

OCCUPATIONAL RADIATION EXPOSURE AT LIGHT WATER COOLED POWER REACTORS 1976

L. A. Johnson

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SUMMARY

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An additional 9 LWRs completed a full calendar year of commercial operation for the first time in 1976, increasing the total to 53 operating nuclear power plants. The number of personnel monitored at LWRs increased approximately 34% in 1976, and the average collective dose to personnel (man-rem per reactor-year) increased 9% over the 1975 average. The average number of personnel receiving measurable exposure per reactor increased 7%, and the average exposure per individual in 1976 was 0.7 rem per person.

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OCCUPATIONAL RADIATION EXPOSURE
AT
LIGHT WATER COOLED POWER REACTORS
1969-1976

INTRODUCTION

This report contains a compilation of the occupational radiation exposures at light water nuclear power reactors (LWRs) for the years 1969 through 1976. Data from the plants that completed a full year of operation for the first time in 1976 have been added to information previously collected and published as WASH-1311,¹ NUREG-75/032,² and NUREG-0109.³ Appendix B of this report contains the data submitted to the USNRC in accordance with the requirements of 10 CFR Part 20.407, which annually requires power reactor licensees to submit a statistical summary report of personnel monitoring information recorded during the

¹Murphy, T. D., A Compilation of Occupational Radiation Exposures from Light Water Cooled Nuclear Power Plants, 1969-1973, USAEC, WASH-1311, May 1974.

²Murphy, T. D., Hinson, C. S., Occupational Radiation Exposures at Light Water Cooled Nuclear Power Reactors, 1969-1974, USNRC, NUREG-75/032, June 1975.

³Murphy, T. D., et al., Occupational Radiation Exposure at Light Water Cooled Power Reactors, 1969-1975, NUREG-0109.

year. Appendix C contains a compilation of information submitted annually to the NRC in accordance with individual licensee Technical Specifications requirements and the guidance provided in Regulatory Guide 1.16, "Reporting of Operating Information - Appendix A Technical Specifications."

The compilation of occupational radiation exposure data through 1975 contained in reference (3) has been reworked in some cases to remain consistent with aforementioned requisites for inclusion in this document. Figures on radiation exposure relating to work and job functions were calculated from data submitted by the licensees in accordance with guidance provided in Regulatory Guide 1.16 (see Appendix C). The plant operating data in Appendix A, including the calculated value of megawatt-years generated, was obtained or derived from information included in NUREG-0020-1, "Operating Units Status Report", January 1977. These reports are available in public document rooms (PDRs) located near each licensed plant or in the U.S. Nuclear Regulatory Commission's Public Document Room at 1717 H Street, Washington, D.C.

The term man-rem is a unit of collective dose and, as used in this report, is the summation of the occupational radiation exposures of all individuals at the plant site including utility station personnel, other utility personnel brought in on a temporary basis, and contractor personnel. Because all licensees did not report data consistently in

the format suggested by Regulatory Guide 1.16, the annual man-rem exposure figures used in all calculations (with the exception of Tables 5 and 6) were determined by summing the product of the numbers of individuals in each annual exposure range specified in 10 CFR Part 20.407 by the mid-point exposure in each range. The annual man-rem totals thus determined are presented in Appendix A for each plant site.

Personnel figures used in all calculations were those reported in accordance with 10 CFR Part 20.407 because personnel data received from licensees varied with differing interpretations of Regulatory Guide 1.16. Personnel data for each plant site are included in Appendix A.

TABLE 1
MAN-REM SUMMARY

a. SUMMARY - LIGHT WATER REACTORS					
	Number of Reactors	Average Rated Capacity* (MWe)	Average MW-Yr Generated	Yearly Average Man-Rem/ Reactor-Year	Yearly Average Man-Rem/ MW-Year
1969	7	247	167	178	1.1
1970	9	332	224	377	1.7
1971	11	318	257	315	1.2
1972	17	463	332	386	1.2
1973	23	526	336	594	1.8
1974	32	587	334	427	1.3
1975	44	644	406	457	1.1
1976	53	676	411	499	1.2
b. PRESSURIZED WATER REACTORS					
	Number of Reactors	Average Rated Capacity* (MWe)	Average MW-Yr Generated	Yearly Average Man-Rem/ Reactor-Year	Yearly Average Man-Rem/ MW-Year
1969	4	349	248	165	0.7
1970	4	349	245	685	2.8
1971	5	377	304	336	1.1
1972	8	464	287	464	1.4
1973	11	541	434	841	2.1
1974	18	613	367	364	1.0
1975	26	642	459	309	0.7
1976	30	699	444	460	1.0
c. BOILING WATER REACTORS					
	Number of Reactors	Average Rated Capacity* (MWe)	Average MW-Yr Generated	Yearly Average Man-Rem/ Reactor-Year	Yearly Average Man-Rem/ MW-Year
1969	3	112	58	195	3.4
1970	5	318	207	131	0.6
1971	6	269	218	297	1.4
1972	9	463	340	318	0.9
1973	12	512	283	368	1.3
1974	14	553	290	507	1.7
1975	18	646	331	670	2.0
1976	23	647	367	549	1.5

*Maximum Dependable Capacity (Net) - the dependable gross electrical output as measured at the output terminals of the turbine generator during the most restrictive seasonal conditions (usually summer) less the normal station service loads.

