRs and for PWRs for the years 1973 through 1980. 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. One can see that the median values do not fluctuate as much from year to year as do the average values. The median collective dose for PWRs has slowly increased since 1975, and appears to have levelled off in 1980; while for BWRs, it levelled off at a higher value for 1977 through 1979 and increased in 1980. Furthermore, 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).

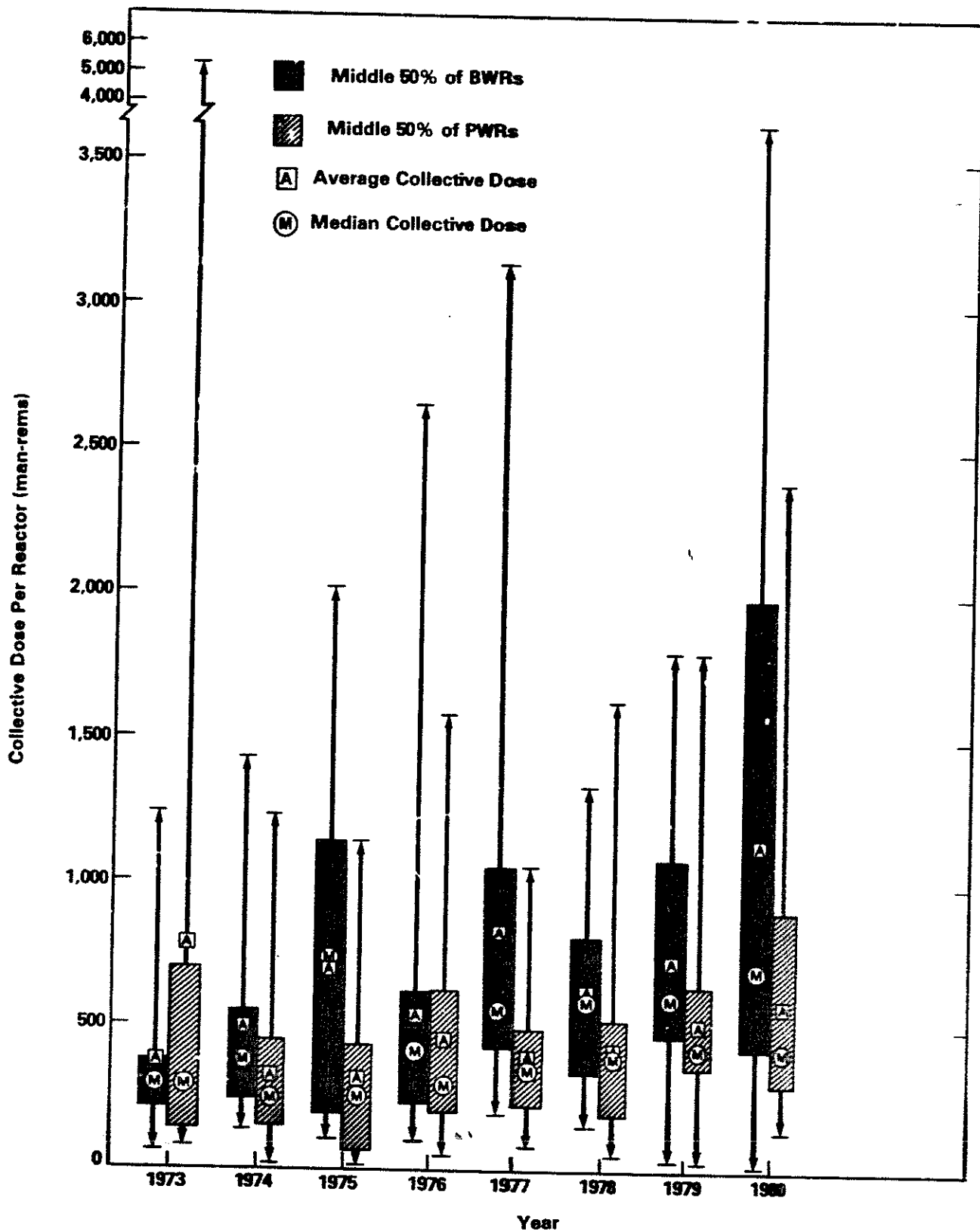
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\*The value at which 50% of the reactors reported greater collective doses and the other 50% reported smaller collective doses.

**FIGURE 1**  
**COMMERCIAL LIGHT WATER COOLED REACTORS**  
**1969-1980**



**FIGURE 2**  
**AVERAGE, MEDIAN AND EXTREME VALUES OF**  
**THE COLLECTIVE DOSE PER REACTOR**  
**1973-1980**



## 2.3 Plant Rankings by Collective Dose Per Reactor

The number of reactors from which data has been collected is still rather small, and the information reported by a few reactors where unusual conditions or problems may have occurred could have a large impact on some of the statistics presented in this report. In an effort to identify those plants, Tables 4 and 5 list the BWRs and PWRs in ascending order of man-rem per reactor for each of the years 1976 through 1980. 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. Table 6 ranks the plants that had been in commercial operation for at least five years as of December 31, 1980. At BWRs, the values of the average dose per worker and collective dose per megawatt-year increased somewhat over those that had been calculated for the five years ending in 1979. At PWRs, the average dose decreased slightly while the collective dose per megawatt-year showed a small increase over the same period. The five year averages for the collective dose per reactor and the number of workers per reactor increased by about 20% over the previous five years' values. 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 the data.

In general, one can see from the listings in Tables 4 through 6 that the plants having lower values of these three parameters each year are usually the newer plants. Some of the older, smaller plants also appear near the top of the listings since they report small collective doses; however, the ratio of their man-rem to the number of megawatt-years generated will be higher because of their limited power generation capacity. Usually, when a plant reports a large annual collective dose, and a large man-rem to megawatt-year ratio as well, it indicates that extensive maintenance or modifications were undertaken during the year. Also, several plants reported that part of the increase in their collective doses was due to activities, such as seismic hanger inspections and modifications, snubber corrections, masonry wall modifications, and other torus and drywell changes, that were directed by various NRC bulletins or recommended by their nuclear supplier.

## 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 1980. 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 1980 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. The data for 1980 is graphically displayed in

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

1976			1977			1978			1979			1980		
Site Name	Man-Rems per Worker (Rms)	Dose per Worker (Rms) MW-Yr.	Site Name	Man-Rems per Worker (Rms)	Dose per Worker (Rms) MW-Yr.	Site Name	Man-Rems per Worker (Rms)	Dose per Worker (Rms) MW-Yr.	Site Name	Man-Rems per Worker (Rms)	Dose per Worker (Rms) MW-Yr.	Site Name	Man-Rems per Worker (Rms)	Dose per Worker (Rms) MW-Yr.
Duane Arnold	105	0.30	Cooper Station	188	0.63	Cooper Station	158	0.53	Humboldt Bay	31	0.23	Humboldt Bay	22	0.15
La Crosse	110	0.93	La Crosse	225	1.59	La Crosse	164	0.90	Monticello	167	0.42	La Crosse	218	1.76
Brown Ferry 1&2	234	0.11	Vermont Yankee	268	0.40	Big Rock Point	175	0.81	La Crosse	168	1.22	Hatch 1,2	448	0.23
Hatch	134	0.21	Duane Arnold	289	0.56	Hatch 1	249	0.18	Cooper	221	0.52	Big Rock Point	364	0.59
Fitzpatrick	202	0.34	Big Rock Point	334	0.72	Nine Mile Point	314	0.56	Duane Arnold	276	0.38	Monticello	631	0.48
Monticello	263	0.81	Millstone Point 1	384	0.37	Humboldt Bay	335	1.05	Big Rock Point	455	0.73	Nine Mile Point	691	1.29
Big Rock Point	289	0.59	Millstone Point 1	893	0.48	Vermont Yankee	339	0.36	Oyster Creek	487	0.88	Brown Ferry 1,2,3	1,928	0.87
Brunswick 2	328	0.26	Brown Ferry 1&2	465	0.36	Monticello	375	0.88	Brown Ferry 1,2,3	1,887	0.82	Duane Arnold	871	0.81
Cooper Station	350	0.46	Hatch 1	1031	1.14	Brunswick 1&2	1004	0.89	Hatch	582	0.27	Dresden 1,2,3	2,106	0.77
Vermont Yankee	411	0.50	Quad Cities 1&2	1684	0.91	Dresden 1,2&3	1529	0.79	Dresden 1,2,3	1,800	0.76	Cooper Station	859	1.09
Peach Bottom 2&3	840	0.39	Monticello	1000	1.16	Brown Ferry 1,2&3	1792	0.75	Peach Bottom 2,3	1,388	0.81	Peach Bottom 2,3	2,302	0.83
Nine Mile Point	428	1.09	Peach Bottom 2&3	2036	0.72	Quad Cities 1&2	1317	0.59	Fitzpatrick	888	1.01	Vermont Yankee	1,338	0.89
Dresden 1,2&3	1680	0.99	Fitzpatrick	1080	0.78	Fitzpatrick	808	1.00	Pilgrim	1,015	0.41	Oyster Creek	1,733	0.88
Humboldt Bay	683	1.31	Brunswick 2	1120	0.74	Duane Arnold	874	0.88	Quad Cities 1,2	2,168	1.28	Brunswick 1,2	3,870	1.02
Quad Cities 1&2	1851	1.35	Nine Mile Point	1383	1.27	Millstone 1	1239	0.89	Vermont Yankee	1,170	0.88	Fitzpatrick	2,040	0.99
Oyster Creek	1076	0.88	Oyster Creek	1614	0.86	Oyster Creek	1279	0.91	Brunswick 1,2	2,803	0.90	Millstone Point 1	2,158	0.71
Millstone 1	1184	0.87	Humboldt Bay	1905	1.79	Pilgrim	1327	0.80	Nine Mile Point	1,487	1.13	Quad Cities 1,2	4,538	1.57
Pilgrim 1	2848	2.01	Pilgrim 1	3142	1.87	Averages per Reactor	804	0.74	Millstone Point 1	1,793	1.01	Pilgrim	3,828	1.02
Averages per Reactor	547	0.71	Averages per Reactor	828	0.88				Averages per Reactor	733	0.73	Averages per Reactor	1,138	0.87
		1.52			2.1									2.72

<sup>1</sup>For those sites with more than one operating reactor, the numbers of man-rem per reactor is obtained by dividing the number of man-rem reported by the site by the number of reactors.

TABLE 5

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

1976	1977	1978	1979	1980
Site Name	Site Name	Site Name	Site Name	Site Name
Rancho Seco	Beaver Valley	Davis Besse	Davis Besse	Davis Besse
Yankee Rowe	Pellises	Ferley 1	Prairie Island 1,2	Kewaunee
Calvert Cliffs 1	Kewaunee	Prairie Island 1&2	Fort Calhoun	Prairie Island 1,2
Maine Yankee	Prairie Island 1&2	Haddam Neck	Renovo Besse	Three Mile Island 1,2
Cook 1	St. Lucie	Salem 1	Kewaunee	Yankee Rowe
Millstone Point 2	Trojan	Kewaunee	Yankee Rowe	North Anna 1
Point Beach 1&2	Point Beach 1&2	Point Beach 1&2	Beaver Valley	Cook 1,2
Prairie Island 1&2	Millstone Point 2	Arkansas 1	San Onofre	Point Beach 1,2
Kewaunee	Maine Yankee	Beaver Valley	Maine Yankee	Indian Point 3
Zion 1&2	Arkansas 1	Calvert Cliffs 1 & 2	Trojan	Calvert Cliffs 1,2
Three Mile Island 1	Fort Calhoun	Yankee Rowe	Point Beach 1,2	Arkansas 1
Arkansas 1	Cook 1	Trojan	Oconee 1,2,3	Oconee 1,2,3
Fort Calhoun	Yankee Rowe	Crytal River	Cook 1,2	Rancho Seco
Arkansas 1	Yankee Rowe	Yankee Rowe	Arkansas	Trojan
Fort Calhoun	Indian Point 1,2&3	Indian Point 1,2&3	Arkansas	Pellises
Oconee 1,2&3	Three Mile Island 1	San Onofre	St. Lucie	Ferley
Haddam Neck	Ginna	Fort Calhoun	North Anna	Salem 1
Turkey Point 3&4	Oconee 1,2&3	Maine Yankee	Millstone Point 2	Zion 1,2
Ginna	Robinson 2	Ginna	Crystal River	Maine Yankee
Pellises	Zion 1&2	Oconee 1,2&3	Salem	Indian Point 1,2
San Onofre	Turkey Point 3&4	Three Mile Island 1	Three Mile Island 1,2	St. Lucie
Indian Point 1&2	Calvert Cliffs 1	Zion 1 & 2	Ginna	Beaver Valley
Surry 1&2	Haddam Neck	Turkey Point 3&4	Indian Point 3	Crystal River
Averages per Reactor	San Onofre	Indian Point 1,2 & 3	Zion 1,2	Millstone point 2
	Surry 1&2	Pellises	Indian Point 1*2	Ft. Calhoun
	Averages per Reactor	Robinson 2	Ferley	Ginna
		Millstone 2	Turkey Point 3,4	Turkey Point 3,4
		Averages per Reactor	Pellises	Haddam Neck
			Haddam Neck	Robinson 2
			Robinson 2	Surry 1,2
			Surry 1,2	San Onofre 1
			Averages per Reactor	Averages per Reactor
			510	578
			0.55	0.62
			1.17	1.33

\*Indian Point 1 was defueled in 1975.

†Per three sites with more than one operating reactor. The numbers of man-rem per reactor is obtained by dividing the number of man-rem reported by the site by the number of reactors.

**TABLE 6**  
**LIGHT WATER COOLED REACTORS**  
**LISTED IN ASCENDING ORDER OF MAN-REMS PER REACTOR**

FIVE YEAR TOTALS AND AVERAGES  
1976 - 1980

BOILING WATER REACTORS						PRESSURIZED WATER REACTORS					
<sup>2</sup> 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-Rems per MW-Yr.	<sup>2</sup> 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-Rems per MW-Yr
La Crosse	903	718	1.28	104.5	8.6	Prairie Island 1,2	1,501	3,659	0.41	4,254.9	0.4
Big Rock Point	1,807	2,460	0.85	183.5	8.8	Kewaunee	855	1,772	0.48	2,143.3	0.4
Cooper Station	1,785	2,586	0.69	2,586.8	0.7	Yankee Rowe	1,037	2,385	0.43	606.4	1.7
Duane Arnold	2,324	3,865	0.60	1,499.1	1.6	Point Beach 1,2	2,361	2,237	1.06	4,180.8	0.6
Monticello	2,326	3,350	0.69	2,285.2	1.0	Rancho Seco	1,308	2,497	0.52	2,800.1	0.5
Draxden 1,2,3	8,807	10,878	0.82	5,589.7	1.6	Maine Yankee	1,366	2,518	0.54	3,036.5	0.4
Humboldt Bay	2,975	2,183	1.36	23.5	126.6	Arkansas 1	1,445	4,353	0.33	2,551.9	0.8
Vermont Yankee	3,516	5,053	0.70	1,972.4	1.8	Fort Calhoun	1,814	2,989	0.61	1,842.3	1.1
Peach Bottom 2,3	7,883	12,287	0.64	7,182.1	1.1	Oconee 1,2,3	5,803	8,670	0.67	8,448.5	0.7
Nine Mile Point	4,213	4,546	0.93	2,247.6	1.9	Zion 1,2	4,785	5,497	0.87	6,756.2	0.7
Fitzpatrick	5,090	5,790	0.88	2,305.0	2.2	Ginna	2,787	3,898	0.72	1,728.4	1.0
Quad Cities 1,2	11,296	8,116	1.39	4,987.7	2.3	Palladas	2,838	4,829	0.59	1,987.0	1.4
Oyster Creek	6,171	7,474	0.83	2,047.8	3.0	Millstone Point 2	3,139	4,358	0.72	2,700.3	1.2
Millstone Point 1	6,776	8,636	0.78	2,492.9	2.7	Turkey Point 3,4	6,583	8,107	0.81	4,755.5	1.4
Pilgrim	11,758	10,866	1.08	2,058.2	5.7	Haddam Neck	3,721	4,840	0.77	2,446.8	1.5
Grand Totals and Averages	77,430 815/RxYr	88,578 932/RxYr	0.87	37,567.1 396/RxYr	2.1	San Onofre	4,654	6,663	0.70	1,400.6	3.3
						Robinson 2	5,173	5,637	0.92	2,446.8	2.1
						Surry 1,2	14,729	17,198	0.86	4,191.5	3.5
						Grand Totals and Averages	65,900 527/RxYr	92,103 737/RxYr	0.72	58,075.8 465/RxYr	1.1

<sup>1</sup>For those sites with more than one operating reactor, the number of man-rem is obtained by dividing the number of man-rem 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 12-31-76 are not included.

**TABLE 7 \***  
**SUMMARY DISTRIBUTION OF ANNUAL WHOLE BODY DOSES**  
**AT COMMERCIAL LIGHT WATER COOLED REACTORS**

1969 - 1980

Year	Number of Individuals with Whole Body Exposures in the Indicated Ranges (Rems)																	Total Number Monitored	Annual Collective Doses (Man-rams)	
	No Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0	10.0-11.0				
	0.0-1.25			1.25-2.0																
1969	2,479			128															2,838	
1970	6,839			146														1	7,509	
1971	8,586			410															9,581	
1972	14,095			888														6	15,713	
1973	19,043	5,494	1,698	1,214	740	652	2,468	1,584	422	251	125	71	38	16	7		33,823	13,963**		
1974	20,472	6,735	2,887	2,056	1,182	906	2,503	1,378	471	226	86	30	6				38,938	13,722**		
1975	18,854	6,841	3,674	2,750	1,685	1,339	3,948	1,872	691	423	189	60	24	12		1	44,343	20,879**		
1976	25,704	12,821	5,130	4,135	2,520	2,030	4,880	2,354	789	487	188	70	26	11	5	1	60,521	26,433**		
1977	24,868	13,970	6,534	5,050	3,258	2,486	6,162	2,837	1,130	579	141	68	36	21	6		67,134	32,511**		
1978	30,143	16,639	6,943	5,504	3,399	2,498	6,405	2,899	1,080	418	67	26	8			(12) 2	76,121	31,804**		
1979	45,087	24,301	9,846	8,159	5,189	3,479	7,934	3,307	1,251	477	86	26	13	2		(11-12) 1	109,160	39,759**		
1980	53,547	29,638	11,750	9,820	6,082	4,518	11,474	4,515	1,537	686	192	98	18	3			133,878	53,796**		

\* 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.



Figure 3 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 found to be the case for certain dose ranges (Ref. 10), 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.

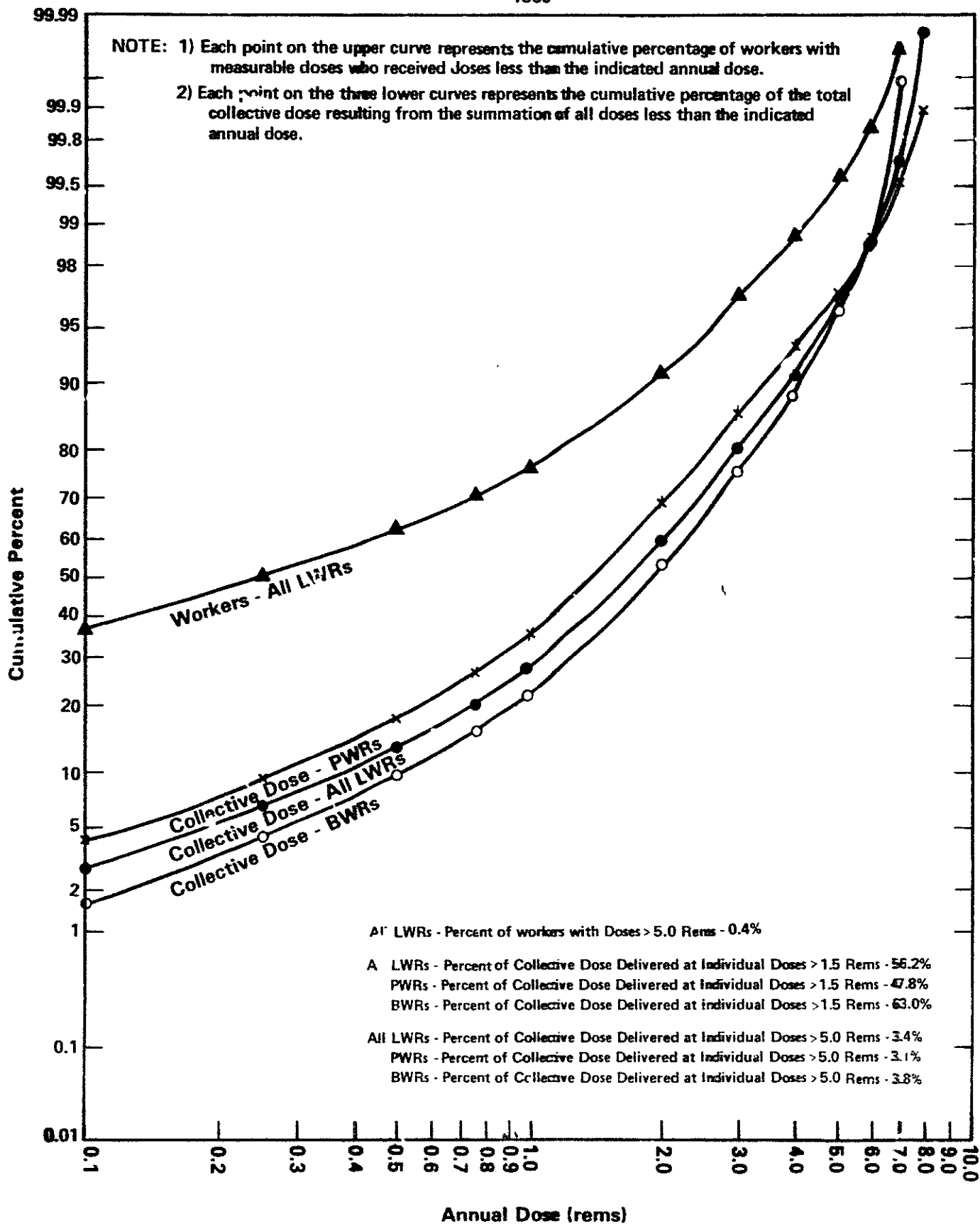
The top curve in Figure 3 shows the cumulative distribution of the number of workers receiving measurable doses that were reported in the dose ranges shown in Table 7 for 1980. From it one can quickly see that about 77% of the workers received annual doses less than one rem, and that about 99.6% of them received doses less than five rems. This is less than the portion of workers (99.8%) that had received such doses for the previous two years. The three lower curves indicate the cumulative distribution of the collective doses incurred by the workers at all LWRs, and at PWRs and BWRs during 1980. One can see that, at LWRs, those workers that received doses of less than one rem (77% of all workers) incurred only 28% of the collective dose, while those workers receiving doses greater than 5 rems (0.4% of all workers) received 3.5% of the collective dose. The position of the curve for PWRs (above that of the curve for BWRs) at doses less than six rems indicates that a larger portion of the collective dose was incurred by workers receiving lower individual doses than at BWRs. For doses greater than six rems, the situation reversed. Also in Figure 3, in the statements at the bottom, is the portion of the collective dose incurred by workers who received doses greater than 1.5 rems. These particular values are shown because the United Nations Scientific Committee on the Effects of Atomic Radiation recommended that this fraction should be one of the parameters used in the analyses and comparison of exposure data (Ref. 11). The Committee also advised that the normal range for this parameter should be from 3% to 60%. One can see that the values of the parameter are near the upper limit of this range with 56.2% at all LWRs, 47.8% at PWRs, and 63.0% at BWRs.

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.

FIGURE 3

CUMULATIVE PERCENT OF ANNUAL INDIVIDUAL DOSES  
AND COLLECTIVE DOSES

1980



### 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 the format described in Regulatory Guide 1.16. 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 1980 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 five 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 80.8% of the cumulative dose for BWRs, an increase of about 10% from last year's value, while at PWRs these workers received 70.6% of the cumulative dose, an increase of only 3.6% over last year's value. The portions of the collective dose received by workers during inservice inspection and refueling at BWRs are 3.3% and 5.2%, respectively; at PWRs such workers received 8.2% and 7.1%, respectively, of the collective dose. Overall, contractor personnel received 68.4% of the collective dose (about 10% more than last year), and the station and utility employees received the remaining 31.6% at LWRs.

Table 10 presents the distribution of the collective dose at all LWRs among five occupations. As expected, maintenance personnel incurred the majority (75.3%) of the collective dose, with contractor maintenance personnel receiving about twice as much as the station and utility maintenance employees combined. Supervisory personnel received only 2.1% of the dose, while workers in the remaining three occupations - operations, health physics, and engineering - received 6.7%, 8.2%, and 7.7%, respectively, of the collective dose. The total collective dose, 46,224.5 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 exposures to radiation in the work place, the effects are likely to occur only after many years because the most important effects are cancer induction and genetic damage leading to the transmission of hereditary diseases. A vast amount of scientific information is available from which estimates of these risks can be made. Much of this information has been obtained from epidemiologic studies of human populations at levels of exposures considerably

TABLE 8

ANNUAL COLLECTIVE DOSES  
BY WORK FUNCTION AND PERSONNEL TYPE

1980

Work Function	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>BOILING WATER REACTORS</u>								
REACTOR OPERATIONS & SURVEILLANCE	1615.1	5.8 %	82.1	0.3 %	421.0	1.5 %	2118.2	7.6 %
ROUTINE MAINTENANCE	2487.9	8.9 %	1448.8	5.2 %	7984.7	28.6 %	11920.8	42.8 %
INSERVICE INSPECTION	108.4	0.4 %	142.8	0.5 %	655.8	2.4 %	907.1	3.3 %
SPECIAL MAINTENANCE	745.2	2.7 %	606.4	2.2 %	9262.5	33.2 %	10614.1	38.1 %
WASTE PROCESSING	524.2	1.9 %	12.7	0.0 %	343.7	1.2 %	880.6	3.1 %
REFUELING	557.6	2.0 %	67.0	0.2 %	814.6	3.0 %	1439.2	5.2 %
TOTALS	6038.4	21.7 %	2359.3	8.4 %	19482.3	69.9 %	27880.0	100.0 %
<u>PRESSURIZED WATER REACTORS</u>								
REACTOR OPERATIONS & SURVEILLANCE	1784.0	7.6 %	95.2	0.4 %	822.6	3.5 %	2701.8	11.5 %
ROUTINE MAINTENANCE	1719.1	7.3 %	627.2	2.7 %	4003.6	17.0 %	6349.8	27.0 %
INSERVICE INSPECTION	158.8	0.7 %	126.8	0.5 %	1637.6	7.0 %	1923.1	8.2 %
SPECIAL MAINTENANCE	1019.8	4.3 %	1042.0	4.4 %	8215.6	34.9 %	10277.2	43.8 %
WASTE PROCESSING	333.9	1.4 %	31.0	0.1 %	264.7	1.1 %	629.6	2.6 %
REFUELING	603.3	2.6 %	319.4	1.4 %	731.5	3.1 %	1654.2	7.1 %
TOTALS	5620.5	23.9 %	2241.7	9.5 %	15675.5	66.6 %	23535.7	100.0 %
<u>ALL LIGHT WATER REACTORS</u>								
REACTOR OPERATIONS & SURVEILLANCE	3399.1	6.6 %	177.3	0.3 %	1243.6	2.4 %	4820.0	9.3 %
ROUTINE MAINTENANCE	4207.0	8.2 %	2075.4	4.0 %	11988.2	23.3 %	18270.8	35.5 %
INSERVICE INSPECTION	267.0	0.5 %	269.8	0.5 %	2293.4	4.5 %	2830.2	5.5 %
SPECIAL MAINTENANCE	1764.8	3.4 %	1648.4	3.2 %	17478.1	34.0 %	20891.3	40.6 %
WASTE PROCESSING	858.1	1.7 %	43.7	0.1 %	603.4	1.2 %	1510.2	3.0 %
REFUELING	1160.9	2.3 %	386.4	0.8 %	1546.1	3.0 %	3093.4	6.1 %
TOTALS	11658.8	22.7 %	4601.0	8.9 %	35157.8	68.4 %	51415.7	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
Reactor Operations and Surveillance	10.8%	10.2%	10.5%	13.3%	12.2%	9.5%
Routine Maintenance	52.6%	31.0%	28.1%	31.5%	29.2%	35.5%
Inservice Inspection	3.0%	6.0%	6.4%	7.7%	9.0%	5.5%
Special Maintenance	19.0%	40.0%	42.5%	35.9%	39.4%	40.6%
Waste Processing	6.9%	5.0%	5.8%	5.0%	3.6%	3.0%
Refueling	7.7%	7.9%	6.7%	6.6%	6.6%	6.1%

TABLE 10  
ANNUAL COLLECTIVE DOSES  
BY OCCUPATION AND PERSONNEL TYPE

1980

Occupation	Station Employees		Utility Employees		Contract Workers & Others		Total per Occupation	
	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL	MAN-REMS	% OF TOTAL
<u>BOILING WATER REACTORS</u>								
MAINTENANCE	2761.8	9.9 %	1962.7	7.0 %	17339.9	62.1 %	22064.4	79.0 %
OPERATIONS	1697.8	6.1 %	16.7	0.1 %	167.8	0.6 %	1882.5	6.8 %
HEALTH PHYSICS	636.1	2.3 %	24.2	0.1 %	1105.5	4.0 %	1765.8	6.4 %
SUPERVISORY	418.8	1.5 %	18.1	0.1 %	78.0	0.3 %	514.9	1.8 %
ENGINEERING	523.8	1.9 %	337.5	1.2 %	791.1	2.8 %	1652.4	5.9 %
TOTALS	6038.4	21.7 %	2359.2	8.5 %	19482.4	69.8 %	27880.0	100.0 %
<u>PRESSURIZED WATER REACTORS</u>								
MAINTENANCE	2422.0	13.2 %	1590.0	8.7 %	8750.8	47.7 %	12762.8	69.6 %
OPERATIONS	883.4	5.4 %	41.7	0.2 %	191.7	1.0 %	1216.8	6.6 %
HEALTH PHYSICS	611.9	3.3 %	77.5	0.4 %	1317.8	7.2 %	2007.3	10.9 %
SUPERVISORY	211.3	1.2 %	20.1	0.1 %	207.5	1.1 %	438.9	2.4 %
ENGINEERING	310.8	1.7 %	175.6	1.0 %	1432.6	7.8 %	1918.7	10.5 %
TOTALS	4539.2	24.8 %	1904.8	10.4 %	11900.5	64.8 %	18344.5 <sup>A</sup>	100.0 %
<u>ALL LIGHT WATER REACTORS</u>								
MAINTENANCE	5183.8	11.2 %	3552.7	7.7 %	26090.7	56.4 %	34827.2	75.3 %
OPERATIONS	2681.3	5.8 %	58.4	0.1 %	359.6	0.8 %	3099.3	6.7 %
HEALTH PHYSICS	248.0	2.7 %	101.7	0.2 %	2423.4	5.3 %	3773.1	8.2 %
SUPERVISORY	630.1	1.4 %	38.2	0.1 %	285.5	0.6 %	953.8	2.1 %
ENGINEERING	834.4	1.8 %	513.0	1.1 %	2223.7	4.8 %	3571.1	7.7 %
TOTALS	10577.6	22.9 %	4264.0	9.2 %	31382.9	67.9 %	46224.5 <sup>A</sup>	100.0 %

<sup>A</sup> The remaining 5,191.2 man-rem of the total doses shown in Table 8 were not categorized by personnel occupation by the Indian Point 1 & 2, Point Beach 1 & 2, and Surry 1 & 2 plants.

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), completed a comprehensive review of the biological effects of ionizing radiation in 1980 and published its findings (Ref. 12). Based on this report, a large working population receiving one million man-rem might suffer an estimated 100 to 200 additional cancers over the remaining years of their lives. This risk estimate can be applied to the 53,796 man-rem shown in Table 7 and the 80,331 workers who received measurable exposures. The result is that for the total work force exposed at commercial LWRs in 1980, the number of additional cancer deaths would be less than ten. This addition is made to the 12,000 deaths or so that would occur in this approximately 80,000 workers normally without exposure to this amount of radiation. Perhaps more meaningful to the individual workers are the health implications to the worker receiving the average dose of 0.67 rem and the maximum dose of 9 rem or so during 1980. The estimated 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 highest dose. Should a worker receive 0.67 rem per year continuously during his 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-rem is very small compared to genetic damages that normally 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 it is still restricted to a 70% power level, except for testing.

\* Assuming that each of them will have one child in the future.

As shown in the Table 11, annual whole body doses incurred by workers at the plant have been minimal. No one has exceeded an annual dose of 0.25 rems, and the average dose per worker remains at about 0.05 rems. For the seven years ending on December 31, 1980, the total collective dose for workers at the site was 18.6 man-rems, and a total of 207.5 megawatt-years of electricity had been generated. This yields a seven-year average of about 0.1 man-rems per megawatt-year. The average value of this parameter for LWRs is eighteen times as much (Table 3).

TABLE 11  
ANNUAL DOSES AT FORT ST. VRAIN  
1974 - 1980

No. of Individuals with Annual Doses in Ranges (Rems)				Total No. of Individuals Monitored	Annual Collective Dose (Man-Rems)	Gross MW-Yrs Generated	Average Measurable Dose Per Worker (Rems)
Year	No Measurable Dose	Measurable <0.10	0.10-0.25				
1974	1597	63	1	1,661	3.3	0.0	0.05
1975	1263	0	0	1,263	0.0	0.0	0.00
1976	1362	25	0	1,387	1.3	2.8	0.05
1977	946	55	1	1,002	2.9	29.8	0.05
1978	896	34	0	930	1.7	75.7	0.05
1979	1149	170	2	1,271	8.8	16.0	0.05
1980	902	57	1	960	3.0	83.2	0.05

#### 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 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 630,000 termination records have been received for approximately 170,000 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

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



individuals terminating during each of the eleven 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.

TABLE 12  
TERMINATION REPORTS FOR REACTOR PERSONNAL  
1969 - 1980

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	111,030	47,080
*1980	130,910	57,710

#### 4.2 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 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, by defining a "transient" worker to be a radiation worker who began and terminated employment at two or more different licensed facilities within one calendar quarter, one could examine the doses of those workers most likely to approach the quarterly limits without their present 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 levelling off at about 1500. This reflects the rate of growth of the nuclear power industry and its need for short-term workers. One can see from the top part of the table that the average individual dose (which is close to being a quarterly dose for most of these workers) has shown a decreasing trend during this time and fell to its lowest value of 0.44 rems in 1980.

\* All of the termination data for individuals terminating during 1980 has not yet been entered into the REIR System.

TABLE 13

TRANSIENT WORKERS PER CALENDAR QUARTER  
AT NUCLEAR POWER FACILITIES  
1972 - 1980\*

Year	No. of Commercial Reactors	No. of Workers Terminated by Two or More Licensees		Collective Dose (Man-rem)	Average Dose (Rems)
		No. of Workers Terminated by Two or More Licensees			
1972	18	57		57	1.00
1973	24	146		123	0.84
1974	34	285		157	0.56
1975	44	684		493	0.72
1976	53	1,257		889	0.71
1977	57	1,435		851	0.59
1978	64	1,500		680	0.45
1979	67	1,754		802	0.46
1980	69	1,706		743	0.44

Year	No. of Workers Terminated by Three Licensees		Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Four Licensees		Collective Dose (Man-rem)	Average Dose (Rems)
	No. of Workers Terminated by Three Licensees				No. of Workers Terminated by Four Licensees			
1972	2	3	1.50	2	2	2.00		
1973	11	13	1.18	2	2	1.00		
1974	28	24	0.86	2	1	0.50		
1975	70	62	0.89	5	4	0.80		
1976	145	146	1.01	17	23	1.35		
1977	147	115	0.78	17	18	1.06		
1978	165	75	0.45	32	15	0.47		
1979	178	130	0.73	49	28	0.51		
1980*	201	95	0.47	43	26	0.60		

\* Data for 1980 may not be 100% complete.

\* Data for 1980 may not be 100% complete.

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 one instance was found in 1980 in which a worker slightly exceeded his quarterly limit of three rems as a result of his working at two different licensed facilities within one calendar quarter. This was because the dose that he had received while employed by the first utility was revised upward later in the year. This resulted in his receiving a quarterly dose of 3.1 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 the four categories of NRC licensees are not submitted to the NRC.

#### 4.3 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. In 1980 the number of these workers increased by about 600 workers over the 3,200 that was found in previous years. The average dose, however, 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 0.89 rems, while the average dose of workers employed by four or more licensees has continued to decline to a value of 1.69 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 statistics obtained from the compilation of the annual reports into one annual summary (Table 7) for all nuclear power facilities, which was a problem 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 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 the three years 1977-1979 there were about 3,200 workers each year, but because they worked at two or more nuclear power facilities during each year, they were counted as being some 8,000 workers. Some individuals were reported by as many as nine different facilities. In 1980, there were 3,748

TABLE 14  
TRANSIENT WORKERS PER CALENDAR YEAR  
AT NUCLEAR POWER FACILITIES

1977 - 1980

Year	No. of Commercial Reactors	No. of Workers Terminated by Two or More Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
1977	57	3,161	3,776	1.29
1978	64	3,171	3,192	1.01
1979	67	3,190 *	3,014 *	0.94
1980	69	3,748 *	3,877 *	1.03

Year	No. of Workers Terminated by Two Licensees	Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Three Licensees	Collective Dose (Man-rem)	Average Dose (Rems)	No. of Workers Terminated by Four or More Licensees	Collective Dose (Man-rem)	Average Dose (Rems)
1977	2,166	1,987	0.92	572	842	1.47	423	947	2.24
1978	2,107	1,477	0.70	608	779	1.28	456	936	2.06
1979	2,286 *	1,690 *	0.74	565 *	666 *	1.18	339 *	658 *	1.94
1980	2,371 *	2,373 *	0.89	618 *	730 *	1.18	489 *	774 *	1.69

\* This data may be incomplete because all of the termination data for the years 1979 and 1980 may not have been computerized when this table was compiled.

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

Type of Distribution and Year	Number of Individuals with Whole Body Doses in the Ranges (Rems)																				Total Man- Rems	Total Workers	Avg. Dose (Rems)	Avg. Meas. Dose (Rems)												
	Less than Measurable	Meas'ble <0.10	0.10 0.25	0.25 0.50	0.50 0.75	0.75 1.00	1.00 2.00	2.00 3.00	3.00 4.00	4.00 5.00	5.00 6.00	6.00 7.00	7.00 8.00	8.00 9.00	9.00 10.00	10.00 11.00	11.00 12.00	>12.00																		
Actual Distribution of Transients - 1977	228	782	300	238	184	151	500	381	213	100	50	23	11	2																			3,161	3,776	1.19	1.29
Compiled Distribution of Transients - 1977	1,684	2,357	804	788	552	417	1,019	982	55	8	6																						7,835	3,776	0.48	0.80
Actual Distribution of Transients - 1978	302	869	316	286	186	144	482	293	159	106	46	15	2		1																		3,187	3,193	1.01	1.11
Compiled Distribution of Transients - 1978	2,025	2,402	916	780	495	377	859	248	51	11	2																						8,164	3,193	0.39	0.52
Actual Distribution of Transients - 1979	312	713	317	300	229	212	541	338	160	48	24	6	1																				3,190	3,014	0.94	1.06
Compiled Distribution of Transients - 1979	1,832	2,171	1,020	846	678	375	814	225	35	2	1																						7,999	3,014	0.38	0.49
Actual Distribution of Transients - 1980	435	829	387	301	234	184	603	402	223	108	22	11	4	3	1																		3,748	3,877	1.04	1.17
Compiled Distribution of Transients - 1980	2,344	2,518	1,045	891	606	457	1,096	324	41	15	1	3	1																				9,340	3,877	0.42	0.55

TABLE 15b  
EFFECTS OF TRANSIENT WORKERS ON ANNUAL STATISTICAL COMPILATIONS

a	Compiled Statistical Distribution — 1977	27,071	16,523	6,760	5,179	3,300	2,500	6,174	2,836	1,130	569	141	66	36	21	6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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<sup>a</sup>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 dose 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.

of these transients who were counted as 9,340 individuals. They incurred a collective dose of 3,877 man-rem which resulted in an average measurable dose of 1.17 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 last four years. 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 compilation of these reports would result in individuals being counted several times in dose ranges lower than the range in which their total accumulated dose (the sum of the personnel monitoring results incurred at each facility during the year) would actually place them. Thus, while the total collective dose would remain about the same, the total number of workers and the average dose could be affected by this multiple reporting. This was found to be true.

In each of the four years shown, there were about 3,500 too many workers indicated as having received measurable doses, and too few of these workers were shown 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 451 such workers. This resulted in an average measurable dose of 0.81 rems rather than the 0.74 rems obtained from the compiled reports. Although the number of these transient workers remained about the same during 1978 and 1979, the number of them with doses exceeding five rems decreased considerably during these two years. In 1979 the compiled annual reports indicated 130 workers with doses exceeding five rems, while the adjusted compilation indicated some 160 such workers. In 1980, however, the number of these workers increased such that 347 workers with doses greater than five rems were found in the adjusted compilation. But since the number of these transient workers receiving measurable doses is only about 5% 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.

## 5. PERSONNEL OVEREXPOSURES

Table 16 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 1980, the number of overexposed individuals increased over last year's figure, but none of the whole body doses exceeded five rems. Most of the individuals overexposed in 1980 were involved in steam generator testing and repair work at Southern California Edison's San Onofre plant during the second and third quarters. The licensee failed to properly monitor the area of the body (the top of the head) most likely to receive the highest dose. Recalculation of the dose to account for this resulted in some 42 individuals possibly receiving doses between 3.2 and 4.4 rems during the second quarter and 24 individuals receiving doses between 3.2 and 4.9 rems during the third quarter.

TABLE 16  
PERSONNEL OVEREXPOSURES AT POWER REACTORS

Year	Number of Workers Overexposed to External Radiation	1971 - 1980			Maximum Exposure
		Sum of Whole Body Doses (Man-rams)	Maximum Whole Body Dose (Rems)	Number of Workers 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	155.9	6.1	12	433 MPC-hrs
1975	14	44.2	3.8	7	13.5 rem (lung)
1976	20	74.3	10.1	1	248 MPC-hrs
1977	27	52.9	3.6	0	—
1978	9	71.1	27.3	0	—
1979	21	43.4	10.1	0	—
1980	73	266.2	4.9	0	—

## REFERENCES\*

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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 - 1980**

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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 Contractor	Man-rem per Personnel Type		Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others		Station	Utility		
ARKANSAS 1 Docket 50-313; DPR-51 1st commercial operation 12/74 Type - PWR Capacity - 836 MWe	1975	588.0	76.5	147	21						0.14	0.0
	1976	464.6	56.6	476	289	27	262	100	189		0.61	0.6
	1977	610.3	76.8	601	256	28	228	111	145		0.43	0.4
	1978	627.2	77.5	722	189	32	157	109	80		0.26	0.3
	1979	397.0	55.3	1321	369	54	315	252	117		0.28	0.9
	1980	452.8	63.7	1233	342	81	261	213	129		0.28	0.8
BEAVER VALLEY 1 Docket 50-334; DPR-66 1st commercial operation 10/76 Type - PWR Capacity - 811 MWe	1977	355.6	57.0	331	87	8	79	58	29		0.26	0.2
	1978	304.2	40.8	646	190	11	179	152	38		0.29	0.6
	1979	221.0	40.0	704	132	22	110	67	65		0.19	0.6
	1980	39.8	6.8	1817	553	76	477	477	76		0.30	13.9
BIG ROCK POINT Docket 50-155, DPR-6 1st commercial operation 3/63 Type - BWR Capacity - 64 MWe	1969	48.1		165	136						0.82	2.8
	1970	43.5		290	194						0.67	4.5
	1971	44.4		260	184						0.71	4.1
	1972	43.5		195	181						0.93	4.2
	1973	50.9		241	285			119	166		1.18	5.6
	1974	40.7	70.3	281	276			42	234		0.98	6.8
	1975	35.1	59.8	300	180	54	222	20	160		0.60	5.1
	1976	29.5	50.1	488	289	58	122	20	160		0.59	9.8
	1977	43.6	73.4	455	334	82	207	105	184		0.72	7.7
	1978	48.5	77.9	285	175	94	240	60	274		0.61	3.6
	1979	13.0	23.5	623	455	93	82	9	166		0.73	35.0
	1980	48.9	79.0	599	354	89	366	102	353		0.59	7.2
						16	538	91	263			
BROWNS FERRY 1, 2, 3 Docket 50-259, 50-260, 50-296; DPR-33, -52, -68 1st commercial operation 8/74, 3/75, 3/77 Type - BWR Capacity - 1065, 1065, 1065 MWe	1975	161.7	17.8	2380	325						0.14	2.0
	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	2639	1667	4	1821	49	1776		0.62	0.7
	1980	2182.1	73.6	2712	1825						0.67	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-REMs	Man-REMs per Work Function		Man-REMs per Contractor	Man-REMs per Station & Utility	Average Dose per Worker (REMs)	Man-REMs per MW-Yr
						Operations	Maintenance & Others				
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	311	222	104	0.26	1.1
	1977	291.1	55.7	1512	1119	48	1071	782	337	0.74	3.8
	1978	1173.1	83.7	1458	1004	99	905	695	309	0.69	0.8
	1979	810.0	60.1	2891	2602	97	2505	2074	528	0.90	3.2
	1980	687.2	52.2	3788	3870	111	3759	3098	772	1.02	5.6
CALVERT CLIFFS 1, 2 Docket 50-317, 50-318; DPR-53, -69 1st commercial operation 5/75, 4/77 Type - PWR Capacity - 810, 825 MWe	1976	753.4	95.2	507	74	28	46	8	66	0.15	0.1
	1977	583.0	72.1	2265	547	36	511	224	323	0.24	0.9
	1978	1188.5	75.8	1391	500	13	487	143	357	0.36	0.4
	1979	1161.0	74.0	1428	805	33	772	423	382	0.56	0.7
	1980	1309.9	84.1	1496	677	15	662	402	275	0.45	0.5
COOK 1, 2 Docket 50-315; DPR-58, -74 1st commercial operation 8/75, 7/78 Type - PWR Capacity - 1044 MWe, 1032 MWe	1976	807.4	83.1	395	116	13	103	71	45	0.29	0.1
	1977	573.0	76.1	802	299	21	278	138	161	0.37	0.5
	1978	744.8	73.6	778	336	49	287	139	197	0.43	0.4
	1979	1373.0	65.3	1445	718	45	673	454	264	0.50	0.5
	1980	1552.4	74.1	1345	493	46	447	323	170	0.37	0.3
COOPER STATION Docket 50-292; DPR-46 1st commercial operation 7/74 Type - BWR Capacity - 764 MWe	1975	456.4	83.6	579	117	30	87	19	98	0.20	0.2
	1976	433.3	75.5	763	350	39	311	210	140	0.46	0.8
	1977	538.2	86.2	315	197	50	147	66	131	0.63	0.4
	1978	576.0	91.0	297	158	40	118	58	100	0.53	0.3
	1979	591.0	87.6	426	221	50	171	89	132	0.52	0.4
	1980	448.3	71.2	785	859	70	783	644	215	1.09	1.9
CRYSTAL RIVER 3 Docket 50-302; DPR-72 1st commercial operation 3/77 Type - PWR Capacity - 797 MWe	1978	311.5	41.4	643	321	8	313	244	77	0.50	1.0
	1979	453.0	58.9	1150	495	29	466	346	149	0.43	1.1
	1980	402.1	53.2	1053	625	24	601	382	243	0.59	1.6

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function Operations & Maint.	Man-rem per Personnel Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
DAVIS-BESSE 1 Docket 50-346; NPF-3 1st commercial operation 11/77; Type - PWR Capacity - 892 MWe	1978	326.4	48.7	421	48	13	14	34	0.11	0.1
	1979	381.0	67.0	304	30	8	5	25	0.10	0.1
	1980	256.4	36.2	1283	154	4	121	33	0.12	0.6
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	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	2252	1171	1.48	4.8
	1976	1127.2	80.8	1746	1680	228	749	931	0.96	1.5
	1977	1132.9	77.0	1862	1693	316	693	1000	0.91	1.5
	1978	1242.2	79.5	1946	1529	204	619	910	0.79	1.2
	1979	1013.0	74.7	2407	1800	191	641	1159	0.75	1.8
	1980	1074.4	55.0	2717	2105	236	1093	1012	0.77	2.0
DUANE ARNOLD Docket 50-331; DPR-4q 1st commercial operation 2/75 Type - BWR Capacity - 515 MWe	1976	305.2	78.0	350	105	14	62	43	0.30	0.3
	1977	343.6	78.9	538	299	36	220	79	0.56	0.8
	1978	149.2	33.2	1112	974	59	932	42	0.88	6.5
	1979	352.0	78.0	757	275	35	219	56	0.36	0.8
	1980	339.1	73.3	1108	671	32	570	101	0.61	2.0
FARLEY 1 Docket 50-348; NPF-2 1st commercial operation 12/77 Type - PWR Capacity - 814 MWe	1978	713.8	86.5	527	108	39	34	74	0.20	0.1
	1979	211.0	28.6	1227	643	108	460	183	0.52	3.0
	1980	557.3	69.3	1330	435	106	185	250	0.33	0.8

\* 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-rems	Man-rems per Work Function Operations	Man-rems per Contract-Station Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
FITZPATRICK Docket 50-333; DPR-59 1st commercial operation 7/75 Type - BWR Capacity - 802 MWe	1976	489.0	71.6	600	202			0.34	0.4
	1977	460.5	68.4	1380	1080	14	937	0.78	2.3
	1978	497.0	72.1	904	909	166	597	1.00	1.8
	1979	349.0	50.8	850	859	169	538	1.01	2.5
	1980	509.5	70.3	2056	2040	118	1808	0.99	4.0
FORT CALHOUN Docket 50-285; DPR-40 1st commercial operation 9/73 Type - PWR Capacity - 465 MWe	1974	294.0	83.5	327	71		24	0.22	0.2
	1975	252.3	67.4	469	294		92	0.63	1.2
	1976	265.9	69.5	516	313	28	38	0.61	1.2
	1977	351.8	79.4	535	297	33	72	0.56	0.8
	1978	342.3	75.1	596	410	59	151	0.59	1.2
	1979	440.0	95.7	451	126	19	47	0.28	0.3
	1980	242.3	60.4	891	668	38	426	0.75	2.8
GINNA Docket 50-244; DPR-18 1st commercial operation 7/70 Type - PWR Capacity - 470 MWe	1971	327.8		340	430	69	108	1.26	1.3
	1972	293.6		677	1032	71	278	1.52	3.5
	1973	409.5		319	224	55	84	0.70	0.5
	1974	253.7	62.4	884	1225			1.39	4.8
	1975	366.2	76.7	688	636			0.78	1.5
	1976	248.8	58.2	758	401	29	210	0.84	2.5
	1977	365.6	85.5	530	450	15	120	0.76	1.1
	1978	386.5	80.6	657	450	20	98	0.68	1.2
	1979	355.0	72.8	878	592	68	207	0.67	1.7
	1980	370.5	76.0	1073	708	64	302	0.66	1.9
HADDAM NECK (CONN. YANKEE) Docket 50-213; DPR-61 1st commercial operation 1/68 Type - PWR Capacity - 550 MWe	1969	438.5		138	106		27	1.77	0.2
	1970	424.7		734	689		463	0.94	1.6
	1971	502.2		289	342		166	1.18	0.7
	1972	515.6		355	325		181	0.91	0.6
	1973	293.1		951	697		544	0.73	2.4
	1974	521.4	91.2	550	201			0.36	0.4
	1975	494.3	89.9	795	703	20		0.88	1.4
	1976	482.9	82.5	644	449	5	253	0.70	0.9
	1977	480.7	83.9	894	641	59	440	0.72	1.3
	1978	563.4	98.6	216	117	25	18	0.54	0.2
	1979	493.0	87.5	1226	1161	73	783	0.95	2.4
	1980	426.8	75.0	1860	1353	175	1076	0.73	3.2

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		
HATCH 1,2 <sup>a</sup> Docket 50-321; DPR-57; NPF-05 1st commercial operation 12/75; 9/79 Type - BWR Capacity - 764, 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
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	112	227	1.07	7.3
	1975	45.3	83.9	265	339	131	208	50	633	1.28	7.5
	1976	23.5	46.4	523	683	37	646	973	931	1.31	29.1
	1977	0	0	1063	1904	24	1880	145	190	1.79	-
	1978	0	0	320	335	13	322	2	29	1.05	-
	1979	0	0	135	31	11	20	3	19	0.23	-
	1980	0	0	142	22	10	12			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 Capacity - 0, 859, 911 MWe	1969	206.2			298						1.4
	1970	43.3			1639						37.8
	1971	154.0			768						6.0
	1972	142.3			987						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 Operations	Man-rem per Function Maintenance & Others	Man-rem per Personnel Contractor	Man-rem per Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
INDIAN POINT 1,* 2 Docket 50-3; 50-247, DPR-6, -26 1st commercial operation 10/62, 8/73 Type - PWR Capacity - 0.856 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
INDIAN POINT 3** Docket 50-286; DPR-64 1st commercial operation 8/76 Type - PWR Capacity - 965 MWe	1979	568.0	66.5	808	636	63	573	482	154	0.79	1.1
	1980	367.3	53.2	977	308	47	261	210	98	0.32	0.8
KEWAUNEE Docket 50-305; DPR-43 1st commercial operation 6/74 Type - PWR Capacity - 522 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
LACROSSE Docket 50-409; DPR-45 1st commercial operation 11/69 Type - BWR Capacity - 48 MWe	1970	15.3		218	111			40	71	0.72	7.2
	1971	33.1		151	158					1.14	4.8
	1972	29.2		157	172					1.41	5.9
	1973	24.4		115	221			6	133	1.21	9.1
	1974	37.9	81.0	115	139	89	50			1.42	3.7
	1975	32.0	69.6	165	234			6	105	0.94	7.3
	1976	21.2	47.6	118	111	40	71	8	216	1.59	5.2
	1977	11.3	33.7	141	224	60	164	6	158	0.90	19.8
	1978	21.6	62.0	182	164	69	95	21	155	1.22	7.6
	1979	24.0	71.8	153	186	65	121	11	207	1.76	7.7
	1980	26.4	68.5	124	218	63	155				8.3

\*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	35.0	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	638	420	54	366	262	158	0.66	0.6
	1979	537.0	68.4	393	154	70	84	26	128	0.39	0.3
	1980	527.0	72.2	735	462	117	345	277	185	0.63	0.9
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	1.6
	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	2587	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
	1976	545.7	78.7	620	168	26	142	73	95	0.27	0.3
MILLSTONE POINT 2 Docket 50-336; DPR-65 1st commercial operation 12/75 Type - PWR Capacity - 864 MWe	1977	518.7	65.7	667	242	38	204	153	89	0.36	0.5
	1978	536.6	67.3	1420	1621	72	1549	1534	87	1.14	3.0
	1979	520.0	62.8	757	472	81	391	305	167	0.62	0.9
	1980	579.3	69.2	892	636	76	560	514	122	0.71	1.1
	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	258	0.41	1.0
MONTICELLO Docket 50-203; DPR-22 1st commercial operation 6/71 Type - BWR Capacity - 536 MWe	1975	344.8	72.2	1353	1353					1.00	3.9
	1976	476.4	91.5	326	1000	89	204	51	212	0.81	0.5
	1977	425.6	79.9	860	375	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	105	0.42	0.3
	1980	411.8	78.2	1114	531	82	449	248	283	0.48	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 Operations	Man-rem per Function Maintenance & Others	Man-rem per Contractor	Man-rem per Personnel Type Radiation & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
NINE MILE POINT 1 Docket 50-220; DPR-63 1st commercial operation 12/69 Type - BWR Capacity - 610 MWe	1970	227.0		821	44	12	32	17	27	0.05	0.2
	1971	346.5		1006	195	43	152	63	132	0.19	0.6
	1972	381.8		735	285	59	226	28	257	0.39	0.7
	1973	411.0		550	567	139	428	118	449	1.03	1.4
	1974	385.9	70.5	740	824	42	782	279	545	1.11	2.1
	1975	359.0	72.1	649	681	68	613	203	478	1.05	1.9
	1976	484.6	88.2	392	428	52	376	229	199	1.09	0.9
	1977	347.4	59.2	1093	1383	41	1342	883	500	1.26	4.0
	1978	527.7	95.1	561	314	59	255	26	288	0.56	0.6
	1979	354.0	66.1	1326	1497	106	1391	940	557	1.13	4.2
	1980	533.9	92.3	1174	591	75	516	251	340	0.50	1.1
	1979	507.0	61.7	2025	449	78	371	190	259	0.22	0.9
	1980	681.8	86.5	2086	218	128	90	85	133	0.10	0.3
NORTH ANNA 1 Docket 50-338; HPI-04 1st commercial operation 6/78 Type - PWR Capacity - 878 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
	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
OYSTER CREEK Docket 50-219; DPR-16 1st commercial operation 12/69 Type - BWR Capacity - 620 MWe	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	1411	467	95	372	135	332	0.55	0.9
	1980	541.0	41.4	1906	1733	97	1636	1182	661	0.88	7.4

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		
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	100	13	87	23	77	0.30	2.0
	1977	616.6	91.4	849	764	52	712	173	591	0.90	0.2
	1978	320.2	49.7	1599	854	99	755	360	494	0.53	2.4
	1979	415.0	59.9	1307	424	191	233	312	112	0.32	2.1
	1980	288.3	42.9								1.5
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	1155	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					0.83	1.7
PILGRIM 1 Docket 50-293; DPR-35 1st commercial operation 12/72 Type - BWR Capacity - 669 MWe	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
	1976	287.8	60.7	1317	2648	66	2582	2270	378	2.01	9.2
	1977	316.6	61.4	1875	3142	146	2996	2176	966	1.68	9.9
	1978	519.5	83.1	1667	1327	157	1170	895	432	0.80	2.5
	1979	574.0	89.4	2458	1015	131	884	516	499	0.41	1.8
	1980	360.3	56.2	3549	3626	207	3419	3076	550	1.02	10.1