PERSONNEL EXPOSURE SUMMARY

Appendix A presents the annual man-rem received at each light water cooled nuclear power reactor (LWR) station from 1969 to 1976 that had operated for a full year as of January 1, 1977. For multi-unit sites, the data displayed is the total for all units.* The average exposure per reactor-year and the average exposure per megawatt-year are presented in Table 1 categorized by pressurized water reactors, boiling water reactors, and all LWRs. The average exposure for each reactor at each station was determined by dividing the total exposure reported for the station by the number of reactors at that particular site. The data in Table 1 has been plotted in Figures 1 and 2. Figure 1 illustrates that the average man-rem per reactor-year for BWRs decreased in 1976 for the first time since 1970. The average man-rem per reactor-year increased for PWRs in 1976. Figure 2 illustrates that man-rem per megawatt-year increased for PWRs and decreased for BWRs in 1976.

Analysis of all of the data for 1969 through 1976 determined that the 8-year average occupational exposure for BWRs is approximately 1.5 man-rem per megawatt-year, and for PWRs is approximately 1.1 man-rem per megawatt-year. The average man-rem per megawatt-year for all light water cooled power reactors listed in Appendix A for this 8-year period is approximately 1.3 man-rem per megawatt-year.

*Since Millstone Unit 1 is a BWR and Millstone Unit 2 is a PWR, the data for these two reactors are reported separately.

FIGURE 1
AVERAGE MAN-REM/REACTOR YEAR

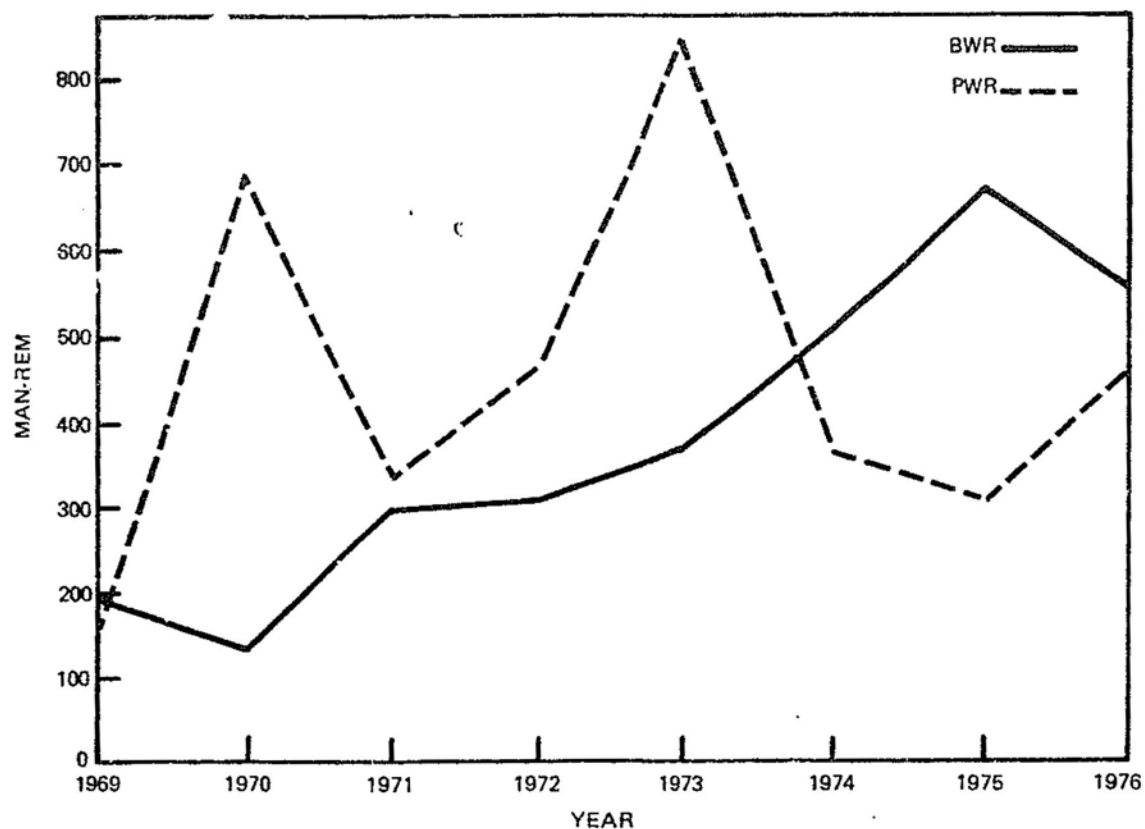
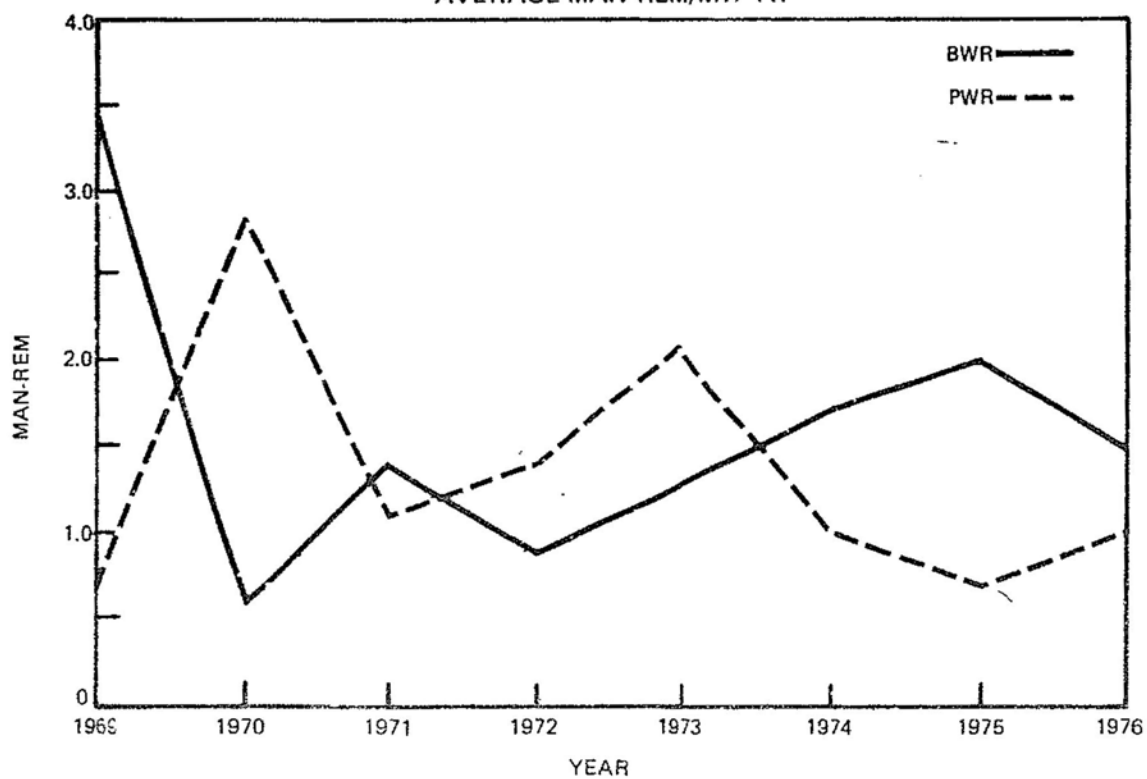