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				
POINT BEACH 1, 2 Docket 50-266, 50-301; DPR-24, -27 1st commercial operation 12/70, 10/72 Type - PWR Capacity - 495, 495 MWe	1971	393.4			164						0.4
	1972	378.3			580						1.5
	1973	693.7		501	588	72	516	81	214	1.17	0.8
	1974	760.2	81.3	400	295	70	225			0.74	0.4
	1975	801.2	82.9	339	459					1.35	0.6
	1976	857.3	86.7	313	370	58	312	107	263	1.18	0.4
	1977	873.9	87.3	417	429	63	366	212	217	1.03	0.5
	1978	914.4	90.9	336	320	71	249	111	209	0.95	0.3
	1979	808.0	80.8	610	644	65	579	449	195	1.06	0.8
	1980	727.2	82.5	561	598	60	538	420	178	1.07	0.8
PRAIRIE ISLAND 1, 2 Docket 50-282, 50-306; DPR-42, -60 1st commercial operation 12/73, 12/74 Type - PWR Capacity - 503, 500 MWe	1974	181.9	43.9	150	18			5	13	0.12	0.1
	1975	836.0	83.3	477	123					0.26	0.1
	1976	725.2	76.6	818	447	68	379	235	212	0.55	0.6
	1977	922.9	87.2	718	300	73	227	60	240	0.42	0.3
	1978	941.1	92.2	546	221	43	178	48	173	0.40	0.2
	1979	865.0	86.0	594	180	29	151	49	131	0.30	0.2
	1980	800.7	79.9	983	353	40	313	141	212	0.36	0.4
	1974	958.1	72.3	678	482			36	446	0.71	0.5
	1975	833.6	68.4	1083	1618	114	1504	692	926	1.49	1.9
	1976	951.2	73.1	1225	1651	269	1382	648	1003	1.35	1.7
QUAD CITIES 1, 2 Docket 50-254, 50-265; DPR-29, -30 1st commercial operation 2/73, 3/73 Type - BWR Capacity - 769, 769 MWe	1977	970.1	84.0	907	1031	108	923	373	658	1.14	1.1
	1978	1124.5	88.6	1207	1618	156	1462	722	896	1.34	1.4
	1979	1075.0	84.6	1688	2158	215	1943	1250	908	1.28	2.0
	1980	866.9	64.4	3089	4838	291	4547	3657	1181	1.57	5.6
	1976	268.1	30.4	297	58	6	52	17	41	0.19	0.2
	1977	706.4	77.1	515	390	61	329	248	142	0.76	0.5
	1978	607.7	80.5	508	323	76	247	176	147	0.64	0.5
	1979	687.0	91.1	287	126	27	99	64	62	0.44	0.2
	1980	530.9	60.4	890	412	110	302	281	131	0.46	0.8
	1976	268.1	30.4	297	58	6	52	17	41	0.19	0.2
RANCHO SECO Docket 50-312; DPR-54 1st commercial operation 4/75 Type - PWR Capacity - 873 MWe	1977	706.4	77.1	515	390	61	329	248	142	0.76	0.5
	1978	607.7	80.5	508	323	76	247	176	147	0.64	0.5
	1979	687.0	91.1	287	126	27	99	64	62	0.44	0.2
	1980	530.9	60.4	890	412	110	302	281	131	0.46	0.8

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rems	Man-rems per Work Function	Man-rems per Contractor	Man-rems per Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
ROBINSON 2 Docket 50-261; DPR-23 1st commercial operation 3/71 Type - PWR Capacity - 665 MWe	1972	580.0		245	215	42	137	78	0.88	0.4
	1973	455.1		631	695	185			0.84	1.5
	1974	578.1	83.3	853	672	487			0.79	1.2
	1975	501.8	72.7	849	1142				1.34	2.3
	1976	585.5	84.7	597	715	30	457	758	1.20	1.2
	1977	511.5	85.2	634	455	52	223	232	0.72	0.9
	1978	480.5	72.0	943	963	63	529	434	1.02	2.0
	1979	482.0	70.8	1454	1188	60	794	394	0.82	2.5
	1980	387.3	62.2	2009	1852	79	1379	473	0.92	4.8
SALEM 1 Docket 50-272; DPR-70 1st commercial operation 6/77 Type - PWR Capacity - 1019 MWe	1978	546.4	55.6	574	122	28	32	90	0.21	0.2
	1979	250.0	25.5	1488	584	100	359	225	0.39	2.3
	1980	680.6	69.2	1704	449	55	281	168	0.26	0.7
SAN ONOFRE 1 Docket 50-206; DPR-13 1st commercial operation 1/68 Type - PWR Capacity - 436 MWe	1969	314.1		123	42	10	5	37	0.34	0.1
	1970	365.9		251	155	13	59	96	0.62	0.4
	1971	362.1		121	50	12	3	47	0.41	0.1
	1972	338.6		326	256	29	117	139	0.78	0.8
	1973	273.7		570	353	40	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	629	251	0.66	2.9
	1977	281.2	63.7	985	847	77	451	396	0.86	3.0
	1978	323.2	80.2	764	401	25	234	167	0.52	1.2
	1979	401.0	90.2	521	139	23	65	74	0.27	0.3
	1980	97.3	22.3	3063	2387	219	2018	369	0.78	24.5
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	92	60	0.34	0.2
	1978	606.4	76.5	797	337	15	140	197	0.42	0.6
	1979	592.0	74.0	907	438	25	209	229	0.48	0.7
	1980	627.9	77.5	1074	532	82	195	337	0.50	0.8

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

Reporting Organization	Year	Mega-watt-Year (MW-Yr)	Unit Availability Factor	Total Personnel With Measurable Doses	Total Man-rem	Man-rem per Work Function		Contractor	Man-rem per Personnel Type Station & Utility	Average Dose per Worker (Rems)	Man-rem per MW-Yr
						Operations	Maint. & Others				
SURREY 1, 2 Docket 50-280, 50-281; DPR-32, -37 1st commercial operation 12/72, 5/73 Type - PWR Capacity - 775, 775 MWe	1973	420.6		936	152	72	812			0.16	0.4
	1974	717.4	49.8	1715	884	27	1622	106.3	584	0.51	1.2
	1975	1079.0	70.8	1948	1649	444	2721	1873	1292	0.85	1.5
	1976	930.7	60.4	2753	3165	348	1959	1380	927	1.15	3.4
	1977	1139.0	72.2	1860	2307	726	1111	1029	808	1.24	2.0
	1978	1210.6	77.2	2203	1837	173	3411	2975	609	0.83	1.5
	1979	343.0	42.3	5065	3584	353	3483	3117	719	0.71	10.4
	1980	568.2	40.3	5317	3836					0.72	6.6
THREE MILE ISLAND 1, 2 Docket 50-289; DPR-50, -73 1st commercial operation 9/74, 12/78 Type - PWR Capacity - 776 MWe	1975	675.9	82.2	131	73	23	263	18	55	0.56	0.1
	1976	530.0	65.4	819	286	15	344	69	217	0.35	0.5
	1977	664.5	80.9	1122	359	23	481	128	231	0.32	0.5
	1978	690.0	85.1	1929	504	166	1004	235	269	0.26	0.7
	1979	266.0	21.9	3975	1170	29	365	762	408	0.29	4.4
	1980	0.0	0.0	2328	394			234	160	0.17	-
	1977	792.0	92.6	591	174	30	144	105	69	0.29	0.2
	1978	205.5	20.6	711	319	81	238	124	195	0.45	1.5
TROJAN Docket 50-344; NPF-1 1st commercial operation 5/76 Type - PWR Capacity - 1080 MWe	1979	631.0	58.1	736	257	74	183	113	144	0.35	0.4
	1980	727.5	72.5	1159	421	77	344	305	116	0.36	0.6
	1973	401.9		444	78	88	366	202	252	0.18	0.2
	1974	953.6		794	454	270	606	559	317	0.57	0.5
	1975	1003.7	74.9	1176	876	89	1095	868	316	0.74	0.9
	1976	974.2	71.2	1647	1184	94	942	522	514	0.72	1.2
	1977	979.5	72.1	1319	1036	90	942	546	486	0.78	1.1
	1978	1000.2	78.8	1336	1032	299	1381	997	683	0.77	1.0
TURKEY POINT 3, 4 Docket 50-250, 50-251; DPR-31, -41 1st commercial operation 12/72, 9/73 Type - PWR Capacity - 657, 657 MWe	1979	811.0	62.4	2002	1680	232	1419	1218	433	0.84	2.1
	1980	990.6	73.6	1803	1651					0.92	1.7

\* 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 Contract-Station & Utility	Average Dose per Worker (Rems)	Man-rems per MW-Yr
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	1973	222.1		244	85				
	1974	303.5		357	216	24	103	0.35	0.4
	1975	429.0	87.8	282	153	70	63	0.60	0.7
	1976	389.6	77.1	815	411	36	246	0.54	0.4
	1977	423.5	85.1	641	258	83	175	0.50	1.0
	1978	387.5	75.9	934	339	78	158	0.40	0.6
	1979	414.0	82.1	1220	1170	546	642	0.36	0.9
	1980	357.8	71.5	1443	1338	141	926	0.96	2.8
YANKEE ROWE Docket 50-29; DPR-3 1st commercial operation 7/61 Type - PWR Capacity - 1171 MWe	1969	138.3		193	215	83	78	1.11	1.5
	1970	146.1		355	255	90	158	0.72	1.7
	1971	173.5		155	90	46	19	0.88	0.8
	1972	78.7		282	255	63	146	0.90	3.2
	1973	127.1		133	99		47	0.74	0.8
	1974	111.3		243	205	52	99	0.84	1.8
	1975	145.1	82.4	249	116	52	66	0.47	0.8
	1976	152.2	89.8	152	59	17	4	0.39	0.4
	1977	124.6	73.9	725	356	28	174	0.49	2.9
	1978	145.0	81.0	565	282	26	95	0.50	1.9
	1979	149.0	81.6	441	127	16	52	0.29	0.9
	1980	35.6	22.0	502	213	6	90	0.42	6.0
	1974	425.3	71.1	306	56	17	13	0.18	0.1
	1975	1181.5	74.9	436	127	64	49	0.29	0.1
	1976	1134.9	61.9	774	571	43	257	0.74	0.5
	1977	1358.6	75.0	784	1003	43	561	1.28	0.7
	1978	1613.5	80.2	1104	1017	150	418	0.92	0.6
	1979	1238.0	67.6	1472	1274	168	747	0.87	1.0
	1980	1411.2	74.1	1363	920	97	560	0.67	0.7
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	13	0.18	0.1
	1975	1181.5	74.9	436	127	64	49	0.29	0.1
	1976	1134.9	61.9	774	571	43	257	0.74	0.5
	1977	1358.6	75.0	784	1003	43	561	1.28	0.7
	1978	1613.5	80.2	1104	1017	150	418	0.92	0.6
	1979	1238.0	67.6	1472	1274	168	747	0.87	1.0
	1980	1411.2	74.1	1363	920	97	560	0.67	0.7

**APPENDIX B**  
**Annual Whole Body Doses at**  
**Licensed Nuclear Power Facilities**  
**1980**

Appendix B

ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES -1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	*Total Man-Rem
	No. Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0			
Arkansas 1, PWR	298	688	201	139	71	48	81	5								1,531	1,233	342
Beaver Valley, PWR	660	875	348	251	141	72	122	8								2,477	1,817	553
Big Rock Point, BWR	49	324	54	44	36	27	54	38	12	7	3					648	599	354
Browns Ferry 1, 2, 3, BWRs	9,112	674	401	450	305	246	468	143	25							11,824	2,712	1,825
Brunswick 1, 2, BWRs	1,611	1,084	471	418	287	229	173	329	274	124						5,399	3,788	3,870
Calvert Cliffs 1, 2, PWRs	648	477	296	266	155	124	156	15	7							2,144	1,496	677
Cook 1, 2, PWRs	584	510	269	257	124	73	98	13	1							1,929	1,345	493
Cooper Station, BWR	869	225	74	47	49	47	160	136	46	1						1,654	785	859
Crystal River, PWR	672	321	157	187	98	74	161	51	3	0	1					1,725	1,053	625

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.



Appendix B

ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES- 1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)												Total Number Monitored	Number with Measurable Exposure	* Total Measurable Man-Rems
	No. Meas. Individuals Exposure	Meas. Dose <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	5.0-8.0	8.0-10.0			
Davis-Besse 1, PWR	1,150	922	261	63	21	6	8	1	0	0	1		2,433	1,283	154
Dresden 1, 2, 3, BWRs	678	920	417	316	205	123	338	312	52	25	8	1	3,395	2,717	2,105
Duane Arnold, BWR	822	339	172	184	119	73	158	45	15	2	1		1,930	1,108	671
Farley 1, PWR	824	635	241	191	92	64	93	13	1				2,154	1,330	435
Fitzpatrick, BWR	527	612	260	199	175	116	321	185	127	49	9	3	2,583	2,056	2,040
Fort Calhoun, PWR	164	354	88	86	63	55	136	76	27	6			1,055	891	668
Ginna, PWR	184	388	133	117	92	65	201	65	11	1			1,257	1,073	708
Haddam Neck, PWR	255	469	282	226	192	178	395	89	26	3			2,115	1,860	1,353
Hatch 1, 2**, BWRs	1,286	1,039	396	258	98	73	61	4	0	1			3,216	1,930	449

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.

\*\* Hatch 2 was counted for the first time in 1980.

## Appendix B

## ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES- 1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)																Total Number Monitored	Number with Measurable Exposure	* Total Man-Rems
	No Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0				
Humboldt Bay, BWR	53	99	17	20	1	3	2									195	142	22	
Indian Point 1, 2, PWRs	380	487	269	237	142	106	227	95	12	2						1,957	1,577	971	
Indian Point 3, PWR	440	421	228	147	82	48	38	7	3	3						1,417	977	308	
Kewaunee, PWR	133	160	63	59	36	38	44	1								534	401	165	
LaCrosse, BWR	68	32	10	7	3	5	23	15	12	7	5	5				192	124	218	
Maine Yankee, PWR	218	268	112	87	82	42	144	28	12							983	738	462	
Millstone 1, BWR	715	758	407	447	336	249	645	157	20	5						3,739	3,024	2,158	
Millstone 2, PWR	210	223	120	132	99	74	192	46	6	1						1,103	892	636	
Monticello, BWR	790	374	244	152	113	75	125	20	11							1,904	1,114	531	

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.

## Appendix B

## ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES - 1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)																Total Number Monitored	Number with Measurable Exposure	* Total Man-Rems
	No. Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0				
Nine Mile Point, BWR	290	521	199	127	54	57	149	59	8							1,464	1,174	591	
North Anna 1, PWR	443	1,782	160	69	41	17	12	3	1	0	1					2,529	2,086	218	
Oconee 1, 2, 3, PWRs	843	815	362	289	190	113	265	88	2							2,967	2,124	1,055	
Oyster Creek, BWR	272	463	303	230	135	120	476	173	62	4						2,238	1,966	1,733	
Palisades, PWR	78	776	156	124	76	50	97	23	5							1,385	1,307	424	
Peach Bottom 2, 3, BWRs	1,831	638	283	459	322	202	582	232	39	14	2	1				4,605	2,774	2,302	
Pilgrim, BWR	0	720	453	500	269	216	786	398	139	68						3,549	3,549	3,626	
Point Beach 1, 2, PWRs	158	97	40	60	60	49	175	65	10	4	1					719	561	598	
Prairie Island 1, 2, PWRs	418	452	176	157	58	30	97	13								1,401	983	353	

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.

## Appendix B

## ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES - 1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)														Total Number Monitored	Number with Measurable Exposure	* Total Man-Rems
	No Measurable Exposure	Measurable < 0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0		
Quad Cities 1, 2, BWRs	569	584	292	214	183	158	753	394	195	164	100	50	2			3,658	3,089 4,838
Rancho Seco, PWR	243	368	136	99	78	75	117	17								1,133	890 412
Robinson 2, PWR	751	633	218	201	135	142	373	181	81	45						2,760	2,009 1,852
Salem 1, PWR	1,014	929	354	174	89	55	87	15	1							2,718	1,704 449
San Onofre, PWR	712	1,149	376	312	196	194	532	175	56	29	14	13	14	3		3,775	3,063 2,387
St. Lucie 1, PWR	687	356	207	177	114	67	102	50	1							1,761	1,074 532
Surry 1, 2, PWRs	8,900	2,351	576	470	320	243	860	239	120	67	44	25	2			4,217	5,317 3,836
Three Mile Island 1, 2, PWRs	1,356	539	304	62	35	31	1									10,761	2,328 394
Trojan, PWR	576	472	228	178	100	82	91	8								1,135	1,159 421

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.

Appendix B

ANNUAL WHOLE BODY DOSES AT LICENSED NUCLEAR POWER FACILITIES - 1980

Plant Name, Type	Number of Individuals with Whole Body Doses in the Following Ranges (Rems)															Total Number Monitored	Number with Measurable Exposure	* Total Man-Rems
	No Measurable Exposure	Measurable <0.10	0.10-0.25	0.25-0.50	0.50-0.75	0.75-1.0	1.0-2.0	2.0-3.0	3.0-4.0	4.0-5.0	5.0-6.0	6.0-7.0	7.0-8.0	8.0-9.0	9.0-10.0			
Turkey Point 3, 4, PWRs	1,353	328	268	282	172	112	407	168	52	13	1					3,156	1,803	1,651
Vermont Yankee, BWR	599	359	218	211	113	71	210	192	36	32	1					2,042	1,443	1,338
Yankee Rowe, PWR	1,462	273	58	57	32	18	38	18	6	2						1,964	502	213
Zion 1, 2, PWRs	515	548	157	139	96	79	210	107	20	7						1,878	1,363	920
Fort St. Vrain HTGR	902	57	1													960	58	3

\* This item was not reported by the facility; it was calculated by the NRC staff using the method described in this document.  
 \*\* Fort St. Vrain was counted for the first time in 1980.



**APPENDIX C**  
**Number of Personnel and Man-rem**  
**by Work and Job Function**  
**1980**

**Note: A '+' preceding a plant name indicates that the licensee's input was recategorized by NRC staff.**

# APPENDIX C

PLANT: ARKANSAS 1 (PMR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)		TOTAL		STATION		TOTAL		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	16	1	7		6,766	0,777		3,252		
OPERATING PERSONNEL	28	0	0		17,017	0.0		0.0		
HEALTH PHYSICS PERSONNEL	15	0	51		6,953	0.0		24,736		
SUPERVISORY PERSONNEL	12	0	0		2,987	0.0		0.0		
ENGINEERING PERSONNEL	1	0	0		0,112	0.0		0.0		
TOTAL	72	1	58	131	33,835	0,777		27,988		62,600
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	68	0	81		20,445	0.0		25,984		
OPERATING PERSONNEL	0	0	0		0.0	0.0		0.0		
HEALTH PHYSICS PERSONNEL	0	0	4		0.0	0.0		0.745		
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0		0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0		0.0		
TOTAL	68	0	85	153	20,445	0.0		26,729		47,174
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	0	1	8		0.0	1,943		2,070		
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	2		0.0	0.0		0.509		
TOTAL	0	1	10	11	0.0	1,943		2,579		4,522
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	56	1	219		30,877	0,108		99,270		
OPERATING PERSONNEL	0	0	0		0.0	0.0		0.0		
HEALTH PHYSICS PERSONNEL	1	0	13		0,247	0.0		2,436		
SUPERVISORY PERSONNEL	3	0	0		0,885	0.0		0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0		0.0		
TOTAL	60	1	242	303	32,009	0,108		103,706		137,695
WASTE PROCESSING										
MAINTENANCE PERSONNEL	36	0	2		8,767	0.0		0,492		
OPERATING PERSONNEL	4	0	0		1,268	0.0		0.0		
HEALTH PHYSICS PERSONNEL	0	0	1		0.0	0.0		0,169		
SUPERVISORY PERSONNEL	2	0	0		0,236	0.0		0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0		0.0		
TOTAL	42	0	3	45	10,271	0.0		0,661		10,932
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	176	3	317	496	66,855	2,828		131,068		200,751
OPERATING PERSONNEL	32	0	0	32	18,285	0.0		0.0		18,285
HEALTH PHYSICS PERSONNEL	16	0	69	85	7,200	0.0		28,086		35,286
SUPERVISORY PERSONNEL	17	0	0	17	4,108	0.0		0.0		4,108
ENGINEERING PERSONNEL	222	3	12	237	96,560	0.0		4,481		101,041
GRAND TOTAL			398	643	262,828	2,828		162,535		262,923



## APPENDIX C

PLANT: BEAVER VALLEY 1 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL PERSONS	STATION			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	27	4	30				5,685	0,790	7,300	
OPERATING PERSONNEL	31	0	0				6,930	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	1	71				1,365	0.105	35,290	
SUPERVISORY PERSONNEL	0	0	0				0.0	0.0	0.0	
ENGINEERING PERSONNEL	4	3	27				0,655	0,685	9,215	
TOTAL	64	8	128	200			14,635	1,580	51,805	68,020
ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	68	7	225				28,120	1,370	102,345	
OPERATING PERSONNEL	6	0	0				0,815	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	1	19				0,740	0.180	4,010	
SUPERVISORY PERSONNEL	0	0	0				0.0	0.0	0.0	
ENGINEERING PERSONNEL	1	4	25				0,165	0,875	10,120	
TOTAL	76	12	269	357			29,840	2,425	116,475	148,740
IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	0	0	13				0.0	0.0	4,820	
OPERATING PERSONNEL	0	0	0				0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	2				0.0	0.0	0,285	
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	15	15			0.0	0.0	5,105	5,105
SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	6	0	354				0,970	0.0	204,910	
OPERATING PERSONNEL	1	0	0				0,130	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	18				0.0	0.0	3,050	
SUPERVISORY PERSONNEL	0	0	0				0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	1	24				0.0	0,135	18,365	
TOTAL	7	1	396	404			1,100	0,135	226,325	227,560
WASTE PROCESSING										
MAINTENANCE PERSONNEL	9	0	6				2,290	0.0	1,230	
OPERATING PERSONNEL	3	0	0				1,555	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	5				0.0	0.0	0,935	
SUPERVISORY PERSONNEL	0	0	0				0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0				0.0	0.0	0.0	
TOTAL	12	0	11	23			3,845	0.0	2,165	6,010
REFUELING										
MAINTENANCE PERSONNEL	29	0	28				14,465	0.0	23,485	
OPERATING PERSONNEL	1	0	0				0,195	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	6				0.0	0.0	0,950	
SUPERVISORY PERSONNEL	0	0	0				0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	1	0				0.0	0,240	1,600	
TOTAL	30	1	34	65			14,660	0,240	26,035	40,935
TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	139	11	656	806			51,530	2,160	344,090	397,780
OPERATING PERSONNEL	42	0	0	42			9,625	0.0	0.0	9,625
HEALTH PHYSICS PERSONNEL	3	2	121	126			2,105	0,285	44,520	46,910
SUPERVISORY PERSONNEL	0	0	0	0			0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	5	9	80	94			0,820	1,935	39,300	42,055
GRAND TOTAL	189	22	857	1068			64,080	4,380	427,910	496,370

## APPENDIX C

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

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS				CONTRACT & OTHERS	
*REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	23	29	17		6,566	3,757	0,892	
OPERATING PERSONNEL	32	6	145		30,996	1,118	12,673	
HEALTH PHYSICS PERSONNEL	9	4	7		12,648	0,127	2,807	
SUPERVISORY PERSONNEL	24	0	0		9,765	0,0	0,0	
ENGINEERING PERSONNEL	23	49	0		11,653	1,577	0,0	
TOTAL	111	88	169	368	71,628	6,579	16,372	94,579
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	28	91	28		32,430	22,379	4,937	
OPERATING PERSONNEL	2	0	57		0,070	0,0	4,112	
HEALTH PHYSICS PERSONNEL	9	2	6		6,587	0,030	1,227	
SUPERVISORY PERSONNEL	4	0	0		1,110	0,0	0,0	
ENGINEERING PERSONNEL	5	3	0		0,303	1,690	0,0	
TOTAL	48	96	91	235	40,500	24,099	10,276	74,875
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	8	36	17		1,144	34,966	12,956	
OPERATING PERSONNEL	1	0	8		0,102	0,0	13,871	
HEALTH PHYSICS PERSONNEL	7	0	7		3,304	0,0	5,564	
SUPERVISORY PERSONNEL	6	0	0		0,206	0,0	0,0	
ENGINEERING PERSONNEL	7	6	0		1,057	1,961	0,0	
TOTAL	29	42	32	103	5,813	36,927	32,391	75,131
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	19	42	38		8,193	39,852	31,054	
OPERATING PERSONNEL	2	0	7		0,373	0,0	1,548	
HEALTH PHYSICS PERSONNEL	9	1	6		7,411	0,0	1,899	
SUPERVISORY PERSONNEL	6	0	0		2,187	0,0	0,0	
ENGINEERING PERSONNEL	6	5	0		1,525	0,371	0,0	
TOTAL	42	48	51	141	19,689	40,223	34,501	94,413
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	12	8	1		8,819	0,721	0,300	
OPERATING PERSONNEL	20	0	1		3,060	0,0	0,038	
HEALTH PHYSICS PERSONNEL	8	0	1		2,717	0,0	0,005	
SUPERVISORY PERSONNEL	4	0	0		0,381	0,0	0,0	
ENGINEERING PERSONNEL	0	0	0		0,015	0,0	0,0	
TOTAL	44	8	3	55	14,992	0,721	0,343	16,056
*REFUELING								
MAINTENANCE PERSONNEL	6	2	0		2,718	0,036	0,0	
OPERATING PERSONNEL	23	0	9		7,248	0,0	0,469	
HEALTH PHYSICS PERSONNEL	5	0	0		0,593	0,0	0,0	
SUPERVISORY PERSONNEL	9	0	0		1,502	0,0	0,0	
ENGINEERING PERSONNEL	2	0	0		0,912	0,0	0,0	
TOTAL	45	2	9	56	12,973	0,036	0,469	12,578
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	96 (28)	208 (103)	101 (64)	405 (195)	59,870	101,711	50,139	211,720
OPERATING PERSONNEL	80 (32)	6 (6)	223 (176)	309 (214)	41,849	1,118	32,711	75,678
HEALTH PHYSICS PERSONNEL	47 (9)	7 (4)	27 (7)	81 (20)	33,260	0,157	11,502	44,919
SUPERVISORY PERSONNEL	53 (24)	0 (0)	0 (0)	53 (24)	15,151	0,0	0,0	15,151
ENGINEERING PERSONNEL	43 (23)	63 (50)	0 (0)	106 (73)	14,565	5,589	0,0	20,154
GRAND TOTAL	319 (118)	284 (183)	351 (237)	954 (628)	164,695	108,585	94,332	367,632

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

## APPENDIX C

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

PLANT: BROWNS FERRY 1,2,3 (BWR)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	4	0	0	0.5	0.0	0.0
OPERATING PERSONNEL	15	0	0	2.3	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	19	0	0	2.8	0.0	0.0
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	421	923	21	215.4	676.0	13.7
OPERATING PERSONNEL	212	0	0	121.4	0.0	0.0
HEALTH PHYSICS PERSONNEL	31	5	35	12.2	0.9	18.6
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	41	166	9	40.7	106.2	1.5
TOTAL	705	1094	65	389.7	783.1	33.8
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	4	1	0.0	1.2	0.2
TOTAL	0	4	1	0.0	1.2	0.2
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	0	63	0	0.0	16.2	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	2	2	0	0.0	0.0	0.0
TOTAL	2	65	0	0.0	16.2	0.0
WASTE PROCESSING						
MAINTENANCE PERSONNEL	12	0	0	2.5	0.0	0.0
OPERATING PERSONNEL	5	0	0	2.3	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	17	0	0	4.8	0.0	0.0
REFUELING						
MAINTENANCE PERSONNEL	0	64	0	0.0	18.7	0.0
OPERATING PERSONNEL	34	0	0	11.9	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	2	4	2	0.3	1.6	0.3
TOTAL	36	68	2	12.2	19.3	0.3
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	437	1050	21	218.4	710.9	13.7
OPERATING PERSONNEL	266	0	0	137.9	0.0	0.0
HEALTH PHYSICS PERSONNEL	31	5	35	12.2	0.9	18.6
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	45	176	12	41.2	109.4	2.0
GRAND TOTAL	779	1231	63	409.7	821.2	34.3

# APPENDIX C

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

PLANT: BRUNSWICK 1,2	(DNR)	1980									
		NUMBER OF PERSONNEL (>100 M REM)					TOTAL MAN-REMS				
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS		
WORK & JOB FUNCTION											
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL	3	0	0	0	0	6,541	0,371	0,005	0,371	0,005	
OPERATING PERSONNEL	30	2	73	0	75	49,025	0,517	33,520	0,517	33,520	
HEALTH PHYSICS PERSONNEL	3	2	0	0	2	10,366	2,321	0,0	2,321	0,0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,0	0,034	0,0	0,034	0,0	
ENGINEERING PERSONNEL	1	0	0	0	0	1,451	0,012	1,164	0,012	1,164	
TOTAL	43	4	75	0	122	67,383	3,255	34,689	3,255	34,689	105,327
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL	24	2	96	0	96	50,470	2,337	137,617	2,337	137,617	
OPERATING PERSONNEL	0	0	0	0	0	0,730	0,0	0,0	0,0	0,0	
HEALTH PHYSICS PERSONNEL	8	3	10	0	13	9,732	2,649	10,102	2,649	10,102	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,0	0,0	0,0	0,0	0,0	
ENGINEERING PERSONNEL	5	0	3	0	3	3,862	0,101	1,758	0,101	1,758	
TOTAL	37	4	109	0	151	64,794	5,087	149,477	5,087	149,477	219,358
IN-SERVICE INSPECTION											
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	2	1	10	0	13	2,133	0,661	10,102	0,661	10,102	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,0	0,0	0,0	0,0	0,0	
ENGINEERING PERSONNEL	5	4	4	4	17	4,377	2,562	2,687	2,562	2,687	
TOTAL	7	6	14	4	27	6,510	3,421	12,789	3,421	12,789	22,720
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL	87	12	1241	0	1253	184,969	15,124	1905,905	15,124	1905,905	
OPERATING PERSONNEL	1	0	0	0	1	1,094	0,0	0,0	0,0	0,0	
HEALTH PHYSICS PERSONNEL	15	6	46	0	61	16,854	5,167	45,560	5,167	45,560	
SUPERVISORY PERSONNEL	0	2	3	0	5	0,0	0,395	0,507	0,395	0,507	
ENGINEERING PERSONNEL	23	34	244	0	271	18,725	16,317	233,288	16,317	233,288	
TOTAL	126	54	1533	0	1714	221,642	37,003	2,185,260	37,003	2,185,260	2443,905
WASTE PROCESSING											
MAINTENANCE PERSONNEL	24	2	62	0	64	51,169	2,662	84,580	2,662	84,580	
OPERATING PERSONNEL	35	2	0	0	37	58,025	0,773	0,0	0,773	0,0	
HEALTH PHYSICS PERSONNEL	10	3	20	0	33	10,879	3,026	20,260	3,026	20,260	
SUPERVISORY PERSONNEL	0	0	0	0	0	0,0	0,0	0,0	0,0	0,0	
ENGINEERING PERSONNEL	1	0	3	0	4	0,551	0,012	1,758	0,012	1,758	
TOTAL	70	7	85	0	162	120,624	6,693	106,598	6,693	106,598	233,913
REFUELING											
MAINTENANCE PERSONNEL	39	5	278	0	282	81,008	5,203	404,304	5,203	404,304	
OPERATING PERSONNEL	44	4	0	0	48	72,311	1,288	0,0	1,288	0,0	
HEALTH PHYSICS PERSONNEL	6	3	15	0	24	6,424	2,132	15,173	2,132	15,173	
SUPERVISORY PERSONNEL	0	1	0	0	1	0,0	0,0	0,055	0,0	0,055	
ENGINEERING PERSONNEL	22	15	26	0	43	17,587	7,658	25,110	7,658	25,110	
TOTAL	111	28	319	0	458	177,330	16,876	444,642	16,876	444,642	638,848
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL	177	21	1677	0	1875	374,157	25,917	2532,411	25,917	2532,411	2932,485
OPERATING PERSONNEL	110	8	73	0	121	181,185	2,578	33,520	2,578	33,520	217,283
HEALTH PHYSICS PERSONNEL	50	18	101	0	169	56,388	15,956	101,197	15,956	101,197	173,541
SUPERVISORY PERSONNEL	0	4	2	0	6	0,0	0,0	0,562	0,0	0,562	1,584
ENGINEERING PERSONNEL	57	53	282	0	392	48,553	26,862	265,765	26,862	265,765	339,180
GRAND TOTAL	324	104	2136	0	4384	658,283	72,335	2933,453	72,335	2933,453	3664,073

# APPENDIX C

## PLANT: CALVERT CLIFFS 1,2 (PWR) NUMBER OF PERSONNEL AND MAN-REMS BY WORK AND JOB FUNCTION 1980

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	TOTAL
<b>* REACTOR OPERATIONS &amp; SURV.</b>									
MAINTENANCE PERSONNEL	3	1	1		0.599	0.106	0.126		
OPERATING PERSONNEL	23	0	0		11.997	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0		
SUPERVISORY PERSONNEL	2	0	0		0.276	0.0	0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0		
TOTAL	28	1	1	30	12.872	0.106	0.126		13.104
<b>* ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	44	1	149		11.774	0.120	43.903		
OPERATING PERSONNEL	14	1	20		7.951	0.100	3.865		
HEALTH PHYSICS PERSONNEL	1	0	78		7.144	0.146	35.641		
SUPERVISORY PERSONNEL	4	0	2		1.480	0.0	0.271		
ENGINEERING PERSONNEL	0	0	3		0.0	0.0	1.064		
TOTAL	76	3	254	333	28.349	0.366	84.744		113.459
<b>* IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	10	35	17		3.486	15.145	4.939		
OPERATING PERSONNEL	6	0	0		0.787	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	2		0.0	0.0	0.245		
SUPERVISORY PERSONNEL	2	0	2		0.301	0.0	0.669		
ENGINEERING PERSONNEL	6	0	7		1.609	0.0	1.657		
TOTAL	24	35	28	87	6.183	15.145	7.510		28.838
<b>* SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	83	99	479		57.499	35.175	222.925		
OPERATING PERSONNEL	34	12	30		8.252	4.639	8.851		
HEALTH PHYSICS PERSONNEL	2	0	6		0.507	0.0	1.594		
SUPERVISORY PERSONNEL	12	0	11		4.309	0.0	4.035		
ENGINEERING PERSONNEL	5	1	19		1.077	0.136	5.612		
TOTAL	136	112	545	793	71.644	39.950	243.017		354.611
<b>* WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	2	0	0		0.230	0.0	0.0		
OPERATING PERSONNEL	5	0	0		1.864	0.0	0.0		
HEALTH PHYSICS PERSONNEL	2	25	39		0.247	5.633	16.518		
SUPERVISORY PERSONNEL	1	0	0		0.101	0.0	0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0		
TOTAL	10	25	39	74	2.442	5.633	16.518		24.593
<b>* REFUELING</b>									
MAINTENANCE PERSONNEL	43	50	3		22.233	24.424	0.335		
OPERATING PERSONNEL	10	6	1		3.010	3.613	0.123		
HEALTH PHYSICS PERSONNEL	4	0	9		1.371	0.0	2.877		
SUPERVISORY PERSONNEL	10	0	2		8.096	0.0	0.483		
ENGINEERING PERSONNEL	2	0	17		0.371	0.0	3.376		
TOTAL	69	56	32	157	35.081	28.037	7.194		70.312
<b>* TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	185 (103)	186 (167)	649 (536)	1020 (798)	95.821	74.970	272.228		443.019
OPERATING PERSONNEL	92 (70)	19 (15)	51 (47)	162 (132)	33.861	8.352	12.839		55.052
HEALTH PHYSICS PERSONNEL	22 (15)	26 (25)	134 (123)	182 (163)	9.269	5.779	56.875		71.923
SUPERVISORY PERSONNEL	31 (22)	0 (0)	17 (37)	48 (55)	14.563	0.0	5.458		20.021
ENGINEERING PERSONNEL	11 (13)	1 (3)	48 (39)	62 (55)	3.057	0.136	11.709		14.902
GRAND TOTAL	341 (223)	232 (200)	899 (700)	1474 (1183)	156.371	89.237	359.109		604.919

Workers may be counted in more than one category. Numbers in parentheses is the total number of individuals who received more than 100 mrems during the year but not necessarily more than 100 mrems in any one category.

# APPENDIX C

PLANT: D.C. COOK 1,2 (PWR) NUMBER OF PERSONNEL AND MAN-REMS BY WORK AND JOB FUNCTION 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)		STATION EMPLOYEES		TOTAL PERSONS		TOTAL MAN-REMS		TOTAL MAN-REMS	
	EMPLOYEES	CONTRACTORS	EMPLOYEES	CONTRACTORS	PERSONS	EMPLOYEES	CONTRACTORS	PERSONS	EMPLOYEES	CONTRACTORS
* REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	60	0	33	0	33	3,460	0.0	2,241	0.0	0.0
OPERATING PERSONNEL	63	0	0	0	0	27,557	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	0	11	0	11	3,060	0.0	4,040	0.0	0.0
SUPERVISORY PERSONNEL	11	0	4	0	4	1,020	0.0	0.100	0.050	0.050
ENGINEERING PERSONNEL	5	3	1	0	4	0,620	0.080	0.080	0.080	0.080
TOTAL	152	3	49	0	204	35,717	0.080	6,431	0.080	42,228
* ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	96	0	119	0	119	54,130	0.0	12,796	0.0	0.0
OPERATING PERSONNEL	1	0	0	0	0	0,060	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	0	20	0	20	2,140	0.0	3,360	0.0	0.0
SUPERVISORY PERSONNEL	11	0	11	0	11	1,540	0.0	0.816	0.020	0.020
ENGINEERING PERSONNEL	6	4	1	0	5	0,320	0.640	0.020	0.640	0.020
TOTAL	127	4	151	0	282	58,190	0.640	16,994	0.640	75,824
* IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	46	0	94	0	94	5,250	0.0	13,292	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	9	0	10	0	10	0,810	0.0	2,770	0.0	0.0
SUPERVISORY PERSONNEL	5	0	6	0	6	0,290	0.0	1,590	0.0	0.0
ENGINEERING PERSONNEL	6	3	17	0	23	0,790	0.930	2,070	0.930	2,070
TOTAL	66	3	117	0	186	7,140	0.930	19,722	0.930	27,792
* SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	80	0	421	0	421	21,380	0.0	162,742	0.0	0.0
OPERATING PERSONNEL	1	0	0	0	0	0,020	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	9	0	22	0	22	1,300	0.0	8,330	0.0	0.0
SUPERVISORY PERSONNEL	8	0	43	0	43	0,540	0.0	15,180	0.0	0.0
ENGINEERING PERSONNEL	5	12	2	0	17	0,710	3,120	0,120	3,120	0,120
TOTAL	103	12	488	0	603	23,950	3,120	186,372	3,120	213,442
* WASTE PROCESSING										
MAINTENANCE PERSONNEL	52	0	95	0	95	7,430	0.0	37,877	0.0	0.0
OPERATING PERSONNEL	25	0	0	0	0	3,130	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	13	0	6	0	6	6,200	0.0	1,040	0.0	0.0
SUPERVISORY PERSONNEL	7	0	5	0	5	1,710	0.0	3,030	0.0	0.0
ENGINEERING PERSONNEL	2	1	0	0	3	2,170	0,120	0,120	0,120	0,120
TOTAL	99	1	106	0	206	20,640	0,120	41,947	0,120	62,707
* REFUELLING										
MAINTENANCE PERSONNEL	31	0	50	0	50	3,670	0.0	20,345	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	11	0	11	0,070	0.0	1,205	0.0	0.0
SUPERVISORY PERSONNEL	4	0	6	0	6	1,020	0.0	1,750	0.0	0.0
ENGINEERING PERSONNEL	1	2	1	0	4	0,120	0,120	0,120	0,120	0,120
TOTAL	37	2	68	0	107	4,910	0,120	23,330	0,120	28,380
* TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	365 (103)	0	812 (495)	0	1177 (598)	95,320	0.0	249,293	0.0	344,613
OPERATING PERSONNEL	90 (63)	0	0 (0)	0	90 (63)	30,767	0.0	0.0	0.0	30,767
HEALTH PHYSICS PERSONNEL	58 (14)	0	80 (26)	0	138 (39)	13,580	0.0	20,745	0.0	34,325
SUPERVISORY PERSONNEL	46 (14)	0	75 (46)	0	121 (59)	6,120	0.0	22,468	0.0	28,588
ENGINEERING PERSONNEL	25 (8)	25 (13)	12 (8)	25 (13)	62 (29)	4,760	5,030	2,290	5,030	12,080
GRAND TOTAL	584 (202)	25 (13)	979 (573)	25 (13)	1588 (788)	150,547	5,030	294,796	5,030	450,373

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

# APPENDIX C

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

PLANT: COOPER STATION (BWRP)

NUMBER OF PERSONNEL (>100 M PPM)

1980

WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* REACTOR OPERATIONS & SUPPORT								
MAINTENANCE PERSONNEL	2	0	0		0.826	0.0	0.0	
OPERATING PERSONNEL	41	0	0		35.764	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	0	2		10.595	0.0	0.349	
SUPERVISORY PERSONNEL	8	1	1		6.844	0.576	0.153	
ENGINEERING PERSONNEL	13	0	3		11.512	0.0	0.614	
TOTAL	75	1	6	82	65.641	0.576	1.116	67.333
* ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	52	0	127		91.549	0.0	109.161	
OPERATING PERSONNEL	11	0	3		0.241	0.0	0.0	
HEALTH PHYSICS PERSONNEL	4	0	1		1.959	0.0	1.324	
SUPERVISORY PERSONNEL	4	0	0		1.810	0.0	0.134	
ENGINEERING PERSONNEL	73	0	0		1.433	0.0	0.0	
TOTAL	144	0	131	275	96.992	0.0	110.619	207.611
* IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	17		0.0	0.0	20.361	
OPERATING PERSONNEL	0	0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	11	0	3		0.586	0.0	0.160	
SUPERVISORY PERSONNEL	0	0	1		0.0	0.0	0.886	
ENGINEERING PERSONNEL	6	0	0		5.000	0.0	0.0	
TOTAL	17	0	21	38	5.586	0.0	21.407	26.993
* SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	13	0	316		3.057	0.0	469.697	
OPERATING PERSONNEL	6	0	0		1.425	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	9		1.614	0.0	6.766	
SUPERVISORY PERSONNEL	5	0	0		1.516	0.0	0.0	
ENGINEERING PERSONNEL	12	12	4		0.285	13.682	4.012	
TOTAL	31	12	329	372	7.897	13.682	480.475	502.054
* WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0		0.031	0.0	0.0	
OPERATING PERSONNEL	15	0	0		4.182	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	0	0		1.499	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.010	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	25	0	0	25	5.722	0.0	0.0	5.722
* REFUELLING								
MAINTENANCE PERSONNEL	0	0	2		0.0	0.0	0.806	
OPERATING PERSONNEL	31	0	0		8.462	0.0	0.0	
HEALTH PHYSICS PERSONNEL	8	0	3		0.081	0.0	0.154	
SUPERVISORY PERSONNEL	3	0	0		0.299	0.0	0.0	
ENGINEERING PERSONNEL	5	0	0		0.644	0.0	0.0	
TOTAL	47	0	5	52	9.486	0.0	0.960	10.446
* TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	68 (57)	0	462 (356)	530 (413)	95.463	0.0	600.025	695.482
OPERATING PERSONNEL	95 (42)	0	0	95 (42)	50.074	0.0	0.0	50.074
HEALTH PHYSICS PERSONNEL	54 (11)	0	20 (9)	74 (20)	16.334	0.0	8.753	25.087
SUPERVISORY PERSONNEL	21 (9)	1 (1)	3 (3)	25 (13)	10.479	0.576	1.173	12.228
ENGINEERING PERSONNEL	29 (13)	12 (12)	7 (7)	49 (32)	14.274	13.682	4.626	37.282
TOTAL	267 (132)	13 (13)	492 (375)	773 (520)	191.324	14.258	614.577	820.159

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

# APPENDIX C

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

PLANT: CRYSTAL RIVER 3 (PWR) 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REM		
	STATION	UTILITY	CONTRACT	EMPLOYEES	CONTRACT	MAN-REMS
<b>* REACTOR OPERATIONS &amp; SURV.</b>						
MAINTENANCE PERSONNEL	4	0	0	0.09	0.16	
OPERATING PERSONNEL	31	4	0	0.97	0.0	
HEALTH PHYSICS PERSONNEL	22	0	0	0.0	0.01	
SUPERVISORY PERSONNEL	2	0	0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	
TOTAL	59	4	0	1.06	0.17	22.98
<b>* ROUTINE MAINTENANCE</b>						
MAINTENANCE PERSONNEL	86	106	295	88.08	187.24	
OPERATING PERSONNEL	11	1	0	0.48	0.06	
HEALTH PHYSICS PERSONNEL	8	0	56	0.13	32.46	
SUPERVISORY PERSONNEL	12	2	26	1.18	24.86	
ENGINEERING PERSONNEL	1	0	34	0.49	27.77	
TOTAL	118	109	411	90.36	272.39	458.31
<b>* IN-SERVICE INSPECTION</b>						
MAINTENANCE PERSONNEL	0	3	3	0.89	0.80	
OPERATING PERSONNEL	0	0	0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.05	
SUPERVISORY PERSONNEL	0	0	3	0.0	0.53	
ENGINEERING PERSONNEL	7	0	4	0.0	0.91	
TOTAL	7	3	10	0.89	2.29	5.21
<b>* SPECIAL MAINTENANCE</b>						
MAINTENANCE PERSONNEL	22	26	67	8.46	67.27	
OPERATING PERSONNEL	1	0	0	0.03	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	13	0.0	3.09	
ENGINEERING PERSONNEL	1	0	29	0.0	13.79	
TOTAL	24	26	109	8.49	84.15	98.69
<b>* WASTE PROCESSING</b>						
MAINTENANCE PERSONNEL	6	1	13	0.40	4.57	
OPERATING PERSONNEL	2	0	1	0.01	0.91	
HEALTH PHYSICS PERSONNEL	11	0	1	0.0	0.62	
SUPERVISORY PERSONNEL	3	0	1	0.0	0.19	
ENGINEERING PERSONNEL	2	0	0	0.0	0.01	
TOTAL	24	1	16	0.41	6.30	12.45
<b>* REFUELLING</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	0.01
<b>* TOTAL BY JOB FUNCTION</b>						
MAINTENANCE PERSONNEL	118	136	378	97.92	260.04	449.90
OPERATING PERSONNEL	45	5	1	1.49	0.97	18.89
HEALTH PHYSICS PERSONNEL	41	0	57	0.13	33.14	46.72
SUPERVISORY PERSONNEL	17	2	62	1.18	28.67	36.92
ENGINEERING PERSONNEL	11	0	67	0.49	42.48	45.22
GRAND TOTAL	232	143	546	101.21	365.30	597.65

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



# APPENDIX C

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

PLANT: DAVIS-DESSE 1

(CUR)

1980

WORK & JOB FUNCTION	STATION		TOTAL		TOTAL MAN-REMS	
	EMPLOYEES	UTILITY	PERSONS	EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
* REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	6	0	8	0.070	0.0	0.225
OPERATING PERSONNEL	79	0	0	5.750	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	12	0	7	0.660	0.0	0.595
ENGINEERING PERSONNEL	1	0	8	0.015	0.0	0.275
TOTAL	98	0	23	6.495	0.0	1.095
* ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	92	38	195	11.635	2.005	32.875
OPERATING PERSONNEL	4	0	0	0.165	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	102	38	63	6.000	1.800	7.230
ENGINEERING PERSONNEL	20	4	24	0.500	0.070	1.305
TOTAL	218	80	282	18.300	3.875	41.410
* IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	6	0	10	0.135	0.0	0.180
OPERATING PERSONNEL	1	0	0	0.010	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	16	1	26	0.285	0.015	0.565
ENGINEERING PERSONNEL	5	0	0	0.165	0.0	0.0
TOTAL	28	1	36	0.575	0.015	0.745
* SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	74	29	2209	7.420	2.755	161.580
OPERATING PERSONNEL	8	0	0	0.650	0.0	0.0
HEALTH PHYSICS PERSONNEL	22	0	21	9.975	0.0	4.200
SUPERVISORY PERSONNEL	27	0	49	1.925	0.0	4.620
ENGINEERING PERSONNEL	24	0	39	1.515	0.0	3.435
TOTAL	155	29	2318	21.485	2.755	173.835
* WASTE PROCESSING						
MAINTENANCE PERSONNEL	6	2	9	0.325	0.035	0.145
OPERATING PERSONNEL	1	0	0	0.050	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	5	0	9	0.085	0.0	0.175
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	12	2	18	0.460	0.035	0.320
* REFUELING						
MAINTENANCE PERSONNEL	6	0	8	0.070	0.0	0.225
OPERATING PERSONNEL	79	0	0	5.750	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	12	0	7	0.660	0.0	0.595
ENGINEERING PERSONNEL	1	0	8	0.015	0.0	0.275
TOTAL	98	0	23	6.495	0.0	1.095
* TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	190	69	2439	19.655	4.795	195.230
OPERATING PERSONNEL	172	0	172	12.375	0.0	0.0
HEALTH PHYSICS PERSONNEL	22	0	21	9.975	0.0	4.200
SUPERVISORY PERSONNEL	174	39	374	9.615	1.815	13.780
ENGINEERING PERSONNEL	51	4	134	2.190	0.070	5.290
GRAND TOTAL	609	112	2700	53.810	6.680	218.500
						7.590

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

# APPENDIX C

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

PLANT: DRESDEN 1,2,3 (BWR)

1980

NUMBER OF PERSONNEL (>100 M REM)

* WORK & JOB FUNCTION	STATION EMPLOYEES	NUMBER OF PERSONNEL (>100 M REM)			TOTAL PERSONS	STATION EMPLOYEES	TOTAL MAN-REMS		
		UTILITY EMPLOYEES	CONTRACT & OTHERS	1980			UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	15	0	0	0		19.8	0.0	0.0	
OPERATING PERSONNEL	103	0	0	0		119.6	0.0	0.0	
HEALTH PHYSICS PERSONNEL	2	0	0	0		2.7	0.0	0.0	
SUPERVISORY PERSONNEL	60	0	0	0		13.0	0.0	0.0	
ENGINEERING PERSONNEL	52	0	0	0		72.3	0.0	0.0	
TOTAL	232	0	0	0	232	227.4	0.0	0.0	227.4
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	263	0	2093	0		366.4	0.0	1053.4	
OPERATING PERSONNEL	7	0	0	0		11.6	0.0	0.0	
HEALTH PHYSICS PERSONNEL	38	0	0	0		54.3	0.0	0.0	
SUPERVISORY PERSONNEL	61	0	0	0		83.2	0.0	0.0	
ENGINEERING PERSONNEL	59	0	0	0		21.3	0.0	0.0	
TOTAL	428	0	2093	0	2521	536.8	0.0	1053.4	1590.2
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	1	0	0	0		0.5	0.0	0.0	
OPERATING PERSONNEL	2	0	0	0		3.5	0.0	0.0	
HEALTH PHYSICS PERSONNEL	3	0	0	0		4.5	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	11	0	0	0		4.0	0.0	0.0	
TOTAL	17	0	0	0	17	12.5	0.0	0.0	12.5
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	0	173	0	0		0.0	68.2	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	227	0	0		0.0	13.2	0.0	
TOTAL	0	400	0	0	400	0.0	81.4	0.0	81.4
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	1	0	0	0		1.8	0.0	0.0	
OPERATING PERSONNEL	22	0	0	0		38.4	0.0	0.0	
HEALTH PHYSICS PERSONNEL	15	0	0	0		21.4	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	3	0	0	0		1.1	0.0	0.0	
TOTAL	41	0	0	0	41	62.7	0.0	0.0	62.7
* REFUELING									
MAINTENANCE PERSONNEL	2	0	0	0		2.7	0.0	0.0	
OPERATING PERSONNEL	17	0	0	0		35.4	0.0	0.0	
HEALTH PHYSICS PERSONNEL	4	0	0	0		6.2	0.0	0.0	
SUPERVISORY PERSONNEL	3	0	0	0		7.7	0.0	0.0	
ENGINEERING PERSONNEL	5	0	0	0		1.8	0.0	0.0	
TOTAL	31	0	0	0	31	53.8	0.0	0.0	53.8
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	282	173	2093	0	2548	391.2	68.2	1053.4	1512.8
OPERATING PERSONNEL	151	0	0	0	151	208.5	0.0	0.0	208.5
HEALTH PHYSICS PERSONNEL	62	0	0	0	62	89.1	0.0	0.0	89.1
SUPERVISORY PERSONNEL	124	0	0	0	124	103.9	0.0	0.0	103.9
ENGINEERING PERSONNEL	130	227	0	0	357	100.5	13.2	0.0	113.7
GRAND TOTAL	749	400	2093	0	3242	893.2	81.4	1053.4	2028.0

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

# APPENDIX C

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

PLANT: DUANE ARNOLD (RWR)

NUMBER OF PERSONNEL (>100 M REM) 1980

WORK & JOB FUNCTION	STATION		TOTAL		STATION		TOTAL		TOTAL MAN-REMS	
	EMPLOYEES	UTILITY	EMPLOYEES	CONTRACT	EMPLOYEES	UTILITY	EMPLOYEES	CONTRACT	EMPLOYEES	MAN-REMS
* REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	25	0	66		4,148	0.0	2,804			
OPERATING PERSONNEL	31	0	1		11,620	0.0	0.032			
HEALTH PHYSICS PERSONNEL	8	0	26		6,275	0.0	4,484			
SUPERVISORY PERSONNEL	7	0	3		1,084	0.0	0.240			
ENGINEERING PERSONNEL	7	2	14		0.542	0.158	0.835			
TOTAL	28	2	110		23,569	0.158	8,395			32,122
* ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	31	0	328		12,605	0.0	82,682			
OPERATING PERSONNEL	19	0	0		1,056	0.0	0.0			
HEALTH PHYSICS PERSONNEL	2	0	10		0.030	0.0	0.315			
SUPERVISORY PERSONNEL	4	0	9		0.346	0.0	1,461			
ENGINEERING PERSONNEL	6	1	28		0.430	0.093	1,056			
TOTAL	62	1	375		14,467	0.093	85,514			100,074
* IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	28	0	166		1,264	0.0	36,217			
OPERATING PERSONNEL	10	0	0		0.598	0.0	0.0			
HEALTH PHYSICS PERSONNEL	7	0	2		1,928	0.0	0.012			
SUPERVISORY PERSONNEL	6	0	10		0.337	0.0	0.544			
ENGINEERING PERSONNEL	7	4	54		0.781	0.890	29,635			
TOTAL	58	4	234		4,908	0.890	66,442			72,266
* SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	32	0	461		11,238	0.0	298,380			
OPERATING PERSONNEL	25	0	1		9,938	0.0	0.685			
HEALTH PHYSICS PERSONNEL	5	0	65		0.292	0.0	73,770			
SUPERVISORY PERSONNEL	6	0	19		0.840	0.0	8,328			
ENGINEERING PERSONNEL	6	4	59		1,481	1,295	10,194			
TOTAL	74	4	605		23,289	1,295	391,357			416,441
* WASTE PROCESSING										
MAINTENANCE PERSONNEL	0	0	19		0.0	0.0	1,070			
OPERATING PERSONNEL	9	0	2		14,006	0.0	0.118			
HEALTH PHYSICS PERSONNEL	5	0	2		2,704	0.0	2,055			
SUPERVISORY PERSONNEL	1	0	0		0.010	0.0	0.0			
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0			
TOTAL	15	0	23		16,720	0.0	3,243			19,963
* REFUELING										
MAINTENANCE PERSONNEL	13	0	21		1,440	0.0	8,521			
OPERATING PERSONNEL	25	0	0		11,031	0.0	0.0			
HEALTH PHYSICS PERSONNEL	0	0	2		0.0	0.0	0.010			
SUPERVISORY PERSONNEL	6	0	4		1,275	0.0	0.100			
ENGINEERING PERSONNEL	3	2	10		0.360	0.035	0.774			
TOTAL	47	2	37		14,106	0.035	9,405			23,546
* TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	129 (32)	0	1061 (498)		30,695	0.0	429,674			460,369
OPERATING PERSONNEL	119 (37)	0	4 (2)		48,249	0.0	0.835			49,084
HEALTH PHYSICS PERSONNEL	27 (8)	0	107 (71)		11,229	0.0	80,646			91,875
SUPERVISORY PERSONNEL	30 (9)	0	45 (19)		3,892	0.0	10,713			14,605
ENGINEERING PERSONNEL	29 (7)	13 (4)	167 (68)		3,494	2,471	42,494			48,459
GRAND TOTAL	334 (93)	13 (4)	1384 (658)		97,559	2,471	564,362			664,392

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

# APPENDIX C

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

PLANT: FARLEY (PWP)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL			STATION			TOTAL MAN-REMS		
	EMPLOYEES	UTILITY	CONTRACT	PERSONS	EMPLOYEES	CONTRACT	EMPLOYEES	UTILITY	CONTRACT	EMPLOYEES	UTILITY	CONTRACT
* REACTOR OPERATIONS & SURV.												
MAINTENANCE PERSONNEL	89	0	0	0	5,542	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	92	0	0	0	30,299	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	31	0	55	55	11,820	0.0	0.0	0.0	28,309	0.0	0.0	0.0
SUPERVISORY PERSONNEL	39	1	0	0	13,748	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	6	0	43	43	0,396	0.0	0.0	0.0	1,182	0.0	0.0	0.0
TOTAL	257	1	98	356	61,805	0.0	0.0	0.0	29,491	0.0	0.0	0.0
* ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL	148	0	0	0	17,994	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	64	0	0	0	23,209	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	11	0	7	7	1,405	0.0	0.0	0.0	0.360	0.0	0.0	0.0
SUPERVISORY PERSONNEL	16	1	0	0	1,263	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	2	0	81	81	0,077	0.0	0.0	0.0	3,832	0.0	0.0	0.0
TOTAL	241	1	88	330	43,948	0.0	0.0	0.0	4,192	0.0	0.0	0.0
* IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL	11	0	0	0	0,210	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	4	0	0	0	0,120	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	0	3	3	0,022	0.0	0.0	0.0	0.033	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	0	0,007	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	1	0	65	65	0,012	0.0	0.0	0.0	18,937	0.0	0.0	0.0
TOTAL	19	0	68	87	0,371	0.0	0.0	0.0	18,970	0.0	0.0	0.0
* SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL	154	0	1	1	72,943	0.0	0.0	0.0	0.108	0.0	0.0	0.0
OPERATING PERSONNEL	53	0	0	0	9,099	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	19	0	43	43	4,247	0.0	0.0	0.0	8,810	0.0	0.0	0.0
SUPERVISORY PERSONNEL	22	0	1	1	5,297	0.0	0.0	0.0	1,136	0.0	0.0	0.0
ENGINEERING PERSONNEL	6	0	260	260	0,857	0.0	0.0	0.0	91,099	0.0	0.0	0.0
TOTAL	254	0	305	559	92,943	0.0	0.0	0.0	101,153	0.0	0.0	0.0
* WASTE PROCESSING												
MAINTENANCE PERSONNEL	9	0	0	0	0,491	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	17	0	0	0	1,697	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	0	9	9	1,521	0.0	0.0	0.0	4,103	0.0	0.0	0.0
SUPERVISORY PERSONNEL	4	0	0	0	1,196	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	1	1	0.0	0.0	0.0	0.0	0.006	0.0	0.0	0.0
TOTAL	40	0	10	50	4,905	0.0	0.0	0.0	4,109	0.0	0.0	0.0
* REFUELING												
MAINTENANCE PERSONNEL	61	0	0	0	9,483	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	22	0	0	0	1,308	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	9	9	0,136	0.0	0.0	0.0	0.172	0.0	0.0	0.0
SUPERVISORY PERSONNEL	13	0	0	0	1,779	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	11	11	0.0	0.0	0.0	0.0	2,234	0.0	0.0	0.0
TOTAL	101	0	20	121	12,906	0.0	0.0	0.0	2,406	0.0	0.0	0.0
* TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL	474	0	1	1	106,863	0.0	0.0	0.0	0.108	0.0	0.0	0.0
OPERATING PERSONNEL	252	0	0	0	65,732	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	76	0	126	202	19,151	0.0	0.0	0.0	41,787	0.0	0.0	0.0
SUPERVISORY PERSONNEL	95	2	461	558	23,290	0.0	0.0	0.0	1,136	0.0	0.0	0.0
ENGINEERING PERSONNEL	15	0	461	476	1,342	0.0	0.0	0.0	118,632	0.0	0.0	0.0
GRAND TOTAL	912	2	554	1503	216,378	0.0	0.0	0.0	160,321	0.0	0.0	0.0

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

## APPENDIX C

## PLANT: FITZPATRICK (BUR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL		NUMBER OF PERSONNEL (>100 M REM)		TOTAL PERSONS	STATION EMPLOYEES	TOTAL MAN-REMS		TOTAL MAN-REMS
	STATION EMPLOYEES	UTILITY EMPLOYEES	STATION EMPLOYEES	UTILITY EMPLOYEES			UTILITY EMPLOYEES	CONTRACT OTHERS	
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	71	0	55	0	6	0	0	8	
OPERATING PERSONNEL	87	0	55	0	23	0	0	5	
HEALTH PHYSICS PERSONNEL	18	0	54	0	9	0	0	68	
SUPERVISORY PERSONNEL	0	0	0	0	3	0	0	0	
ENGINEERING PERSONNEL	43	0	38	0	0	0	0	0	
TOTAL	219	0	202	0	41	0	0	83	124
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	80	0	616	0	136	0	0	668	
OPERATING PERSONNEL	61	0	12	0	9	0	0	1	
HEALTH PHYSICS PERSONNEL	10	0	18	0	1	0	0	1	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	
ENGINEERING PERSONNEL	33	0	83	0	10	0	0	24	
TOTAL	184	0	729	0	156	0	0	694	850
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	33	0	307	0	3	0	0	48	
OPERATING PERSONNEL	41	0	2	0	3	0	0	0	
HEALTH PHYSICS PERSONNEL	1	0	7	0	0	0	0	0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	
ENGINEERING PERSONNEL	21	0	88	0	0	0	0	0	
TOTAL	96	0	404	0	6	0	0	50	56
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	44	0	1034	0	8	0	0	955	
OPERATING PERSONNEL	30	0	9	0	2	0	0	1	
HEALTH PHYSICS PERSONNEL	3	0	8	0	0	0	0	1	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	
ENGINEERING PERSONNEL	12	0	62	0	0	0	0	0	
TOTAL	89	0	1113	0	10	0	0	966	976
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	77	0	375	0	15	0	0	87	
OPERATING PERSONNEL	41	0	4	0	13	0	0	6	
HEALTH PHYSICS PERSONNEL	6	0	9	0	0	0	0	1	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	
ENGINEERING PERSONNEL	11	0	18	0	2	0	0	5	
TOTAL	135	0	406	0	30	0	0	99	119
* REFUELING									
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0	0	
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0	0	
TOTAL	0	0	0	0	0	0	0	0	0
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	305	0	2387	0	168	0	0	1766	1934
OPERATING PERSONNEL	260	0	362	0	50	0	0	13	63
HEALTH PHYSICS PERSONNEL	38	0	96	0	10	0	0	71	81
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	3
ENGINEERING PERSONNEL	120	0	289	0	12	0	0	42	54
GRAND TOTAL	723	0	2854	0	243	0	0	1892	2138

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

# APPENDIX C

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

PLANT: FORT CALHOUN (PWR)	1980									
	NUMBER OF PERSONNEL (>100 M REM)									
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	TOTAL	
WORK & JOB FUNCTION	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	TOTAL	
* REACTOR OPERATIONS & SURV.										
MAINTENANCE PERSONNEL	5	2	15		1,619	0,812	5,829			
OPERATING PERSONNEL	20	0	0		8,584	0,098	0,0			
HEALTH PHYSICS PERSONNEL	10	1	16		3,516	0,236	9,266			
SUPERVISORY PERSONNEL	3	0	0		1,001	0,123	0,0			
ENGINEERING PERSONNEL	9	5	1		4,021	3,059	1,084			
TOTAL	47	8	32	87	18,741	4,328	16,179			39,248
* ROUTINE MAINTENANCE										
MAINTENANCE PERSONNEL	32	25	35		13,593	8,557	13,577			
OPERATING PERSONNEL	0	0	0		0,147	0,020	0,0			
HEALTH PHYSICS PERSONNEL	0	0	0		0,015	0,0	0,125			
SUPERVISORY PERSONNEL	0	0	0		0,025	0,0	0,0			
ENGINEERING PERSONNEL	1	0	0		0,228	0,351	0,0			
TOTAL	33	25	35	93	14,008	8,928	13,702			36,638
* IN-SERVICE INSPECTION										
MAINTENANCE PERSONNEL	2	4	161		0,560	1,445	158,181			
OPERATING PERSONNEL	0	0	0		0,250	0,0	0,0			
HEALTH PHYSICS PERSONNEL	0	0	0		0,111	0,0	0,265			
SUPERVISORY PERSONNEL	0	0	0		0,057	0,197	0,0			
ENGINEERING PERSONNEL	3	13	1		1,589	8,951	0,163			
TOTAL	5	18	162	185	2,567	10,593	158,609			171,769
* SPECIAL MAINTENANCE										
MAINTENANCE PERSONNEL	37	31	169		30,292	15,446	119,866			
OPERATING PERSONNEL	4	0	0		1,033	0,008	0,0			
HEALTH PHYSICS PERSONNEL	9	0	5		5,671	0,098	2,209			
SUPERVISORY PERSONNEL	1	0	0		0,985	0,022	0,0			
ENGINEERING PERSONNEL	7	10	1		6,905	5,388	1,416			
TOTAL	58	41	175	274	44,886	20,962	123,491			189,339
* WASTE PROCESSING										
MAINTENANCE PERSONNEL	12	14	12		8,720	4,646	5,116			
OPERATING PERSONNEL	4	0	0		1,223	0,0	0,0			
HEALTH PHYSICS PERSONNEL	6	0	2		3,373	0,062	0,618			
SUPERVISORY PERSONNEL	0	0	0		0,086	0,0	0,0			
ENGINEERING PERSONNEL	1	3	0		0,252	0,506	0,005			
TOTAL	23	17	14	54	13,656	5,214	5,739			24,609
* REFUELING										
MAINTENANCE PERSONNEL	37	43	137		40,223	38,789	110,530			
OPERATING PERSONNEL	29	2	0		5,528	0,349	0,0			
HEALTH PHYSICS PERSONNEL	7	0	16		4,036	0,005	9,417			
SUPERVISORY PERSONNEL	9	1	0		2,432	0,217	0,0			
ENGINEERING PERSONNEL	11	13	0		9,848	4,306	0,010			
TOTAL	93	59	153	305	61,865	43,666	119,957			225,488
* TOTAL BY JOB FUNCTION										
MAINTENANCE PERSONNEL	125	119	529	773	95,007	69,695	413,099			577,801
OPERATING PERSONNEL	57	2	0	59	16,767	0,475	0,0			17,242
HEALTH PHYSICS PERSONNEL	32	1	39	72	16,722	0,401	21,900			39,023
SUPERVISORY PERSONNEL	13	2	0	15	4,586	0,559	0,0			5,145
ENGINEERING PERSONNEL	32	44	3	79	22,641	22,561	2,678			47,880
GRAND TOTAL	259 (112)	168 (102)	571 (340)	998 (654)	155,723	93,691	437,677			682,091

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

# APPENDIX C

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

PLANT: GINNA 1 (PUR)

1980

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)				TOTAL PERSONS	TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES		UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS	
* REACTOR OPERATIONS & SUPV.									
MAINTENANCE PERSONNEL	47	246	0	0	0	7.27	7.01	0.0	0.0
OPERATING PERSONNEL	43	0	0	0	0	15.76	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	21	0	27	0	0	5.87	0.0	0.0	0.0
SUPERVISORY PERSONNEL	116	0	0	0	0	5.99	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	18	370	0	0	0.0	2.72	15.53	0.0
TOTAL	227	264	392	888	34.89	9.73	19.70	64.32	0.0
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	51	265	0	0	0	18.35	150.78	0.0	0.0
OPERATING PERSONNEL	20	0	0	0	0	1.03	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	17	0	27	0	0	3.98	0.0	0.0	0.0
SUPERVISORY PERSONNEL	43	0	0	0	0	0.79	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	12	395	0	0	0.0	1.94	63.13	0.0
TOTAL	133	277	422	835	24.15	152.72	68.53	245.40	0.0
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	33	146	0	0	0	1.45	48.80	0.0	0.0
OPERATING PERSONNEL	4	0	0	0	0	0.15	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	22	0	0	0.69	0.0	2.24	0.0
SUPERVISORY PERSONNEL	7	0	0	0	0	0.50	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	5	171	0	0	0.0	0.72	26.75	0.0
TOTAL	50	151	193	394	2.79	49.52	28.99	81.30	0.0
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	50	236	0	0	0	20.15	76.73	0.0	0.0
OPERATING PERSONNEL	10	0	0	0	0	1.22	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	12	0	27	0	0	4.23	0.0	8.77	0.0
SUPERVISORY PERSONNEL	25	0	0	0	0	0.99	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	14	421	0	0	0.0	1.97	162.14	0.0
TOTAL	97	250	448	795	26.37	78.70	157.91	256.20	0.0
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	26	46	0	0	0	2.60	5.44	0.0	0.0
OPERATING PERSONNEL	12	0	0	0	0	0.49	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	12	0	18	0	0	0.37	0.0	0.51	0.0
SUPERVISORY PERSONNEL	24	0	0	0	0	0.12	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	1	89	0	0	0.0	0.0	5.71	0.0
TOTAL	74	47	107	228	3.58	5.45	6.22	15.25	0.0
* REFUELING									
MAINTENANCE PERSONNEL	79	60	0	0	0	2.59	11.43	0.0	0.0
OPERATING PERSONNEL	6	0	0	0	0	2.85	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	16	0	0	0.34	0.0	1.88	0.0
SUPERVISORY PERSONNEL	38	0	0	0	0	2.38	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	2	78	0	0	0.0	1.60	28.42	0.0
TOTAL	79	62	94	235	8.16	13.03	30.30	51.49	0.0
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	236 (51)	999 (330)	0	0	1235 (381)	52.41	300.19	0.0	0.0
OPERATING PERSONNEL	95 (43)	0	0	0	95 (43)	21.50	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	74 (21)	0	137 (27)	0	211 (48)	15.48	0.0	22.97	0.0
SUPERVISORY PERSONNEL	258 (122)	0	0	0	258 (122)	10.77	0.0	0.0	0.0
ENGINEERING PERSONNEL	653 (277)	1051 (352)	1524 (576)	1661 (603)	3375 (1102)	0.0	8.96	281.68	0.0
GRAND TOTAL						100.16	309.19	304.68	711.03

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

PLANT: HADDAM NECK

Workers may be counted in more than one category.

Workers may be counted in more than one category.



# APPENDIX C

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

PLANT: E. I. HATCH 1, 2 (BNR)

1980

* WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)		TOTAL		TOTAL MAN-REMS	
	STATION EMPLOYEES	UTILITY EMPLOYEES	PERSONS	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	14	0	3	5	0	0
OPERATING PERSONNEL	139	3	0	95	1	0
HEALTH PHYSICS PERSONNEL	44	2	41	30	1	20
SUPERVISORY PERSONNEL	35	15	2	8	4	1
ENGINEERING PERSONNEL	30	3	6	7	1	2
TOTAL	262	23	52	145	7	23
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	188	7	56	88	2	13
OPERATING PERSONNEL	60	0	0	28	0	0
HEALTH PHYSICS PERSONNEL	9	0	2	6	0	0
SUPERVISORY PERSONNEL	6	1	0	1	0	0
ENGINEERING PERSONNEL	24	2	10	4	0	0
TOTAL	287	10	68	127	2	17
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	0	0	6	0	0	1
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	1	1	2	0	0	0
TOTAL	1	1	8	0	0	0
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	102	22	424	47	5	124
OPERATING PERSONNEL	25	0	0	5	0	0
HEALTH PHYSICS PERSONNEL	0	0	41	0	0	11
SUPERVISORY PERSONNEL	0	2	8	0	0	2
ENGINEERING PERSONNEL	10	8	66	3	2	21
TOTAL	137	32	539	55	7	158
WASTE PROCESSING						
MAINTENANCE PERSONNEL	8	0	1	2	0	0
OPERATING PERSONNEL	21	0	0	4	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	29	0	1	6	0	0
REFUELING						
MAINTENANCE PERSONNEL	0	0	0	0	0	0
OPERATING PERSONNEL	1	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	1	0	0	0	0
TOTAL	1	1	0	0	0	0
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	312 (204)	29 (26)	490 (451)	831 (681)	142	138
OPERATING PERSONNEL	246 (182)	3 (3)	0	249 (185)	132	0
HEALTH PHYSICS PERSONNEL	53 (48)	2 (2)	84 (76)	139 (125)	36	31
SUPERVISORY PERSONNEL	41 (42)	18 (18)	10 (10)	69 (70)	9	68
ENGINEERING PERSONNEL	65 (56)	15 (13)	84 (80)	164 (149)	14	3
GRAND TOTAL	717 (532)	67 (62)	668 (616)	1452 (1210)	333	27
					16	199
						548

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

APPENDIX C  
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION  
1980

PLANT: HUMBOLDT BAY (BWR)	WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)				TOTAL MAN-REMS			
		STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
	REACTOR OPERATIONS & SURV.								
	MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	OPERATING PERSONNEL	14	0	0		4.4	0.0	0.0	0.0
	HEALTH PHYSICS PERSONNEL	1	0	0		1.0	0.0	0.0	0.0
	SUPERVISORY PERSONNEL	2	0	0		0.5	0.0	0.0	0.0
	ENGINEERING PERSONNEL	2	0	0		0.7	0.0	0.0	0.0
	TOTAL	19	0	0	19	6.6	0.0	0.0	6.6
	ROUTINE MAINTENANCE								
	MAINTENANCE PERSONNEL	4	0	0		0.9	0.0	0.0	0.0
	OPERATING PERSONNEL	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
	SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	TOTAL	4	0	0	4	0.9	0.0	0.0	0.9
	IN-SERVICE INSPECTION								
	MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	OPERATING PERSONNEL	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
	SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	ENGINEERING PERSONNEL	0	0	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	4	0	0		1.2	0.0	0.0	0.0
	OPERATING PERSONNEL	4	0	0		1.2	0.0	0.0	0.0
	HEALTH PHYSICS PERSONNEL	1	0	0		0.6	0.0	0.0	0.0
	SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	ENGINEERING PERSONNEL	1	0	0		0.7	0.0	0.0	0.0
	TOTAL	10	0	0	10	3.7	0.0	0.0	3.7
	WASTE PROCESSING								
	MAINTENANCE PERSONNEL	2	0	0		0.5	0.0	0.0	0.0
	OPERATING PERSONNEL	1	0	0		0.1	0.0	0.0	0.0
	HEALTH PHYSICS PERSONNEL	1	0	0		0.5	0.0	0.0	0.0
	SUPERVISORY PERSONNEL	1	0	0		0.4	0.0	0.0	0.0
	ENGINEERING PERSONNEL	1	0	0		0.2	0.0	0.0	0.0
	TOTAL	6	0	0	6	1.7	0.0	0.0	0.0
	REFUELING								
	MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	OPERATING PERSONNEL	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
	SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.0	0.0
	ENGINEERING PERSONNEL	0	0	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	10	0	0	10	2.6	0.0	0.0	2.6
	OPERATING PERSONNEL	19	0	0	19	5.7	0.0	0.0	5.7
	HEALTH PHYSICS PERSONNEL	3	0	0	3	2.1	0.0	0.0	2.1
	SUPERVISORY PERSONNEL	3	0	0	3	0.9	0.0	0.0	0.9
	ENGINEERING PERSONNEL	4	0	0	4	1.6	0.0	0.0	1.6
	GRAND TOTAL	39	0	0	39	12.9	0.0	0.0	12.9

APPENDIX C

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

(PWR)

Plant: INDIAN POINT 1,2

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (100 man)				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								
<b>TOTAL</b>	165			165	174.6			174.6
Routine Maintenance								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	40			40	45.7			45.7
In-Service Inspection								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>				0				0.0
Special Maintenance								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>				0				0.0
Waste Processing								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	1	245	530	776	0.8	258.7	381.0	644.5
Fuel Handling								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	43		1	44	35.4		2.3	37.7
Refueling								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>	0	29	3	40	8.3	20.8	1.0	30.1
Final Hy Job Preparation								
Maintenance Personnel								
Operating Personnel								
Health Physics Personnel								
Supervisory Personnel								
Engineering Personnel								
<b>TOTAL</b>								
GRAND TOTAL	200	274	534	1008	270.8	283.5	384.3	938.6

No further breakdowns were provided

# APPENDIX C

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

PLANT: INDIAN POINT 3		(PWR)	1980									
			NUMBER OF PERSONNEL (>100 M REM)					TOTAL MAN-REMS				
			STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS		
* WORK & JOB FUNCTION												
REACTOR OPERATING PERSONNEL		4	0	7		1.08	0.0	3.57				
MAINTENANCE PERSONNEL		35	0	3		18.99	0.05	1.00				
OPERATING PHYSICS PERSONNEL		14	0	19		8.26	0.07	10.59				
HEALTH PHYSICS PERSONNEL		10	0	0		4.38	0.02	0.08				
SUPERVISORY PERSONNEL		1	0	9		1.03	0.0	3.76				
ENGINEERING PERSONNEL		64	0	38	102	33.74	0.14	19.00		52.88		
TOTAL												
* ROUTINE MAINTENANCE												
MAINTENANCE PERSONNEL		42	0	67		12.11	0.01	35.42				
OPERATING PERSONNEL		3	0	2		1.02	0.02	1.03				
HEALTH PHYSICS PERSONNEL		0	0	2		0.12	0.02	1.92				
SUPERVISORY PERSONNEL		4	0	0		9.09	0.02	0.47				
ENGINEERING PERSONNEL		1	0	0		0.41	0.03	0.73				
TOTAL												
* IN-SERVICE INSPECTION												
MAINTENANCE PERSONNEL		10	0	21		3.60	0.0	10.09				
OPERATING PERSONNEL		0	0	2		0.02	0.0	0.39				
HEALTH PHYSICS PERSONNEL		0	0	0		0.0	0.04	0.0				
SUPERVISORY PERSONNEL		2	0	4		0.49	0.0	0.90				
ENGINEERING PERSONNEL		0	0	1		0.01	0.0	0.60				
TOTAL												
* SPECIAL MAINTENANCE												
MAINTENANCE PERSONNEL		65	0	280		32.56	0.01	123.98				
OPERATING PERSONNEL		13	0	3		4.69	0.01	1.34				
HEALTH PHYSICS PERSONNEL		7	0	27		3.20	0.06	15.21				
SUPERVISORY PERSONNEL		12	1	9		4.44	0.23	3.34				
ENGINEERING PERSONNEL		8	0	35		3.60	0.29	11.89				
TOTAL												
* WASTE PROCESSING												
MAINTENANCE PERSONNEL		0	0	11		0.10	0.0	3.75				
OPERATING PERSONNEL		0	0	0		0.0	0.0	0.15				
HEALTH PHYSICS PERSONNEL		3	0	1		0.85	0.0	3.30				
SUPERVISORY PERSONNEL		0	0	0		0.0	0.0	0.0				
ENGINEERING PERSONNEL		0	0	0		0.01	0.0	0.0				
TOTAL												
* REFUELING												
MAINTENANCE PERSONNEL		0	0	8		0.0	0.0	2.79				
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	0.03				
ENGINEERING PERSONNEL		0	0	0		0.0	0.0	0.0				
TOTAL												
* TOTAL BY JOB FUNCTION												
MAINTENANCE PERSONNEL		121	0	394	515	49.45	0.02	179.60		229.07		
OPERATING PERSONNEL		56	0	10	66	24.72	0.08	3.91		28.71		
HEALTH PHYSICS PERSONNEL		24	0	49	73	12.43	0.19	31.02		43.64		
SUPERVISORY PERSONNEL		28	1	13	42	18.40	0.27	4.82		23.49		
ENGINEERING PERSONNEL		10	0	45	55	5.06	0.32	16.92		22.36		
GRAND TOTAL												
		239	1	511	751	110.06	0.88	236.33		347.27		

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

# APPENDIX C

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

PLANT: KEWAUNEE (PWR)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* REACTOR OPERATIONS & SUPPORT								
MAINTENANCE PERSONNEL	4	1	5		0.189	0.013	0.040	
OPERATING PERSONNEL	25	0	1		3.860	0.0	0.012	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	7	1	0		1.086	0.002	0.0	
ENGINEERING PERSONNEL	4	8	5		0.388	0.705	0.235	
TOTAL	40	10	11	61	5.523	0.720	0.287	6.530
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	11	10	6		5.047	0.698	14.986	
OPERATING PERSONNEL	15	0	9		0.836	0.0	1.459	
HEALTH PHYSICS PERSONNEL	1	0	11		6.175	0.0	3.183	
SUPERVISORY PERSONNEL	5	0	11		0.139	0.0	1.929	
ENGINEERING PERSONNEL	2	0	2		0.065	0.0	0.033	
TOTAL	44	10	39	93	12.262	0.698	21.590	34.550
* IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	6	1	29		0.615	0.106	6.343	
OPERATING PERSONNEL	3	0	12		0.032	0.0	2.269	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	2	0	12		0.135	0.0	6.531	
ENGINEERING PERSONNEL	2	6	5		0.392	1.200	0.333	
TOTAL	13	7	58	78	1.174	1.506	15.476	17.956
* SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	31	10	76		11.056	0.506	40.966	
OPERATING PERSONNEL	10	0	1		0.282	0.0	0.030	
HEALTH PHYSICS PERSONNEL	6	0	0		0.524	0.0	0.0	
SUPERVISORY PERSONNEL	3	1	0		0.255	0.113	0.0	
ENGINEERING PERSONNEL	53	16	8	77	0.107	0.360	4.722	
TOTAL	103	27	85	154	12.226	0.979	45.718	58.923
* WASTE PROCESSING								
MAINTENANCE PERSONNEL	20	7	10		5.251	0.057	0.171	
OPERATING PERSONNEL	27	0	0		8.432	0.0	0.0	
HEALTH PHYSICS PERSONNEL	6	0	0		0.252	0.0	0.0	
SUPERVISORY PERSONNEL	1	0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0	
TOTAL	54	7	10	71	13.935	0.057	0.171	14.163
* REFUELLING								
MAINTENANCE PERSONNEL	20	10	11		1.837	3.544	2.882	
OPERATING PERSONNEL	9	0	9		0.063	0.0	4.882	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	3	0	0		0.034	0.0	0.0	
ENGINEERING PERSONNEL	2	3	0		0.167	0.0	0.0	
TOTAL	34	13	20	67	2.101	3.544	7.764	13.409
* TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	112	39	193	344	23.995	4.924	65.388	94.307
OPERATING PERSONNEL	89	0	32	121	13.505	0.0	8.652	22.157
HEALTH PHYSICS PERSONNEL	21	0	11	32	6.951	0.0	3.183	10.134
SUPERVISORY PERSONNEL	21	2	23	46	1.649	0.115	8.460	10.224
ENGINEERING PERSONNEL	13	22	20	55	1.12	2.265	5.323	8.709
GRAND TOTAL	248	64	379	691	47.321	7.409	91.006	145.736

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

APPENDIX C

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

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

# APPENDIX C

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

PLAN: MAINE YANKEE (PWR)

1980

(>100 M REM)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	2	2	0	0.770	0.320	0.060
OPERATING PERSONNEL	47	0	4	52.489	0.0	0.923
HEALTH PHYSICS PERSONNEL	18	1	31	14.605	0.160	13.339
SUPERVISORY PERSONNEL	70	8	13	26.568	1.800	3.950
ENGINEERING PERSONNEL	19	13	37	7.761	4.771	13.432
TOTAL	156	24	85	102.193	7.051	31.704
*EQUIPMENT MAINTENANCE						
MAINTENANCE PERSONNEL	35	3	157	37.075	0.895	77.769
OPERATING PERSONNEL	1	0	0	0.329	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	1	1.420	0.0	0.205
SUPERVISORY PERSONNEL	2	2	1	1.010	0.735	0.165
ENGINEERING PERSONNEL	2	0	1	1.320	0.015	0.145
TOTAL	41	5	160	41.154	1.645	78.284
*IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	5	0	28	1.630	0.0	14.000
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	0	0.185	0.0	0.0
SUPERVISORY PERSONNEL	0	4	8	0.0	0.050	0.020
ENGINEERING PERSONNEL	2	4	8	0.390	0.855	3.395
TOTAL	8	4	36	2.205	0.905	17.415
*SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	7	0	102	1.590	0.0	66.172
OPERATING PERSONNEL	2	0	0	0.670	0.0	0.030
HEALTH PHYSICS PERSONNEL	0	0	1	0.100	0.0	0.234
SUPERVISORY PERSONNEL	0	0	0	0.040	0.140	0.095
ENGINEERING PERSONNEL	4	5	10	1.003	2.130	1.660
TOTAL	13	5	113	3.403	2.270	71.191
*WASTE PROCESSING						
MAINTENANCE PERSONNEL	11	0	14	2.905	0.0	4.845
OPERATING PERSONNEL	25	0	0	10.633	0.0	0.035
HEALTH PHYSICS PERSONNEL	0	0	0	0.095	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0.135	0.0	0.100
ENGINEERING PERSONNEL	1	0	0	0.170	0.065	0.010
TOTAL	37	0	14	13.938	0.065	4.990
*REFUELING						
MAINTENANCE PERSONNEL	29	2	164	20.903	0.400	95.811
OPERATING PERSONNEL	30	0	4	14.822	0.0	0.990
HEALTH PHYSICS PERSONNEL	5	0	28	1.535	0.0	17.404
SUPERVISORY PERSONNEL	2	1	0	0.428	1.765	0.290
ENGINEERING PERSONNEL	9	10	29	4.433	3.572	16.679
TOTAL	75	13	225	42.121	5.737	129.174
*TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	89	7	465	64.873	1.615	258.657
OPERATING PERSONNEL	105	0	8	78.943	0.0	1.978
HEALTH PHYSICS PERSONNEL	25	1	61	17.940	0.160	31.182
SUPERVISORY PERSONNEL	74	11	99	28.181	4.490	4.620
ENGINEERING PERSONNEL	37	32	85	15.077	11.408	37.291
GRAND TOTAL	330	51	633	205.014	17.673	332.758

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

# APPENDIX C

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

PLANT: MILLSTONE 1 (BWR)

1980

NUMBER OF PERSONNEL (>100 M REM)

WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
REGIONAL OPERATIONS & MAINTENANCE PERSONNEL	11	0	4		9.49	0.01	1.16	
OPERATING PERSONNEL	45	0	0		45.18	0.0	0.25	
HEALTH PHYSICS PERSONNEL	16	4	55		15.11	1.46	21.50	
SUPERVISORY PERSONNEL	2	0	0		0.58	0.0	0.0	
ENGINEERING PERSONNEL	2	0	1		0.86	0.09	0.31	
TOTAL	76	4	60	140	71.22	1.56	23.22	96.00
*ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	16	0	0		4.13	0.03	0.28	
OPERATING PERSONNEL	0	0	0		0.22	0.0	0.01	
HEALTH PHYSICS PERSONNEL	1	0	0		0.27	0.0	0.23	
SUPERVISORY PERSONNEL	0	0	0		0.01	0.0	0.0	
ENGINEERING PERSONNEL	0	0	2		0.08	0.06	0.58	
TOTAL	17	0	2	19	4.71	0.09	1.10	5.90
*IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	3	3	164		1.11	0.75	92.50	
OPERATING PERSONNEL	0	0	5		0.65	0.08	1.94	
HEALTH PHYSICS PERSONNEL	0	1	26		0.33	0.44	7.83	
SUPERVISORY PERSONNEL	1	0	3		0.39	0.0	1.02	
ENGINEERING PERSONNEL	4	5	49		2.63	2.18	31.10	
TOTAL	8	9	247	264	5.11	3.45	134.39	162.95
*SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	46	99	1556		44.83	46.13	1274.32	
OPERATING PERSONNEL	31	1	59		9.89	0.30	39.05	
HEALTH PHYSICS PERSONNEL	9	4	155		4.44	2.51	93.28	
SUPERVISORY PERSONNEL	4	0	40		1.50	0.0	18.12	
ENGINEERING PERSONNEL	15	32	163		6.44	11.56	128.30	
TOTAL	105	136	1973	2214	67.10	60.50	1553.07	1680.67
*WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	1	25		0.40	0.28	12.01	
OPERATING PERSONNEL	47	0	5		23.41	0.0	1.98	
HEALTH PHYSICS PERSONNEL	9	0	4		3.88	0.01	1.80	
SUPERVISORY PERSONNEL	1	0	0		0.27	0.0	0.0	
ENGINEERING PERSONNEL	1	0	3		0.46	0.01	6.11	
TOTAL	58	1	37	96	28.42	0.30	21.90	50.62
*SREWEELING								
MAINTENANCE PERSONNEL	21	16	72		12.70	4.94	32.79	
OPERATING PERSONNEL	30	0	1		16.15	0.02	0.42	
HEALTH PHYSICS PERSONNEL	6	1	23		1.64	0.24	8.70	
SUPERVISORY PERSONNEL	0	0	0		0.13	0.0	0.09	
ENGINEERING PERSONNEL	0	4	31		3.02	1.80	15.87	
TOTAL	63	21	127	211	33.64	7.00	57.87	98.51
*TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	97	119	1821	2037	72.66	52.14	1413.06	1537.86
OPERATING PERSONNEL	153	1	70	224	95.50	0.40	43.65	139.55
HEALTH PHYSICS PERSONNEL	41	10	263	314	25.67	4.66	133.34	163.67
SUPERVISORY PERSONNEL	8	0	43	51	2.88	0.0	22.11	22.11
ENGINEERING PERSONNEL	28	41	249	318	13.49	15.70	182.27	211.46
GRAND TOTAL	327	171	2446	2944	210.20	72.90	1791.55	2074.65

Workers may be counted in more than one category.



# APPENDIX C

PLANT: MILLSTONE 2 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

1980

WORK & JOB FUNCTION	STATION EMPLOYEES	NUMBER OF PERSONNEL (>100 M REM)			TOTAL PERSONS	STATION EMPLOYEES	TOTAL MAN-REMS		
		EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS			UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	5	0	0	4		2.16	0.04	2.56	
OPERATING PERSONNEL	30	0	0	3		12.75	0.02	0.96	
HEALTH PHYSICS PERSONNEL	13	4	0	63		10.43	0.00	31.97	
SUPERVISORY PERSONNEL	0	0	0	3		0.13	0.00	1.55	
ENGINEERING PERSONNEL	3	5	0	12		1.56	1.99	4.16	
TOTAL	51	9	0	85	145	27.03	4.62	41.20	72.85
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	2	0	0	1		1.13	0.00	0.66	
OPERATING PERSONNEL	0	0	0	0		0.02	0.00	0.00	
HEALTH PHYSICS PERSONNEL	0	0	0	0		0.06	0.00	0.00	
SUPERVISORY PERSONNEL	0	0	0	0		0.00	0.00	0.00	
ENGINEERING PERSONNEL	0	0	0	0		0.00	0.00	0.00	
TOTAL	2	0	0	0	3	1.21	0.01	0.66	1.88
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	0	0	0	15		0.00	0.00	7.71	
OPERATING PERSONNEL	0	0	0	0		0.08	0.00	0.09	
HEALTH PHYSICS PERSONNEL	0	0	0	0		0.03	0.01	0.16	
SUPERVISORY PERSONNEL	0	0	0	1		0.00	0.00	0.13	
ENGINEERING PERSONNEL	0	0	0	8		0.01	0.07	6.17	
TOTAL	0	0	0	24	24	0.12	0.08	14.26	14.46
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	46	1	0	678		49.40	0.91	308.71	
OPERATING PERSONNEL	24	0	0	16		6.16	0.07	6.82	
HEALTH PHYSICS PERSONNEL	6	1	0	26		1.71	0.81	9.33	
SUPERVISORY PERSONNEL	1	0	0	7		0.21	0.00	2.26	
ENGINEERING PERSONNEL	12	13	0	78		4.67	0.00	37.17	
TOTAL	89	15	0	625	929	64.15	1.79	373.87	441.38
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	3	1	11			1.08	0.40	3.67	
OPERATING PERSONNEL	10	0	1			2.96	0.00	0.39	
HEALTH PHYSICS PERSONNEL	1	0	1			0.41	0.00	0.74	
SUPERVISORY PERSONNEL	0	0	0			0.00	0.00	0.00	
ENGINEERING PERSONNEL	0	0	0			0.00	0.00	0.01	
TOTAL	14	1	13	13	28	4.46	0.40	4.81	9.67
* REFUELING									
MAINTENANCE PERSONNEL	17	1	77			7.44	0.28	48.14	
OPERATING PERSONNEL	5	0	10			2.17	0.00	4.04	
HEALTH PHYSICS PERSONNEL	0	0	9			0.00	0.00	2.70	
SUPERVISORY PERSONNEL	1	0	1			0.17	0.00	0.00	
ENGINEERING PERSONNEL	1	1	11			0.67	0.00	5.30	
TOTAL	24	2	107	133	133	10.45	0.61	60.18	71.24
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	73	3	806		882	61.21	1.63	371.45	434.29
OPERATING PERSONNEL	69	0	30		99	24.14	0.09	12.30	36.53
HEALTH PHYSICS PERSONNEL	20	5	99		124	12.64	3.39	44.90	60.93
SUPERVISORY PERSONNEL	12	0	11		13	0.51	0.00	3.94	4.45
ENGINEERING PERSONNEL	16	19	109		144	6.92	6.55	61.81	75.28
GRAND TOTAL	190	27	1055		1262	105.42	11.66	494.40	611.48

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

# APPENDIX C

## NUMBER OF PERSONNEL AND MAN-REMS BY WORK AND JOB FUNCTION

PLANT: MONTECELLO (BLR)

NUMBER OF PERSONNEL (>100 M REM)  
1980

WORK & JOB FUNCTION	STATION		UTILITY		TOTAL		STATION		UTILITY		TOTAL		MAN-REMS	
	EMPLOYEES	CONTRACT	EMPLOYEES	CONTRACT	PERSONS	OTHERS	EMPLOYEES	CONTRACT	EMPLOYEES	CONTRACT	PERSONS	OTHERS	EMPLOYEES	CONTRACT
* REACTOR OPERATIONS & SURV.														
MAINTENANCE PERSONNEL	48	93	134	0	195	0	13,592	0	15,921	0	15,921	0	3,392	0
OPERATING PERSONNEL	45	1	0	0	1	0	25,324	0	0	0	25,324	0	0.116	0
HEALTH PHYSICS PERSONNEL	15	28	0	0	28	0	4,361	0	0	0	4,361	0	5.058	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	22	73	7	0	73	0	2,483	0	0.263	0	2,483	0	4.869	0
TOTAL	130	195	141	0	466	0	45,760	0	16,184	0	45,760	0	17,435	0
* ROUTINE MAINTENANCE														
MAINTENANCE PERSONNEL	44	100	144	0	100	0	13,690	0	20,525	0	20,525	0	8.585	0
OPERATING PERSONNEL	26	0	0	0	0	0	2,261	0	0	0	2,261	0	0	0
HEALTH PHYSICS PERSONNEL	11	6	0	0	6	0	0.713	0	0	0	0.713	0	0.478	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	15	66	5	0	66	0	1,374	0	0.243	0	1,374	0	3.488	0
TOTAL	95	172	149	0	396	0	18,042	0	20,808	0	20,808	0	12,551	0
* IN-SERVICE INSPECTION														
MAINTENANCE PERSONNEL	0	25	22	0	25	0	0	0	0.588	0	0.588	0	21.028	0
OPERATING PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	15	3	0	15	0	0	0	1.776	0	1.776	0	13.360	0
TOTAL	0	40	25	0	65	0	0	0	2.364	0	2.364	0	34.388	0
* SPECIAL MAINTENANCE														
MAINTENANCE PERSONNEL	38	281	157	0	281	0	36,902	0	68,785	0	68,785	0	94.661	0
OPERATING PERSONNEL	44	0	0	0	0	0	16,208	0	0	0	16,208	0	0	0
HEALTH PHYSICS PERSONNEL	11	23	0	0	23	0	2,710	0	0	0	2,710	0	9.781	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	20	101	9	0	101	0	8,492	0	1.113	0	8,492	0	51.047	0
TOTAL	113	405	166	0	684	0	64,312	0	69,898	0	69,898	0	155.489	0
* WASTE PROCESSING														
MAINTENANCE PERSONNEL	20	2	18	0	2	0	2,165	0	0.398	0	2,165	0	0.018	0
OPERATING PERSONNEL	8	3	0	0	3	0	0.908	0	0	0	0.908	0	7.276	0
HEALTH PHYSICS PERSONNEL	10	4	0	0	4	0	1,039	0	0	0	1,039	0	0.428	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	0	3	0	0	3	0	0	0	0	0	0	0	0.690	0
TOTAL	38	12	18	0	68	0	4,112	0	0.398	0	4,112	0	8.412	0
* REFUELING														
MAINTENANCE PERSONNEL	22	3	63	0	3	0	3,731	0	8.491	0	3,731	0	0.039	0
OPERATING PERSONNEL	34	0	0	0	0	0	5,638	0	0	0	5,638	0	0	0
HEALTH PHYSICS PERSONNEL	3	8	0	0	8	0	0.089	0	0	0	0.089	0	1.835	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	6	11	2	0	11	0	1,227	0	0.078	0	1,227	0	1.910	0
TOTAL	65	22	65	0	152	0	10,685	0	8.569	0	10,685	0	1.784	0
* TOTAL BY JOB FUNCTION														
MAINTENANCE PERSONNEL	172	504	538	0	504	0	70,080	0	114,708	0	114,708	0	127.723	0
OPERATING PERSONNEL	157	4	0	0	4	0	50,339	0	0	0	50,339	0	7.392	0
HEALTH PHYSICS PERSONNEL	50	69	0	0	69	0	8,912	0	0	0	8,912	0	17.580	0
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENGINEERING PERSONNEL	62	249	26	0	249	0	13,540	0	3.511	0	13,540	0	22.927	0
TOTAL	441	826	564	0	826	0	142,911	0	118,221	0	142,911	0	228.059	0

Workers may be counted in more than one category.

# APPENDIX C

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

PLANT: NINE MILE POINT (BUR)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	EMPLOYEES	EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	173	40	100		16,834	1,200		5,071	
OPERATING PERSONNEL	35	0	0		9,440	0.0		0.0	
HEALTH PHYSICS PERSONNEL	32	0	3		17,582	0.0		0.229	
SUPERVISORY PERSONNEL	42	1	4		8,589	0.002		0.029	
ENGINEERING PERSONNEL	11	16	15		0,673	0.316		0.249	
TOTAL	293	57	122	472	53,118	1,518		5,578	60,314
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	281	56	92		34,988	8,483		4,518	
OPERATING PERSONNEL	29	0	0		0,998	0.0		0.0	
HEALTH PHYSICS PERSONNEL	33	0	0		0,804	0.0		0.0	
SUPERVISORY PERSONNEL	26	0	6		1,664	0.0		2,138	
ENGINEERING PERSONNEL	16	7	6		0,645	0.485		0.262	
TOTAL	385	63	104	552	39,099	8,968		6,918	54,985
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	39	56	53		10,300	32,689		6,132	
OPERATING PERSONNEL	11	0	0		0,275	0.0		0.0	
HEALTH PHYSICS PERSONNEL	16	0	1		0,491	0.0		0.015	
SUPERVISORY PERSONNEL	18	0	4		0,706	0.0		0.966	
ENGINEERING PERSONNEL	3	18	11		0,085	5,958		2,153	
TOTAL	87	74	69	230	11,857	38,647		9,266	59,770
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	368	96	285		50,891	18,397		164,784	
OPERATING PERSONNEL	17	0	0		0,990	0.0		0.0	
HEALTH PHYSICS PERSONNEL	58	0	3		6,549	0.0		0.100	
SUPERVISORY PERSONNEL	46	1	9		2,632	0.010		0.832	
ENGINEERING PERSONNEL	19	17	15		0,886	1,711		1,144	
TOTAL	508	114	312	934	61,948	20,118		166,860	248,926
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	73	8	58		13,123	0,470		8,690	
OPERATING PERSONNEL	36	0	0		10,200	0.0		0.0	
HEALTH PHYSICS PERSONNEL	20	0	4		1,550	0.0		0.065	
SUPERVISORY PERSONNEL	5	1	1		2,421	0.0		0.008	
ENGINEERING PERSONNEL	1	1	2		0,007	0.002		0.055	
TOTAL	135	9	65	209	27,301	0,472		8,818	36,591
* REFUELING									
MAINTENANCE PERSONNEL	63	1	14		4,931	0,004		2,782	
OPERATING PERSONNEL	26	0	0		2,573	0.0		0.0	
HEALTH PHYSICS PERSONNEL	16	0	1		0,906	0.0		0.010	
SUPERVISORY PERSONNEL	11	0	0		0,172	0.0		0.0	
ENGINEERING PERSONNEL	1	4	1		0,067	0,052		0,010	
TOTAL	117	5	16	138	8,649	0,056		2,802	11,507
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	997	257	602	1856	131,067	61,243		191,977	384,287
OPERATING PERSONNEL	154	0	0	154	26,476	0.0		0.0	26,476
HEALTH PHYSICS PERSONNEL	175	0	12	187	27,882	0.0		0,419	28,301
SUPERVISORY PERSONNEL	148	2	24	174	16,184	0,112		3,973	20,169
ENGINEERING PERSONNEL	51	63	50	164	2,363	8,524		3,873	14,760
GRAND TOTAL	1525	322	688	2535	201,972	69,779		200,242	471,993

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

# APPENDIX C

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

1980

(PMR)

PLANT: NORTH ANNA 1

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
* REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	220	8	635		23,975	0,375	35,311	
OPERATING PERSONNEL	104	6	9		23,316	0,126	0,041	
HEALTH PHYSICS PERSONNEL	58	1	36		21,579	0,002	8,479	
SUPERVISORY PERSONNEL	15	2	14		0,047	0,011	0,125	
ENGINEERING PERSONNEL	34	58	27		0,955	0,870	0,767	
TOTAL	431	75	721	1227	69,872	1,384	44,723	115,979
* ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	140	9	251		27,801	0,385	12,129	
OPERATING PERSONNEL	44	12	0		1,397	0,244	0,0	
HEALTH PHYSICS PERSONNEL	28	0	19		2,155	0,0	1,067	
SUPERVISORY PERSONNEL	7	0	3		0,048	0,030	0,030	
ENGINEERING PERSONNEL	8	0	6		0,122	0,0	0,156	
TOTAL	227	21	279	527	31,523	0,629	13,382	45,534
* IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	1		0,0	0,0	0,030	
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	1	1	0,0	0,0	0,030	0,030
* SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	11	0	205		0,388	0,0	9,068	
OPERATING PERSONNEL	4	4	0		0,045	0,037	0,0	
HEALTH PHYSICS PERSONNEL	4	0	0		0,011	0,0	0,0	
SUPERVISORY PERSONNEL	0	0	0		0,0	0,0	0,0	
ENGINEERING PERSONNEL	0	0	3		0,0	0,0	0,614	
TOTAL	19	4	208	231	0,444	0,037	9,682	10,163
* WASTE PROCESSING								
MAINTENANCE PERSONNEL	65	0	91		1,419	0,0	2,327	
OPERATING PERSONNEL	56	0	7		4,372	0,0	5,934	
HEALTH PHYSICS PERSONNEL	25	0	14		10,632	0,0	0,991	
SUPERVISORY PERSONNEL	1	0	2		0,005	0,0	0,010	
ENGINEERING PERSONNEL	2	2	2		0,062	0,012	0,014	
TOTAL	139	2	116	257	16,490	0,012	9,276	25,778
* FUELING								
MAINTENANCE PERSONNEL	34	0	49		0,085	0,0	0,124	
OPERATING PERSONNEL	46	0	2		0,218	0,0	0,019	
HEALTH PHYSICS PERSONNEL	10	0	0		0,036	0,0	0,0	
SUPERVISORY PERSONNEL	6	0	3		0,010	0,0	0,013	
ENGINEERING PERSONNEL	9	9	0		0,015	0,125	0,0	
TOTAL	105	9	54	168	0,364	0,125	0,156	0,645
* TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	470	17	1232	1719	53,668	0,760	58,989	113,417
OPERATING PERSONNEL	244	22	18	284	29,348	0,407	5,994	35,749
HEALTH PHYSICS PERSONNEL	125	1	69	195	34,413	0,002	10,537	44,952
SUPERVISORY PERSONNEL	29	2	22	53	0,110	0,011	0,174	0,299
ENGINEERING PERSONNEL	53	69	38	160	1,154	1,007	1,551	3,712
GRAND TOTAL	921	111	1379	2411	118,693	2,187	77,249	198,129

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

# APPENDIX C

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

PLANT: O'CONNOR 1,2,3 (PWR)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS
<b>REACTOR OPERATIONS &amp; SURV.</b>								
MAINTENANCE PERSONNEL	103	67	28		4,560	2,585	3,714	
OPERATING PERSONNEL	112	8	0		46,759	4,025	0.0	
HEALTH PHYSICS PERSONNEL	77	43	42		22,040	3,905	7,290	
SUPERVISORY PERSONNEL	8	0	0		0.450	0.0	0.0	
ENGINEERING PERSONNEL	88	16	10		27,260	1,343	0.495	
<b>TOTAL</b>	<b>388</b>	<b>134</b>	<b>80</b>	<b>602</b>	<b>101,069</b>	<b>11,855</b>	<b>11,499</b>	<b>124,423</b>
<b>ROUTINE MAINTENANCE</b>								
MAINTENANCE PERSONNEL	240	251	97		105,344	76,740	43,229	
OPERATING PERSONNEL	79	6	0		8,115	0.600	0.0	
HEALTH PHYSICS PERSONNEL	76	44	36		15,310	6,385	8,345	
SUPERVISORY PERSONNEL	8	0	0		0.495	0.0	0.0	
ENGINEERING PERSONNEL	64	29	57		13,340	4,170	11,015	
<b>TOTAL</b>	<b>467</b>	<b>330</b>	<b>180</b>	<b>977</b>	<b>142,604</b>	<b>87,895</b>	<b>62,589</b>	<b>293,083</b>
<b>IN-SERVICE INSPECTION</b>								
MAINTENANCE PERSONNEL	23	50	3		1,110	18,200	0.050	
OPERATING PERSONNEL	28	3	0		1,020	0.070	0.0	
HEALTH PHYSICS PERSONNEL	23	23	17		1,335	1,135	1,460	
SUPERVISORY PERSONNEL	2	0	0		0.050	0.0	0.0	
ENGINEERING PERSONNEL	8	13	32		0.800	0.410	11,290	
<b>TOTAL</b>	<b>84</b>	<b>89</b>	<b>52</b>	<b>225</b>	<b>4,315</b>	<b>19,815</b>	<b>12,800</b>	<b>36,930</b>
<b>SPECIAL MAINTENANCE</b>								
MAINTENANCE PERSONNEL	171	312	35		53,235	204,017	2,345	
OPERATING PERSONNEL	66	12	0		3,365	2,145	0.0	
HEALTH PHYSICS PERSONNEL	53	43	34		10,890	8,240	8,945	
SUPERVISORY PERSONNEL	4	0	0		0.505	0.0	0.0	
ENGINEERING PERSONNEL	59	64	98		19,480	19,560	33,040	
<b>TOTAL</b>	<b>353</b>	<b>431</b>	<b>167</b>	<b>951</b>	<b>87,075</b>	<b>233,962</b>	<b>44,330</b>	<b>169,767</b>
<b>WASTE PROCESSING</b>								
MAINTENANCE PERSONNEL	32	5	15		1,810	0.075	3,075	
OPERATING PERSONNEL	59	3	0		6,805	0.170	0.0	
HEALTH PHYSICS PERSONNEL	35	8	6		4,655	0.290	0.780	
SUPERVISORY PERSONNEL	1	0	0		0.015	0.0	0.0	
ENGINEERING PERSONNEL	22	2	0		4,515	0.120	0.0	
<b>TOTAL</b>	<b>149</b>	<b>18</b>	<b>21</b>	<b>188</b>	<b>17,800</b>	<b>0,655</b>	<b>3,855</b>	<b>22,310</b>
<b>REFUELLING</b>								
MAINTENANCE PERSONNEL	181	309	55		78,055	109,253	12,210	
OPERATING PERSONNEL	100	9	0		23,325	1,910	0.0	
HEALTH PHYSICS PERSONNEL	52	35	44		5,815	3,655	10,320	
SUPERVISORY PERSONNEL	8	0	0		2,690	0.0	0.0	
ENGINEERING PERSONNEL	79	35	70		11,025	4,295	14,340	
<b>TOTAL</b>	<b>420</b>	<b>392</b>	<b>169</b>	<b>981</b>	<b>120,910</b>	<b>119,113</b>	<b>36,870</b>	<b>276,893</b>
<b>TOTAL BY JOB FUNCTION</b>								
MAINTENANCE PERSONNEL	750(267)	994(426)	223(127)	1967 (820)	244,114	410,870	64,623	719,607
OPERATING PERSONNEL	444(117)	41 (16)	0 (0)	485 (133)	89,389	8,920	0.0	98,309
HEALTH PHYSICS PERSONNEL	316( 98)	200 ( 53)	179 ( 51)	695 (202)	60,045	23,610	37,140	120,795
SUPERVISORY PERSONNEL	31(11)	0 (0)	0 (0)	31 (11)	4,205	0.0	0.0	4,205
ENGINEERING PERSONNEL	320(108)	152 ( 77)	267 (155)	746 (340)	76,420	29,895	70,180	176,495
<b>GRAND TOTAL</b>	<b>1861(601)</b>	<b>1394(572)</b>	<b>669(333)</b>	<b>3924 (1506)</b>	<b>474,173</b>	<b>473,295</b>	<b>171,943</b>	<b>1119,411</b>

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

## APPENDIX C

## PLANT: OYSIER CREEK 1 (BMP) NUMBER OF PERSONNEL AND MAN-REMS BY WORK AND JOB FUNCTION

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS			TOTAL
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	
* REACTOR OPERATION & SURV							
MAINTENANCE PERSONNEL	81	24	124	6,925	0,667	8,145	
OPERATING PERSONNEL	85	3	14	65,446	0,011	1,412	
HEALTH PHYSICS PERSONNEL	6	0	36	0,285	0,0	1,915	
SUPERVISORY PERSONNEL	20	3	2	4,281	0,287	0,004	
ENGINEERING PERSONNEL	31	15	39	4,551	0,933	5,676	
TOTAL	223	45	215	81,488	1,898	17,152	100,538
* ROUTINE MAINTENANCE							
MAINTENANCE PERSONNEL	156	61	630	87,580	51,345	212,279	
OPERATING PERSONNEL	76	6	22	9,662	1,753	2,216	
HEALTH PHYSICS PERSONNEL	24	0	257	33,309	0,0	145,316	
SUPERVISORY PERSONNEL	24	9	2	10,115	1,307	0,001	
ENGINEERING PERSONNEL	41	25	48	11,333	9,687	4,600	
TOTAL	321	101	959	151,779	64,092	364,412	580,283
* IN-SERVICE INSPECTION							
MAINTENANCE PERSONNEL	67	37	253	3,667	4,766	89,671	
OPERATING PERSONNEL	42	0	21	2,541	0,439	8,638	
HEALTH PHYSICS PERSONNEL	6	0	10	0,293	0,0	0,559	
SUPERVISORY PERSONNEL	15	3	1	2,771	0,104	0,0	
ENGINEERING PERSONNEL	27	6	28	4,422	0,524	3,283	
TOTAL	159	48	313	13,794	5,663	102,151	121,608
* SPECIAL MAINTENANCE							
MAINTENANCE PERSONNEL	123	59	738	73,898	77,172	685,941	
OPERATING PERSONNEL	53	4	26	6,770	3,047	7,079	
HEALTH PHYSICS PERSONNEL	11	0	76	0,530	0,0	11,188	
SUPERVISORY PERSONNEL	15	7	1	2,656	0,989	0,0	
ENGINEERING PERSONNEL	30	16	41	7,178	1,226	7,023	
TOTAL	232	86	882	91,032	82,434	711,231	884,697
* WASTE PROCESSING							
MAINTENANCE PERSONNEL	69	12	70	5,450	2,874	9,759	
OPERATING PERSONNEL	22	1	5	0,915	0,230	0,502	
HEALTH PHYSICS PERSONNEL	1	0	26	0,005	0,0	2,078	
SUPERVISORY PERSONNEL	4	0	2	0,202	0,0	0,007	
ENGINEERING PERSONNEL	8	0	8	0,983	0,0	0,829	
TOTAL	104	13	111	7,555	3,104	13,175	23,834
* REFUELING							
MAINTENANCE PERSONNEL	88	30	130	40,610	3,990	16,823	
OPERATING PERSONNEL	57	4	14	18,529	0,734	2,061	
HEALTH PHYSICS PERSONNEL	4	0	22	0,224	0,0	2,197	
SUPERVISORY PERSONNEL	11	0	0	2,108	0,0	0,0	
ENGINEERING PERSONNEL	15	4	4	3,195	0,055	0,129	
TOTAL	175	38	170	64,666	4,779	21,210	90,655
* TOTAL BY JOB FUNCTION							
MAINTENANCE PERSONNEL	584 (157)	223 (64)	1945 (903)	2752 (1,124)	140,814	1022,616	1381,562
OPERATING PERSONNEL	335 (99)	20 (8)	102 (50)	457 (157)	6,214	21,908	131,765
HEALTH PHYSICS PERSONNEL	52 (24)	0 (0)	427 (264)	479 (288)	0,0	163,253	197,899
SUPERVISORY PERSONNEL	89 (24)	22 (12)	8 (4)	119 (40)	2,687	0,012	24,832
ENGINEERING PERSONNEL	154 (46)	66 (31)	168 (74)	388 (151)	12,255	21,540	65,557
GRAND TOTAL	1214 (350)	331 (115)	2650 (1,285)	4195 (1,760)	161,970	1229,331	1801,615

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

PLANT: PALISADES

(PWR)

APPENDIX C  
NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION  
1980

1980 NUMBER OF PERSONNEL (>100 M REM)									
WORK & JOB FUNCTION	STATION			TOTAL			TOTAL MAN-REMS		
	EMPLOYEES	UTILITY	CONTRACT	PERSONS	EMPLOYEES	UTILITY	CONTRACT	MAN-REMS	
REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	0	0	0		0.149	0.017	0.341		
OPERATING PERSONNEL	32	0	2		9.904	0.344	0.784		
HEALTH PHYSICS PERSONNEL	27	11	16		11.371	3.566	22.034		
SUPERVISORY PERSONNEL	2	0	0		0.761	0.051	0.082		
ENGINEERING PERSONNEL	6	1	0		2.307	0.364	0.591		
TOTAL	67	12	18	97	24.492	4.342	23.832	52.666	
ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	54	4	3		53.229	2.944	2.153		
OPERATING PERSONNEL	0	0	0		0.247	0.040	0.001		
HEALTH PHYSICS PERSONNEL	1	0	0		0.286	0.117	0.115		
SUPERVISORY PERSONNEL	12	1	2		7.230	0.309	0.565		
ENGINEERING PERSONNEL	1	0	0		0.699	0.108	0.485		
TOTAL	68	5	5	78	61.691	3.518	3.319	68.528	
IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	0	0	0		0.0	0.051	0.145		
OPERATING PERSONNEL	0	0	0		0.032	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.010	0.0	0.031		
SUPERVISORY PERSONNEL	0	0	0		0.009	0.086	0.083		
ENGINEERING PERSONNEL	3	0	0		0.957	0.687	0.282		
TOTAL	3	0	0	3	1.008	0.824	0.541	2.373	
SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	6	2	287		3.058	1.452	203.872		
OPERATING PERSONNEL	0	0	0		0.072	0.040	0.125		
HEALTH PHYSICS PERSONNEL	0	0	4		0.149	0.035	2.125		
SUPERVISORY PERSONNEL	0	0	6		0.234	0.150	3.321		
ENGINEERING PERSONNEL	2	1	36		1.224	0.787	50.348		
TOTAL	8	3	333	344	4.737	2.464	259.791	266.992	
WASTE PROCESSING									
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.005		
OPERATING PERSONNEL	0	0	0		0.091	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.109	0.0	0.0		
SUPERVISORY PERSONNEL	0	0	0		0.040	0.045	0.0		
ENGINEERING PERSONNEL	0	0	4		0.040	0.0	2.139		
TOTAL	0	0	4	4	0.280	0.045	2.144	2.469	
REFUELING									
MAINTENANCE PERSONNEL	0	0	0		0.0	0.0	0.0		
OPERATING PERSONNEL	0	0	0		0.013	0.0	0.0		
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.0		
SUPERVISORY PERSONNEL	0	0	0		0.010	0.014	0.0		
ENGINEERING PERSONNEL	0	0	0		0.0	0.0	0.0		
TOTAL	0	0	0	0	0.023	0.014	0.0	0.037	
TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	60	6	290	356	56.436	4.464	206.516	267.416	
OPERATING PERSONNEL	32	0	2	34	10.359	0.424	0.910	11.693	
HEALTH PHYSICS PERSONNEL	28	11	20	59	11.925	3.718	24.305	39.948	
SUPERVISORY PERSONNEL	14	1	8	23	8.284	0.655	4.051	12.990	
ENGINEERING PERSONNEL	12	2	40	54	5.227	1.946	23.845	61.018	
GRAND TOTAL	146	20	360	526	92.231	11.207	289.627	393.065	

**APPENDIX C**  
**NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION**  
**1980**

PLANT: PEACH BOTTOM 2,3 (BUR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M-REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	MAN-REMS	MAN-REMS
<b>* REACTOR OPERATIONS &amp; SURV.</b>									
MAINTENANCE PERSONNEL	1	70	108		0.153	34.289		46.514	
OPERATING PERSONNEL	57	3	15		42.602	1.036		2.118	
HEALTH PHYSICS PERSONNEL	47	0	70		52.629	0.0		55.003	
SUPERVISORY PERSONNEL	0	1	1		0.0	0.114		0.118	
ENGINEERING PERSONNEL	34	9	16		30.867	5.913		15.221	
<b>TOTAL</b>	<b>139</b>	<b>83</b>	<b>210</b>	<b>432</b>	<b>126.251</b>	<b>41.152</b>		<b>118.974</b>	<b>286.577</b>
<b>* ROUTINE MAINTENANCE</b>									
MAINTENANCE PERSONNEL	5	525	1005		1.730	426.728		899.556	
OPERATING PERSONNEL	15	2	6		3.739	3.576		1.553	
HEALTH PHYSICS PERSONNEL	26	0	27		14.843	0.0		22.179	
SUPERVISORY PERSONNEL	0	4	0		0.0	0.787		0.0	
ENGINEERING PERSONNEL	4	20	9		1.857	11.934		3.420	
<b>TOTAL</b>	<b>50</b>	<b>551</b>	<b>1047</b>	<b>1648</b>	<b>22.169</b>	<b>443.025</b>		<b>926.708</b>	<b>1391.902</b>
<b>* IN-SERVICE INSPECTION</b>									
MAINTENANCE PERSONNEL	0	2	66		0.0	1.863		80.191	
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	3	3		0.0	2.175		0.903	
<b>TOTAL</b>	<b>0</b>	<b>5</b>	<b>69</b>	<b>74</b>	<b>0.0</b>	<b>4.038</b>		<b>81.094</b>	<b>85.132</b>
<b>* SPECIAL MAINTENANCE</b>									
MAINTENANCE PERSONNEL	0	4	243		0.0	0.720		315.024	
OPERATING PERSONNEL	0	1	0		0.0	0.833		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	3	2		0.0	0.478		1.404	
<b>TOTAL</b>	<b>0</b>	<b>8</b>	<b>245</b>	<b>253</b>	<b>0.0</b>	<b>2.031</b>		<b>316.428</b>	<b>318.459</b>
<b>* WASTE PROCESSING</b>									
MAINTENANCE PERSONNEL	1	4	24		0.104	0.731		8.044	
OPERATING PERSONNEL	6	0	2		5.686	0.0		0.390	
HEALTH PHYSICS PERSONNEL	1	0	7		0.122	0.0		3.915	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0		0.0	
ENGINEERING PERSONNEL	1	0	0		0.114	0.0		0.0	
<b>TOTAL</b>	<b>9</b>	<b>4</b>	<b>37</b>	<b>50</b>	<b>6.030</b>	<b>0.733</b>		<b>12.851</b>	<b>19.614</b>
<b>* REFUELING</b>									
MAINTENANCE PERSONNEL	0	8	31		0.0	2.043		11.069	
OPERATING PERSONNEL	4	0	3		0.888	0.0		1.369	
HEALTH PHYSICS PERSONNEL	6	0	7		2.481	0.0		3.685	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0		0.0	
ENGINEERING PERSONNEL	1	0	4		0.110	0.719		0.0	
<b>TOTAL</b>	<b>11</b>	<b>8</b>	<b>45</b>	<b>64</b>	<b>3.479</b>	<b>2.043</b>		<b>16.842</b>	<b>22.164</b>
<b>* TOTAL BY JOB FUNCTION</b>									
MAINTENANCE PERSONNEL	7 ( 5)	613 (560)	1481 (1,247)	2101 (1,812)	1.991	466.376		1360.900	1829.267
OPERATING PERSONNEL	82 ( 65)	6 ( 4)	26 ( 24)	114 ( 93)	52.915	5.445		5.430	63.790
HEALTH PHYSICS PERSONNEL	80 ( 50)	0 ( 0)	111 ( 80)	191 ( 130)	70.075	0.0		84.782	154.857
SUPERVISORY PERSONNEL	0 ( 0)	5 ( 6)	1 ( 1)	6 ( 6)	0.0	0.901		0.118	1.019
ENGINEERING PERSONNEL	40 ( 34)	33 ( 28)	34 ( 27)	107 ( 89)	32.244	20.500		21.467	75.113
<b>(GRAND) TOTAL</b>	<b>209 (164)</b>	<b>659 (567)</b>	<b>1653 (1,376)</b>	<b>2521 (2,130)</b>	<b>157.229</b>	<b>493.222</b>		<b>1472.897</b>	<b>2124.048</b>

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



# APPENDIX C

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

(BWR)

PLANT: PILGRIM

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)				TOTAL MAN-REMS			
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS	OTHERS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	24	1	66		6.61	0.30	23.37	
OPERATING PERSONNEL	45	0	0		91.91	0.0		
HEALTH PHYSICS PERSONNEL	26	0	16		40.77	0.0	5.10	
SUPERVISORY PERSONNEL	3	3	3		1.91	0.90	2.18	
ENGINEERING PERSONNEL	3	1	20		1.89	0.10	6.60	
TOTAL	101	5	105	211	143.09	1.30	37.25	181.64
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	68	3	1059		85.03	0.67	673.41	
OPERATING PERSONNEL	23	0	0		10.32	0.0	0.0	
HEALTH PHYSICS PERSONNEL	15	0	43		9.16	0.0	30.55	
SUPERVISORY PERSONNEL	37	11	9		19.12	2.77	5.04	
ENGINEERING PERSONNEL	4	0	69		1.44	0.13	28.54	
TOTAL	147	14	1180	1341	125.07	3.57	737.54	866.18
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	0	0	78		0.30	0.0	75.04	
OPERATING PERSONNEL	0	0	0		0.17	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.13	
SUPERVISORY PERSONNEL	1	1	0		0.18	0.11	0.0	
ENGINEERING PERSONNEL	0	0	0		0.02	0.0	0.0	
TOTAL	1	1	78	80	0.67	0.11	75.55	76.33
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	60	6	1415		46.87	1.91	1155.85	
OPERATING PERSONNEL	19	0	7		10.23	0.0	6.61	
HEALTH PHYSICS PERSONNEL	12	1	76		4.68	1.51	308.74	
SUPERVISORY PERSONNEL	37	13	19		19.08	4.85	8.12	
ENGINEERING PERSONNEL	4	164	85		1.20	84.07	53.75	
TOTAL	132	184	1602	1918	82.06	92.34	1533.07	1707.42
WASTE PROCESSING								
MAINTENANCE PERSONNEL	24	0	148		9.21	0.05	62.61	
OPERATING PERSONNEL	11	0	0		7.19	0.0	0.0	
HEALTH PHYSICS PERSONNEL	7	0	8		2.37	0.0	2.76	
SUPERVISORY PERSONNEL	0	0	0		0.0	0.0	0.01	
ENGINEERING PERSONNEL	7	0	2		2.39	0.05	1.03	
TOTAL	49	0	158	207	23.16	0.10	66.46	89.72
REFUELING								
MAINTENANCE PERSONNEL	11	0	254		3.16	0.13	234.20	
OPERATING PERSONNEL	9	0	0		2.37	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0		0.0	0.0	0.25	
SUPERVISORY PERSONNEL	12	0	2		4.46	0.06	1.64	
ENGINEERING PERSONNEL	0	0	16		0.05	0.0	8.59	
TOTAL	32	0	272	304	10.04	0.19	244.68	254.91
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	187 (82)	10	3020 (1799)	3217 (1891)	151.18	3.06	2224.48	2378.72
OPERATING PERSONNEL	107 (24)	0	7 (7)	114 (31)	124.19	0.0	6.61	130.80
HEALTH PHYSICS PERSONNEL	60 (16)	1	143 (82)	204 (99)	56.98	1.51	347.53	406.02
SUPERVISORY PERSONNEL	90 (55)	28 (18)	33 (23)	151 (86)	44.75	8.79	16.99	70.43
ENGINEERING PERSONNEL	12 (6)	165 (184)	192 (124)	375 (294)	6.99	84.35	98.94	190.28
GRAND TOTAL	452 (183)	204 (193)	3395 (2035)	4061 (2411)	384.09	97.61	2694.55	3176.25

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

APPENDIX C

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

Plant, POINT BEACH 1, 2	WORK & JOB FUNCTION	NUMBER OF PERSONNEL (x 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				0.0			
	Operating Personnel	45.703				45.703			
	Health Physics Personnel	13.621				13.621			
	Supervisory Personnel	0.0				0.0			
	Engineering Personnel	0.0				0.0			
	<b>TOTAL</b>	<b>59.324</b>				<b>59.324</b>		<b>0.0</b>	<b>59.324</b>
	Routine Maintenance								
	Maintenance Personnel	17.756				17.756			
	Operating Personnel	0.0				0.0			
	Health Physics Personnel	0.0				0.0			
	Supervisory Personnel	0.0				0.0			
	Engineering Personnel	0.0				0.0			
	<b>TOTAL</b>	<b>17.756</b>				<b>17.756</b>		<b>0.0</b>	<b>17.756</b>
	In-Service Inspection								
	Maintenance Personnel	20.776				20.776			
	Operating Personnel	8.904				8.904			
	Health Physics Personnel	0.0				0.0			
	Supervisory Personnel	3.558				3.558			
	Engineering Personnel	2.250				2.250			
	<b>TOTAL</b>	<b>35.488</b>				<b>35.488</b>		<b>298.748</b>	<b>334.242</b>
	Special Maintenance								
	Maintenance Personnel	19.004				19.004			
	Operating Personnel	5.934				5.934			
	Health Physics Personnel	0.0				0.0			
	Supervisory Personnel	0.0				0.0			
	Engineering Personnel	0.0				0.0			
	<b>TOTAL</b>	<b>24.938</b>				<b>24.938</b>		<b>114.228</b>	<b>139.167</b>
	Waste Processing								
	Maintenance Personnel	0.0				0.0			
	Operating Personnel	5.045				5.045			
	Health Physics Personnel	4.127				4.127			
	Supervisory Personnel	0.0				0.0			
	Engineering Personnel	0.0				0.0			
	<b>TOTAL</b>	<b>9.172</b>				<b>9.172</b>		<b>0.0</b>	<b>9.172</b>
	Refueling								
	Maintenance Personnel	25.763				25.763			
	Operating Personnel	1.708				1.708			
	Health Physics Personnel	0.569				0.569			
	Supervisory Personnel	0.0				0.0			
	Engineering Personnel	0.250				0.250			
	<b>TOTAL</b>	<b>28.290</b>				<b>28.290</b>		<b>0.0</b>	<b>28.290</b>
	Total By Job Function								
	Maintenance Personnel	86				83.299			
	Operating Personnel	58				67.294			
	Health Physics Personnel	17				18.317			
	Supervisory Personnel	5				3.558			
	Engineering Personnel	10				2.500			
	<b>GRAND TOTAL</b>	<b>174.908</b>	<b>307</b>		<b>478</b>	<b>174.908</b>		<b>412.975</b>	<b>587.951</b>

\* Station and Utility personnel and doses are combined under Station Employees. No further breakdown provided

# APPENDIX C

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

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM) 1980				TOTAL MAN-REMS			
	STATION EMPLOYEES		UTILITY EMPLOYEES		STATION EMPLOYEES		UTILITY EMPLOYEES	
	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS	EMPLOYEES	CONTRACT & OTHERS
<b>* WORK &amp; JOB FUNCTION</b>								
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	80	45	58	78	10,450	1,735	0.0	2,476
OPERATING PERSONNEL	42	0	0	0	9,963	0.0	0.0	0.069
HEALTH PHYSICS PERSONNEL	23	25	0	0	8,283	0.0	0.0	1,393
SUPERVISORY PERSONNEL	3	0	3	0	0.833	0.166	0.0	0.006
ENGINEERING PERSONNEL	15	0	2	0	0.736	0.133	0.0	0.000
<b>TOTAL</b>	<b>163</b>	<b>70</b>	<b>63</b>	<b>78</b>	<b>30,262</b>	<b>2,034</b>	<b>0.0</b>	<b>4,504</b>
<b>* ROUTINE MAINTENANCE</b>								
MAINTENANCE PERSONNEL	46	0	7	0	1,016	0.168	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	0	0	0	0.052	0.0	0.0	0.0
SUPERVISORY PERSONNEL	1	0	0	0	0.009	0.0	0.0	0.0
ENGINEERING PERSONNEL	3	0	0	0	0.037	0.0	0.0	0.0
<b>TOTAL</b>	<b>52</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>1,116</b>	<b>0.168</b>	<b>0.0</b>	<b>0.0</b>
<b>* IN-SERVICE INSPECTION</b>								
MAINTENANCE PERSONNEL	33	27	26	66	4,719	2,269	0.0	16,138
OPERATING PERSONNEL	1	0	0	0	0.026	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	5	9	0	1	0.640	0.0	0.0	0.948
SUPERVISORY PERSONNEL	0	1	0	1	0.0	0.007	0.0	0.457
ENGINEERING PERSONNEL	6	29	2	29	0.216	0.260	0.0	16,534
<b>TOTAL</b>	<b>45</b>	<b>66</b>	<b>28</b>	<b>97</b>	<b>5,601</b>	<b>2,536</b>	<b>0.0</b>	<b>34,077</b>
<b>* SPECIAL MAINTENANCE</b>								
MAINTENANCE PERSONNEL	80	36	139	128	31,498	84,373	0.0	55,372
OPERATING PERSONNEL	39	0	0	0	4,410	0.0	0.0	0.021
HEALTH PHYSICS PERSONNEL	21	30	0	6	5,138	0.0	0.0	10,930
SUPERVISORY PERSONNEL	3	6	1	6	0.542	0.311	0.0	1,331
ENGINEERING PERSONNEL	18	56	4	56	3,539	1,113	0.0	25,637
<b>TOTAL</b>	<b>161</b>	<b>128</b>	<b>144</b>	<b>162</b>	<b>45,127</b>	<b>85,797</b>	<b>0.0</b>	<b>92,491</b>
<b>* WASTE PROCESSING</b>								
MAINTENANCE PERSONNEL	36	1	14	3	3,177	0.271	0.0	0.027
OPERATING PERSONNEL	2	0	0	0	0.062	0.0	0.0	0.043
HEALTH PHYSICS PERSONNEL	11	2	0	2	1,442	0.0	0.0	0.086
SUPERVISORY PERSONNEL	0	0	0	0	0.030	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
<b>TOTAL</b>	<b>59</b>	<b>3</b>	<b>14</b>	<b>3</b>	<b>4,711</b>	<b>0.271</b>	<b>0.0</b>	<b>0.138</b>
<b>* REFUELING</b>								
MAINTENANCE PERSONNEL	46	61	61	1	10,130	7,433	0.0	0.022
OPERATING PERSONNEL	33	0	0	0	1,436	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	4	0	0	2	0.173	0.0	0.0	0.093
SUPERVISORY PERSONNEL	4	0	0	0	0.190	0.0	0.0	0.0
ENGINEERING PERSONNEL	10	1	1	0	0.403	0.147	0.0	0.039
<b>TOTAL</b>	<b>97</b>	<b>62</b>	<b>62</b>	<b>2</b>	<b>12,332</b>	<b>7,580</b>	<b>0.0</b>	<b>0.154</b>
<b>* TOTAL BY JOB FUNCTION</b>								
MAINTENANCE PERSONNEL	321	305	305	110	60,990	96,249	0.0	74,035
OPERATING PERSONNEL	117	0	0	0	15,897	0.0	0.0	0.153
HEALTH PHYSICS PERSONNEL	66	0	0	68	15,728	0.0	0.0	13,050
SUPERVISORY PERSONNEL	11	4	4	7	1,604	0.484	0.0	3,882
ENGINEERING PERSONNEL	51	10	10	93	4,933	1,653	0.0	49,336
<b>GRAND TOTAL</b>	<b>566</b>	<b>319</b>	<b>319</b>	<b>178</b>	<b>99,152</b>	<b>98,386</b>	<b>0.0</b>	<b>131,782</b>

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

# APPENDIX C

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

PLANT: QUAD CITIES 1,2 (BWR)

1983

NUMBER OF PERSONNEL (>100 M REM)

WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SURV.								
MAINTENANCE PERSONNEL	9	0	0	0	30.3	0.0	0.0	0.0
OPERATING PERSONNEL	82	0	0	0	101.1	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	0	0	21.9	0.0	0.0	0.0
SUPERVISORY PERSONNEL	38	0	0	0	35.6	0.0	0.0	0.0
ENGINEERING PERSONNEL	51	0	0	0	94.3	0.0	0.0	0.0
TOTAL	128	0	0	128	283.2	0.0	0.0	283.2
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	87	0	3136	0	391.6	0.0	3560.6	0.0
OPERATING PERSONNEL	1	0	0	0	3.3	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	4	0	0	0	9.6	0.0	0.0	0.0
SUPERVISORY PERSONNEL	42	0	0	0	105.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	23	0	0	0	30.4	0.0	0.0	0.0
TOTAL	157	0	3136	3293	539.9	0.0	3560.6	4100.5
IN-SERVICE INSPECTION								
MAINTENANCE PERSONNEL	1	0	0	0	1.8	0.0	0.0	0.0
OPERATING PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	0	8.7	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	4	0	0	0	4.7	0.0	0.0	0.0
TOTAL	8	0	0	8	15.2	0.0	0.0	15.2
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	90	0	0	0.0	50.4	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	143	0	0	0.0	18.5	0.0	0.0
TOTAL	0	233	0	233	0.0	68.9	0.0	68.9
WASTE PROCESSING								
MAINTENANCE PERSONNEL	1	0	0	0	4.9	0.0	0.0	0.0
OPERATING PERSONNEL	30	0	0	0	107.4	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	10	0	0	0	25.4	0.0	0.0	0.0
SUPERVISORY PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
ENGINEERING PERSONNEL	1	0	0	0	1.0	0.0	0.0	0.0
TOTAL	42	0	0	42	138.7	0.0	0.0	138.7
REFUELLING								
MAINTENANCE PERSONNEL	5	0	0	0	15.2	0.0	0.0	0.0
OPERATING PERSONNEL	16	0	0	0	50.2	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	0	0	21.9	0.0	0.0	0.0
SUPERVISORY PERSONNEL	5	0	0	0	5.5	0.0	0.0	0.0
ENGINEERING PERSONNEL	8	0	0	0	11.0	0.0	0.0	0.0
TOTAL	42	0	0	42	103.8	0.0	0.0	103.8
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	103	90	3136	3329	643.8	50.4	3560.6	4054.8
OPERATING PERSONNEL	129	0	0	129	262.0	0.0	0.0	262.0
HEALTH PHYSICS PERSONNEL	33	0	0	33	87.5	0.0	0.0	87.5
SUPERVISORY PERSONNEL	85	0	0	85	146.1	0.0	0.0	146.1
ENGINEERING PERSONNEL	87	143	0	230	141.4	18.5	0.0	159.9
GRAND TOTAL	437	233	3136	3806	1080.8	68.9	3560.6	4710.3

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

# APPENDIX C

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

PLANT: RANCHO SECO											
(PWR)											
NUMBER OF PERSONNEL (>100 M REM)											
STATION											
EMPLOYEES											
UTILITY											
EMPLOYEES											
CONTRACT											
& OTHERS											
TOTAL PERSONS											
STATION											
EMPLOYEES											
UTILITY											
EMPLOYEES											
CONTRACT											
& OTHERS											
TOTAL MAN-REMS											
MAN-REMS											
TOTAL											
WORK & JOB FUNCTION											
REACTOR OPERATIONS & SURV.											
MAINTENANCE PERSONNEL											
54											
5											
150											
OPERATING PERSONNEL											
53											
1											
60											
HEALTH PHYSICS PERSONNEL											
23											
1											
64											
SUPERVISORY PERSONNEL											
20											
0											
3											
ENGINEERING PERSONNEL											
30											
10											
99											
TOTAL											
185											
17											
376											
578											
32.44											
0.27											
45.50											
78.21											
ROUTINE MAINTENANCE											
MAINTENANCE PERSONNEL											
69											
6											
163											
OPERATING PERSONNEL											
34											
13											
HEALTH PHYSICS PERSONNEL											
23											
1											
48											
SUPERVISORY PERSONNEL											
6											
0											
ENGINEERING PERSONNEL											
21											
2											
70											
TOTAL											
153											
10											
294											
457											
30.72											
1.35											
34.00											
66.11											
IN-SERVICE INSPECTION											
MAINTENANCE PERSONNEL											
OPERATING PERSONNEL											
HEALTH PHYSICS PERSONNEL											
SUPERVISORY PERSONNEL											
ENGINEERING PERSONNEL											
TOTAL											
SPECIAL MAINTENANCE											
MAINTENANCE PERSONNEL											
55											
7											
229											
OPERATING PERSONNEL											
17											
14											
HEALTH PHYSICS PERSONNEL											
20											
0											
43											
SUPERVISORY PERSONNEL											
9											
0											
5											
ENGINEERING PERSONNEL											
18											
2											
173											
TOTAL											
119											
10											
566											
593											
6.32											
0.35											
64.11											
70.78											
WASTE PROCESSING											
MAINTENANCE PERSONNEL											
39											
1											
129											
OPERATING PERSONNEL											
34											
0											
2											
HEALTH PHYSICS PERSONNEL											
21											
0											
35											
SUPERVISORY PERSONNEL											
9											
0											
1											
ENGINEERING PERSONNEL											
3											
1											
21											
TOTAL											
106											
2											
188											
296											
15.42											
0.03											
38.84											
54.29											
REFUELING											
MAINTENANCE PERSONNEL											
35											
4											
65											
OPERATING PERSONNEL											
15											
0											
3											
HEALTH PHYSICS PERSONNEL											
6											
22											
SUPERVISORY PERSONNEL											
8											
0											
1											
ENGINEERING PERSONNEL											
12											
38											
TOTAL											
76											
5											
129											
210											
5.59											
0.53											
17.02											
23.14											
TOTAL BY JOB FUNCTION											
MAINTENANCE PERSONNEL											
252											
23											
736											
OPERATING PERSONNEL											
153											
2											
92											
HEALTH PHYSICS PERSONNEL											
93											
2											
212											
SUPERVISORY PERSONNEL											
52											
1											
10											
ENGINEERING PERSONNEL											
84											
10											
403											
TOTAL											
639											
44											
1453											
2136											
90.49											
2.57											
199.47											
292.53											
TOTAL											
163.84											
32.85											
45.55											
22.96											
27.33											
199.47											
292.53											

Workers may be counted in more than one category.

\*\* Routine Maintenance includes Inservice Inspection.



# APPENDIX C

PLANT: SALEM 1 (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1980

1980									
NUMBER OF PERSONNEL (>100 M REM)									
WORK & JOB FUNCTION		STATION		TOTAL		TOTAL MAN-REMS		TOTAL	
		EMPLOYEES	UTILITY	PERSONS	EMPLOYEES	UTILITY	CONTRACT	MAN-REMS	MAN-REMS
		EMPLOYEES	EMPLOYEES	PERSONS	EMPLOYEES	EMPLOYEES	OTHERS	OTHERS	OTHERS
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL		12	0	10	6,545	0,150	5,987		
OPERATING PERSONNEL		27	0	2	9,098	0,040	1,580		
HEALTH PHYSICS PERSONNEL		1	0	60	1,055	0,020	21,967		
SUPERVISORY PERSONNEL		2	1	0	1,550	0,030	0,300		
ENGINEERING PERSONNEL		0	0	1	0,285	0,230	0,145		
TOTAL		42	1	73	116	0,470	29,979		48,982
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL		3	0	0	3,071	0,020	2,263		
OPERATING PERSONNEL		0	0	0	0,251	0,000	0,020		
HEALTH PHYSICS PERSONNEL		2	0	0	0,850	0,000	0,467		
SUPERVISORY PERSONNEL		0	0	0	0,305	0,000	0,020		
ENGINEERING PERSONNEL		0	0	2	0,000	0,000	0,020		
TOTAL		5	0	2	4,477	0,020	3,245		7,742
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL		5	1	26	3,140	0,095	11,470		
OPERATING PERSONNEL		0	0	3	0,020	0,000	1,795		
HEALTH PHYSICS PERSONNEL		6	1	3	2,380	0,060	0,590		
SUPERVISORY PERSONNEL		1	0	0	0,400	0,035	0,310		
ENGINEERING PERSONNEL		0	0	0	0,135	0,115	0,020		
TOTAL		12	2	32	46	0,305	14,185		20,365
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL		143	0	390	59,854	0,225	148,996		
OPERATING PERSONNEL		2	0	2	2,572	0,010	0,515		
HEALTH PHYSICS PERSONNEL		7	0	23	0,810	0,010	8,746		
SUPERVISORY PERSONNEL		0	0	5	2,710	0,090	1,500		
ENGINEERING PERSONNEL		0	1	7	0,440	0,000	0,315		
TOTAL		152	1	427	66,526	0,335	163,072		230,333
* WASTE PROCESSING									
MAINTENANCE PERSONNEL		7	0	47	2,705	0,000	14,335		
OPERATING PERSONNEL		0	0	1	0,020	0,000	0,340		
HEALTH PHYSICS PERSONNEL		0	0	7	0,480	0,000	1,900		
SUPERVISORY PERSONNEL		0	0	0	0,090	0,000	0,020		
ENGINEERING PERSONNEL		0	0	0	0,000	0,000	0,000		
TOTAL		7	0	55	62	0,000	16,595		19,890
* REFUELING									
MAINTENANCE PERSONNEL		101	0	44	44,945	0,100	15,300		
OPERATING PERSONNEL		1	0	1	0,455	0,010	0,050		
HEALTH PHYSICS PERSONNEL		1	0	19	0,390	0,000	5,820		
SUPERVISORY PERSONNEL		7	1	0	2,100	0,140	0,045		
ENGINEERING PERSONNEL		0	0	0	0,030	0,055	0,320		
TOTAL		110	1	64	47,920	0,305	21,535		69,760
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL		271	1	517	120,240	0,590	198,391		319,201
OPERATING PERSONNEL		30	0	9	12,416	0,060	5,300		16,776
HEALTH PHYSICS PERSONNEL		12	1	112	5,965	0,090	39,420		45,545
SUPERVISORY PERSONNEL		19	2	5	7,155	0,295	2,195		9,645
ENGINEERING PERSONNEL		0	1	10	1,030	0,800	5,275		6,105
TOTAL		320	5	653	146,826	1,745	268,611		397,272

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

## APPENDIX C

## PLANT SAN ONOFRE (PWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION

1980

* WORK & JOB FUNCTION REACTOR OPERATIONS & SURV.	NUMBER OF PERSONNEL (>100 M REM)				TOTAL		TOTAL MAN-REMS		
	STATION		UTILITY		TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	TOTAL MAN-REMS
	EMPLOYEES		EMPLOYEES						
MAINTENANCE PERSONNEL	20		10	114		6.49	2.40	37.94	
OPERATING PERSONNEL	30		0	57		24.86	0.0	24.90	
HEALTH PHYSICS PERSONNEL	14		2	75		9.89	0.53	23.42	
SUPERVISORY PERSONNEL	12		6	21		5.39	2.09	7.39	
ENGINEERING PERSONNEL	23		29	96		13.41	5.81	41.42	
TOTAL	99		47	363	509	60.04	10.83	135.07	205.94
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	54		114	1008		91.73	97.31	1377.71	
OPERATING PERSONNEL	22		1	80		8.85	0.14	35.47	
HEALTH PHYSICS PERSONNEL	14		4	121		50.98	7.02	132.18	
SUPERVISORY PERSONNEL	9		8	55		5.58	2.08	38.14	
ENGINEERING PERSONNEL	16		13	178		8.04	3.52	164.11	
TOTAL	115		140	1442	1697	165.18	110.07	1747.61	2022.86
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	0		0	5		0.0	0.0	0.95	
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	1		0.0	0.0	0.11	
ENGINEERING PERSONNEL	0		1	7		0.0	0.15	1.49	
TOTAL	0		1	13	14	0.0	0.15	2.55	2.70
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	0		0	0		0.0	0.0	0.0	
OPERATING PERSONNEL	0		0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0		0	0		0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0		0	0		0.0	0.0	0.0	
ENGINEERING PERSONNEL	0		0	0		0.0	0.0	0.0	
TOTAL	0		0	0	0	0.0	0.0	0.0	0.0
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	0		0	4		0.0	0.0	0.50	
OPERATING PERSONNEL	0		0	0		0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1		0	2		0.17	0.0	0.93	
SUPERVISORY PERSONNEL	0		0	1		0.0	0.0	0.21	
ENGINEERING PERSONNEL	0		0	0		0.0	0.0	0.0	
TOTAL	1		0	7	8	0.17	0.0	1.64	1.81
* REFUELING									
MAINTENANCE PERSONNEL	0		0	22		0.0	0.0	5.90	
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	3		0.0	0.0	1.51	
ENGINEERING PERSONNEL	0		0	3		0.0	0.0	0.59	
TOTAL	0		0	28	28	0.0	0.0	8.00	8.00
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	74 (58)	124 (119)	1153 (1,030)	1351 (1,206)	98.22	1423.00	99.71	1620.93	
OPERATING PERSONNEL	52 (48)	1 (1)	137 (107)	190 (158)	33.71	60.37	0.14	94.22	
HEALTH PHYSICS PERSONNEL	29 (14)	6 (5)	198 (138)	233 (157)	61.04	156.53	7.55	225.12	
SUPERVISORY PERSONNEL	21 (15)	14 (13)	81 (72)	116 (100)	10.97	47.36	4.17	62.50	
ENGINEERING PERSONNEL	39 (28)	43 (38)	284 (232)	366 (298)	21.45	207.61	9.48	238.54	
GRAND TOTAL	215 (159)	188 (176)	1853 (1,679)	2256 (1,914)	225.39	1894.87	121.05	2241.31	

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



# APPENDIX C

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

PLANT: ST. LUCIE 1 (PWR)

1980

* WORK & JOB FUNCTION REACTOR OPERATIONS & SURV.	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
MAINTENANCE PERSONNEL	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	16	0	0	38.2	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	10	19.1	0.0	17.6
SUPERVISORY PERSONNEL	3	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	4	0.0	0.0	1.0
TOTAL	27	0	14	58.1	0.0	18.6
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	101	32	318	31.8	10.1	72.3
OPERATING PERSONNEL	26	0	0	8.2	0.0	0.0
HEALTH PHYSICS PERSONNEL	15	0	60	5.4	0.0	18.9
SUPERVISORY PERSONNEL	7	1	0	2.2	0.3	0.0
ENGINEERING PERSONNEL	4	0	0	0.0	0.0	0.0
TOTAL	153	33	378	48.2	10.4	91.2
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	0	0	20	0.0	0.0	6.2
OPERATING PERSONNEL	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	8	0	22	2.7	0.0	7.6
SUPERVISORY PERSONNEL	4	2	4	1.8	0.9	1.6
ENGINEERING PERSONNEL	3	1	1	1.0	0.3	0.5
TOTAL	15	3	47	5.5	1.2	16.3
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	56	29	34	39.8	20.6	18.6
OPERATING PERSONNEL	12	0	0	5.2	0.0	0.0
HEALTH PHYSICS PERSONNEL	15	0	32	6.5	0.0	13.9
SUPERVISORY PERSONNEL	4	5	4	1.9	2.2	1.6
ENGINEERING PERSONNEL	88	37	71	84.0	24.1	34.5
TOTAL	175	71	196	157.4	46.9	68.6
WASTE PROCESSING						
MAINTENANCE PERSONNEL	36	5	0	9.1	1.5	0.0
OPERATING PERSONNEL	12	0	0	3.1	0.0	0.0
HEALTH PHYSICS PERSONNEL	6	0	10	1.6	0.0	2.5
SUPERVISORY PERSONNEL	1	0	0	2.5	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	55	5	10	16.3	1.5	2.5
REFUELING						
MAINTENANCE PERSONNEL	71	27	15	64.1	24.4	13.5
OPERATING PERSONNEL	31	0	0	3.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	15	0	48	1.4	0.0	4.6
SUPERVISORY PERSONNEL	4	1	0	0.4	0.1	0.0
ENGINEERING PERSONNEL	5	3	0	0.5	0.3	0.0
TOTAL	126	31	63	69.4	24.8	18.1
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	264 (107)	93 (88)	387 (374)	144.8	56.6	111.2
OPERATING PERSONNEL	97 (42)	0 (0)	0 (0)	57.7	0.0	0.0
HEALTH PHYSICS PERSONNEL	67 (15)	0 (0)	182 (60)	36.7	0.0	65.1
SUPERVISORY PERSONNEL	23 (8)	9 (5)	40 (18)	9.6	3.0	10.8
ENGINEERING PERSONNEL	13 (1)	7 (3)	74 (48)	28.7	1.9	18.3
TOTAL	464 (177)	109 (96)	583 (448)	231.5	62.0	195.4

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

APPENDIX C

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

Plant: SURRY 1.2 (PWR)	WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 mem)					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	278	17	0	295	330,380	8,723	0.0	337,103	
	Routine Maintenance									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	TOTAL	172	13	0	185	278,028	27,845	0.0	305,873	
	In-Service Inspection									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	TOTAL									
	Special Maintenance									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	TOTAL	7	28	2442	2477	7,489	18,567	2876,704	3002,770	
	Waste Processing									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	TOTAL	6	0	2	7	13,845	0.0	0.685	14,530	
	Refueling									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	TOTAL	12	1	1	14	3,723	0.134	0.388	4,256	
	Total By Job Function									
	Maintenance Personnel									
	Operating Personnel									
	Health Physics Personnel									
	Supervisory Personnel									
	Engineering Personnel									
	GRAND TOTAL	472	88	2448	3078	638,473	83,388	2877,748	3464,430	

Reactor Operations includes Inservice Inspection. No further breakdown provided.

# APPENDIX C

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

PLANT: THREE MILE ISL. 1,2 (PWR) 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES
PEACOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	197	54	291		2,233	0,298
OPERATING PERSONNEL	214	50	148		9,951	0,608
HEALTH PHYSICS PERSONNEL	87	16	192		11,286	0,298
SUPERVISORY PERSONNEL	53	13	27		0,842	0,012
ENGINEERING PERSONNEL	29	60	91		0,838	0,999
TOTAL	580	193	749	1522	25,150	2,215
AQUINE MAINTENANCE						
MAINTENANCE PERSONNEL	215	63	278		10,064	1,671
OPERATING PERSONNEL	207	47	139		3,426	0,355
HEALTH PHYSICS PERSONNEL	73	13	132		4,609	0,168
SUPERVISORY PERSONNEL	53	13	30		0,736	0,061
ENGINEERING PERSONNEL	28	62	97		0,195	0,456
TOTAL	576	198	676	1450	19,030	2,711
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	193	64	285		1,288	0,401
OPERATING PERSONNEL	194	62	183		2,982	0,323
HEALTH PHYSICS PERSONNEL	59	7	121		2,757	0,144
SUPERVISORY PERSONNEL	58	14	23		0,373	0,052
ENGINEERING PERSONNEL	34	65	105		0,331	0,380
TOTAL	538	212	717	1467	7,731	1,300
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	238	139	624		16,972	35,266
OPERATING PERSONNEL	232	113	237		12,697	12,991
HEALTH PHYSICS PERSONNEL	77	36	255		17,918	11,989
SUPERVISORY PERSONNEL	33	87	172		2,040	0,165
ENGINEERING PERSONNEL	651	396	1347		1,168	9,797
TOTAL	1338	777	3515	2394	50,795	70,208
WASTE PROCESSING						
MAINTENANCE PERSONNEL	138	77	155		7,989	5,585
OPERATING PERSONNEL	139	30	61		3,332	0,931
HEALTH PHYSICS PERSONNEL	58	23	139		1,271	1,019
SUPERVISORY PERSONNEL	23	5	27		0,733	0,082
ENGINEERING PERSONNEL	10	26	36		0,702	0,429
TOTAL	368	161	418	947	14,027	8,046
REFUELING						
MAINTENANCE PERSONNEL	3	0	5		0,003	0,003
OPERATING PERSONNEL	1	0	0		0,000	0,000
HEALTH PHYSICS PERSONNEL	0	0	0		0,000	0,000
SUPERVISORY PERSONNEL	0	0	0		0,000	0,000
ENGINEERING PERSONNEL	0	0	0		0,000	0,000
TOTAL	4	0	5	9	0,003	0,003
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	984 (280)	397 (149)	1638 (644)	3019 (1063)	38,549	43,221
OPERATING PERSONNEL	987 (261)	302 (164)	768 (412)	2057 (737)	32,388	15,208
HEALTH PHYSICS PERSONNEL	354 (78)	95 (44)	839 (280)	1288 (402)	37,841	13,618
SUPERVISORY PERSONNEL	258 (81)	66 (28)	166 (66)	490 (176)	4,724	0,372
ENGINEERING PERSONNEL	134 (42)	300 (138)	501 (248)	935 (428)	3,235	12,061
GRAND TOTAL	2717 (722)	1150 (623)	3912 (1560)	7789 (2795)	116,236	84,480

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

# APPENDIX C

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

PLANT: TROJAN

(PMR)

1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
OPERATING PERSONNEL	21	0	0	21	0	0	5.97	0.1	0.0
HEALTH PHYSICS PERSONNEL	24	0	78	24	0	78	15.45	0.3	38.19
SUPERVISORY PERSONNEL	3	0	6	3	0	6	0.90	0.14	5.55
ENGINEERING PERSONNEL	9	15	103	9	15	103	4.89	3.69	6.66
TOTAL	37	15	103	37	15	103	27.21	3.90	50.45
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	24	29	32	24	29	32	13.0	15.40	10.27
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.1	0.0
HEALTH PHYSICS PERSONNEL	0	0	10	0	0	10	0.00	0.04	3.29
SUPERVISORY PERSONNEL	0	0	1	0	0	1	0.10	0.0	0.30
ENGINEERING PERSONNEL	1	1	20	1	1	20	0.30	0.65	9.55
TOTAL	25	30	63	25	30	63	13.99	16.20	23.41
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL									
OPERATING PERSONNEL									
HEALTH PHYSICS PERSONNEL									
SUPERVISORY PERSONNEL									
ENGINEERING PERSONNEL									
TOTAL									
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	32	61	324	32	61	324	13.14	22.98	185.72
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	25	1	0	25	0.14	0.03	7.65
SUPERVISORY PERSONNEL	0	0	29	0	0	29	0.0	0.10	13.32
ENGINEERING PERSONNEL	1	0	21	1	0	21	1.19	0.02	9.61
TOTAL	34	61	399	34	61	399	14.49	23.17	216.33
* WASTE PROCESSING									
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
* REFUELING									
MAINTENANCE PERSONNEL	5	9	50	5	9	50	5.91	15.41	21.88
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0
HEALTH PHYSICS PERSONNEL	2	0	17	2	0	17	1.05	0.01	8.70
SUPERVISORY PERSONNEL	3	0	2	3	0	2	1.43	0.04	1.65
ENGINEERING PERSONNEL	0	0	5	0	0	5	0.09	0.14	2.26
TOTAL	10	9	74	10	9	74	8.52	15.61	34.50
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	61	99	406	61	99	406	32.54	53.80	217.91
OPERATING PERSONNEL	21	0	0	21	0	0	6.04	0.19	0.05
HEALTH PHYSICS PERSONNEL	27	0	130	27	0	130	16.72	0.11	57.83
SUPERVISORY PERSONNEL	4	0	38	4	0	38	2.44	0.28	20.82
ENGINEERING PERSONNEL	11	16	92	11	16	92	6.47	4.50	28.06
GRAND TOTAL	126	115	639	126	115	639	64.21	58.88	324.69

Workers may be counted in more than one category.

\*\* Routine Maintenance includes Inservice Inspection.

# APPENDIX C

## NUMBER OF PER ONNEL AND MAN-REM BY WORK AND JOB FUNCTION

PLANT: TURKEY POINT 1,2 (PWR)

NUMBER OF PERSONNEL (>100 M REM) 1980

WORK & JOB FUNCTION	STATION			TOTAL			TOTAL MAN-REMS		
	EMPLOYEES	UTILITY	CONTRACT	EMPLOYEES	UTILITY	CONTRACT	EMPLOYEES	UTILITY	CONTRACT
* REACTOR OPERATIONS & SURV.									
MAINTENANCE PERSONNEL	158	16	158				2,870	40,474	
OPERATING PERSONNEL	44	0	2				0.0	1,830	
HEALTH PHYSICS PERSONNEL	27	0	80				0.0	51,757	
SUPERVISORY PERSONNEL	1	0	2				0.0	0,371	
ENGINEERING PERSONNEL	21	4	11				8,923	2,220	
TOTAL	251	20	253	524	155,085	3,705	96,652	255,442	
* ROUTINE MAINTENANCE									
MAINTENANCE PERSONNEL	165	53	483				51,357	360,217	
OPERATING PERSONNEL	11	0	1				0.0	0,175	
HEALTH PHYSICS PERSONNEL	16	0	60				0.0	38,102	
SUPERVISORY PERSONNEL	0	0	1				0.0	0,248	
ENGINEERING PERSONNEL	13	7	31				2,648	12,012	
TOTAL	205	60	576	841	140,338	54,005	419,754	614,097	
* IN-SERVICE INSPECTION									
MAINTENANCE PERSONNEL	61	22	630				4,908	716,604	
OPERATING PERSONNEL	4	0	0				0.0	0,0	
HEALTH PHYSICS PERSONNEL	13	0	41				0.0	17,682	
SUPERVISORY PERSONNEL	0	0	49				0.0	0,0	
ENGINEERING PERSONNEL	9	8	49				2,915	53,620	
TOTAL	87	30	720	837	41,309	7,823	787,906	837,038	
* SPECIAL MAINTENANCE									
MAINTENANCE PERSONNEL	7	0	58				0.0	25,464	
OPERATING PERSONNEL	2	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	2	6				0.0	1,676	
TOTAL	9	2	64	75	2,176	0,485	27,140	29,801	
* WASTE PROCESSING									
MAINTENANCE PERSONNEL	24	0	4				0.0	2,384	
OPERATING PERSONNEL	1	0	2				0.0	0,425	
HEALTH PHYSICS PERSONNEL	7	0	9				0.0	3,293	
SUPERVISORY PERSONNEL	0	0	0				0.0	0,0	
ENGINEERING PERSONNEL	1	0	0				0.0	0,0	
TOTAL	33	0	15	48	14,504	0,0	6,102	20,606	
* REFUELING									
MAINTENANCE PERSONNEL	64	15	12				13,575	3,679	
OPERATING PERSONNEL	33	0	0				0.0	0,0	
HEALTH PHYSICS PERSONNEL	3	0	6				0.0	1,030	
SUPERVISORY PERSONNEL	1	0	0				0.0	0,0	
ENGINEERING PERSONNEL	6	1	1				0.0	0,160	
TOTAL	107	16	19	142	43,417	14,050	4,869	62,336	
* TOTAL BY JOB FUNCTION									
MAINTENANCE PERSONNEL	479 (220)	106 (57)	1345 (902)	1930 (1,179)	265,341	72,710	1157,822	1495,873	
OPERATING PERSONNEL	95 (71)	0 (0)	5 (3)	100 (74)	65,451	0.0	2,430	67,881	
HEALTH PHYSICS PERSONNEL	66 (20)	0 (0)	196 (110)	262 (136)	38,504	0.0	111,864	50,368	
SUPERVISORY PERSONNEL	2 (1)	0 (0)	3 (3)	5 (4)	0,535	0.0	0,619	1,154	
ENGINEERING PERSONNEL	50 (47)	22 (16)	98 (62)	170 (114)	26,994	7,358	69,668	104,014	
TOTAL	692 (366)	128 (72)	1671 (907)	2667 (1,607)	396,829	80,068	1352,423	1819,320	

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

# APPENDIX C

## PLANT: VERMONT-YANKEE (BWR) NUMBER OF PERSONNEL AND MAN-REM BY WORK AND JOB FUNCTION 1980

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M REM)			TOTAL MAN-REMS		
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS
REACTOR OPERATIONS & SURV.						
MAINTENANCE PERSONNEL	10	2	10	9,172	0,723	10,614
OPERATING PERSONNEL	50	0	3	53,042	0.0	0.842
HEALTH PHYSICS PERSONNEL	24	0	41	22,700	0.0	25,377
SUPERVISORY PERSONNEL	1	0	0	0,471	0.0	0.0
ENGINEERING PERSONNEL	28	0	5	13,440	0.0	1,306
TOTAL	113	2	59	98,825	0,723	38,139
ROUTINE MAINTENANCE						
MAINTENANCE PERSONNEL	47	123	600	102,783	92,955	194,292
OPERATING PERSONNEL	34	0	0	15,466	0.0	0.0
HEALTH PHYSICS PERSONNEL	12	0	18	4,338	0.0	5,230
SUPERVISORY PERSONNEL	0	0	0	0.0	0.194	20,052
ENGINEERING PERSONNEL	13	0	2	3,913	0.0	0.381
TOTAL	106	123	620	126,500	93,149	219,955
IN-SERVICE INSPECTION						
MAINTENANCE PERSONNEL	5	64	63	1,522	46,144	25,956
OPERATING PERSONNEL	0	0	0	0.064	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	0	0.032	0.0	0.061
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.532
ENGINEERING PERSONNEL	3	0	1	0.525	0.0	0.234
TOTAL	8	64	64	2,143	46,144	26,783
SPECIAL MAINTENANCE						
MAINTENANCE PERSONNEL	21	42	444	6,390	12,673	604,630
OPERATING PERSONNEL	3	0	4	0,770	0.0	0.0
HEALTH PHYSICS PERSONNEL	3	0	0	0,901	0.0	3,883
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.028
ENGINEERING PERSONNEL	0	0	0	0.064	0.0	0.0
TOTAL	27	42	448	8,125	12,673	610,541
WASTE PROCESSING						
MAINTENANCE PERSONNEL	2	0	3	0,392	0,205	0,630
OPERATING PERSONNEL	1	0	0	0,130	0.0	0.0
HEALTH PHYSICS PERSONNEL	1	0	1	0,108	0.0	0,172
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	0	0	0	0.0	0.0	0.0
TOTAL	4	0	4	0,630	0,205	0,802
REFUELING						
MAINTENANCE PERSONNEL	12	24	35	4,212	5,241	9,180
OPERATING PERSONNEL	14	0	0	2,370	0.0	0.0
HEALTH PHYSICS PERSONNEL	0	0	5	0,298	0.0	1,148
SUPERVISORY PERSONNEL	0	0	0	0.0	0.0	0.0
ENGINEERING PERSONNEL	5	0	0	1,657	0.0	0,007
TOTAL	31	24	40	8,537	5,241	10,335
TOTAL BY JOB FUNCTION						
MAINTENANCE PERSONNEL	97	255	1395	124,381	157,941	847,302
OPERATING PERSONNEL	102	0	3	71,842	0.0	0,842
HEALTH PHYSICS PERSONNEL	40	0	69	28,377	0.0	38,871
SUPERVISORY PERSONNEL	1	0	0	0,471	0,194	20,612
ENGINEERING PERSONNEL	49	0	8	19,599	0.0	1,928
GRAND TOTAL	289	255	1475	244,670	158,135	906,555

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

## APPENDIX C

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

1980

PLANT, YANKEE-ROWE

(PWR)

WORK & JOB FUNCTION	NUMBER OF PERSONNEL (>100 M PEM)			TOTAL PERSONS			STATION EMPLOYEES			TOTAL MAN-REMS			TOTAL
	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT & OTHERS	
* REACTOR OPERATIONS & SURV.													
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.405	0.362	0.100	0.405	0.362	0.100	
OPERATING PERSONNEL	15	0	0	15	0	0	3.303	0.0	0.0	3.303	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	1	1	0	0	0.255	0.0	0.220	0.255	0.0	0.220	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.080	0.0	0.045	0.080	0.0	0.045	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.070	0.045	0.0	0.070	0.045	0.0	
TOTAL	15	0	1	16	0	0	4.113	0.407	0.365	4.113	0.407	0.365	6.885
* EQUIPMENT MAINTENANCE													
MAINTENANCE PERSONNEL	20	10	4	34	10	4	6.400	3.532	1.625	6.400	3.532	1.625	
OPERATING PERSONNEL	10	0	0	10	0	0	2.616	0.0	0.0	2.616	0.0	0.0	
HEALTH PHYSICS PERSONNEL	1	0	1	2	0	1	0.242	0.0	0.738	0.242	0.0	0.738	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.020	0.0	0.118	0.020	0.0	0.118	
ENGINEERING PERSONNEL	1	0	0	1	0	0	0.143	0.187	0.0	0.143	0.187	0.0	
TOTAL	32	10	5	47	10	5	9.421	3.725	2.581	9.421	3.725	2.581	15.627
* IN-SERVICE INSPECTION													
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
* SPECIAL MAINTENANCE													
MAINTENANCE PERSONNEL	27	52	52	131	52	52	14.542	50.805	48.655	14.542	50.805	48.655	
OPERATING PERSONNEL	29	0	0	29	0	0	8.640	0.0	0.0	8.640	0.0	0.0	
HEALTH PHYSICS PERSONNEL	10	0	29	39	0	0	3.301	0.0	14.564	3.301	0.0	14.564	
SUPERVISORY PERSONNEL	0	0	1	1	0	0	0.115	0.0	0.414	0.115	0.0	0.414	
ENGINEERING PERSONNEL	0	3	0	3	0	0	0.373	1.294	0.0	0.373	1.294	0.0	
TOTAL	66	55	82	203	52	52	26.971	52.099	63.633	26.971	52.099	63.633	142.703
* WASTE PROCESSING													
MAINTENANCE PERSONNEL	0	0	5	5	0	5	0.299	0.360	1.370	0.299	0.360	1.370	
OPERATING PERSONNEL	15	0	0	15	0	0	3.820	0.0	0.0	3.820	0.0	0.0	
HEALTH PHYSICS PERSONNEL	5	0	12	17	0	12	1.640	0.0	7.823	1.640	0.0	7.823	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.020	0.0	0.0	0.020	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	20	0	17	37	0	17	5.755	0.360	9.213	5.755	0.360	9.213	15.328
* REVEALING													
MAINTENANCE PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
OPERATING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
HEALTH PHYSICS PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
SUPERVISORY PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
ENGINEERING PERSONNEL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	
TOTAL	0	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
* TOTAL BY JOB FUNCTION													
MAINTENANCE PERSONNEL	47	62	61	170	62	61	21.642	55.065	51.750	21.642	55.065	51.750	128.457
OPERATING PERSONNEL	69	0	0	69	0	0	18.379	0.0	0.0	18.379	0.0	0.0	18.379
HEALTH PHYSICS PERSONNEL	16	0	43	59	0	43	5.438	0.0	23.345	5.438	0.0	23.345	28.783
SUPERVISORY PERSONNEL	0	0	1	1	0	1	0.215	0.0	0.597	0.215	0.0	0.597	0.812
ENGINEERING PERSONNEL	1	3	0	4	0	0	0.584	1.484	0.0	0.584	1.484	0.0	2.068
TOTAL	133	65	105	303	62	105	46.248	56.549	75.692	46.248	56.549	75.692	176.543

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

# APPENDIX C

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

(PWR)

PLANT FUNCTION 1,2

NUMBER OF PERSONNEL (>100 M REM) 1980

WORK & JOB FUNCTION	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS & OTHERS	TOTAL PERSONS	STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACTORS & OTHERS	TOTAL MAN-REMS
REACTOR OPERATIONS & SUPV.								
MAINTENANCE PERSONNEL	7	0	0	7	4.5	0.0	0.0	4.5
OPERATING PERSONNEL	107	0	0	107	49.8	0.0	0.0	49.8
HEALTH PHYSICS PERSONNEL	6	0	0	6	9.0	0.0	0.0	9.0
SUPERVISORY PERSONNEL	47	0	0	47	5.6	0.0	0.0	5.6
ENGINEERING PERSONNEL	42	127	0	169	23.3	8.0	0.0	31.3
TOTAL	249	127	0	376	92.2	8.0	0.0	100.2
ROUTINE MAINTENANCE								
MAINTENANCE PERSONNEL	120	0	1203	1323	129.0	0.0	526.0	655.0
OPERATING PERSONNEL	26	0	0	26	12.3	0.0	0.0	12.3
HEALTH PHYSICS PERSONNEL	16	0	0	16	23.5	0.0	0.0	23.5
SUPERVISORY PERSONNEL	43	0	0	43	9.9	0.0	0.0	9.9
ENGINEERING PERSONNEL	50	0	0	50	9.4	0.0	0.0	9.4
TOTAL	255	0	1203	1458	184.1	0.0	526.0	710.1
IN-SERVICE INSPECTION								
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	7	0	0	7	1.4	0.0	0.0	1.4
TOTAL	7	0	0	7	1.4	0.0	0.0	1.4
SPECIAL MAINTENANCE								
MAINTENANCE PERSONNEL	0	102	0	102	0.0	20.7	0.0	20.7
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	102	0	102	0.0	20.7	0.0	20.7
WASTE PROCESSING								
MAINTENANCE PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	16	0	0	16	7.8	0.0	0.0	7.8
HEALTH PHYSICS PERSONNEL	5	0	0	5	6.7	0.0	0.0	6.7
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	21	0	0	21	14.5	0.0	0.0	14.5
REFUELLING								
MAINTENANCE PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
OPERATING PERSONNEL	4	0	0	4	11.9	0.0	0.0	11.9
HEALTH PHYSICS PERSONNEL	0	0	0	0	0.0	0.0	0.0	0.0
SUPERVISORY PERSONNEL	3	0	0	3	2.5	0.0	0.0	2.5
ENGINEERING PERSONNEL	7	0	0	7	1.4	0.0	0.0	1.4
TOTAL	14	0	0	14	15.8	0.0	0.0	15.8
TOTAL BY JOB FUNCTION								
MAINTENANCE PERSONNEL	127	102	1203	1432	133.3	20.7	526.0	680.0
OPERATING PERSONNEL	155	0	0	155	81.8	0.0	0.0	81.8
HEALTH PHYSICS PERSONNEL	27	0	0	27	39.2	0.0	0.0	39.2
SUPERVISORY PERSONNEL	93	0	0	93	18.0	0.0	0.0	18.0
ENGINEERING PERSONNEL	151	127	0	278	36.5	8.0	0.0	44.5
GRAND TOTAL	553	229	1203	1985	309.4	28.7	526.0	392.1

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