FIGURE 2
AVERAGE MAN-REM/MW-YR



EXPOSURE TO INDIVIDUALS

As shown in Table 2, an average of 669 persons per reactor received measurable exposure at commercial LWR's in 1976. This represents an 7% increase over the number of personnel that received measurable exposures in 1975. The average exposure per individual in 1976 was approximately 0.7 rem per person as it was in 1975.^a

TABLE 2

AVERAGE OCCUPATIONAL RADIATION EXPOSURE PER INDIVIDUAL

<u>Year</u>	<u>Average Exposure Per Individual (Rems)</u>	<u>Average Number of Personnel With Measurable Exposure Per Reactor</u>
1969	1.7	149
1970	1.3	380
1971	1.2	309
1972	0.7	345
1973	0.9	634
1974	0.8	567
1975	0.7 ^a	625
1976	0.7	669

Table 3 is a summary of the number of annual whole body exposures at LWR's in each exposure increment of 10 CFR Part 20.407 b(2) for the years 1969 through 1976. The total number of individuals monitored for radiation exposure in 1976 at licensed LWR's increased 34% from

^aThis figure was recalculated to reflect a correction in the 1975 Appendix A personnel data for Surry 1 and 2.

TABLE 3
SUMMARY OF ANNUAL WHOLE BODY EXPOSURES BY INCREMENT - LWR'S⁴
(For Those Personnel at Licensee Stations Included in Appendix A)

Year	No Measurable Exposure	Number of Individuals											Total With Measurable Exposure	Total Monitored	
		Exposure Increment - Rems													
		0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11			11
1969	-	2607		144	70	26	5	2	0	0	0	0	0	2854	2854
1970	-	6953		184	175	92	102	11	1	0	0	0	0	7518	7518
1971	-	9660		328	146	107	17	11	0	0	0	0	0	10269	10269
1972	-	14783		536	205	114	47	23	10	6	6	0	0	15730	15730
1973	20717	10249	2449	1585	432	237	117	71	38	16	7	0	0	15201	35918
1974	20240	13455	2491	1375	470	226	86	30	6	0	0	0	0	18139	38379
1975	20188	18277	3892	1903	707	426	169	60	24	12	0	1	0	25471	45659
1976	25704	26636	4880	2354	789	487	188	70	26	11	5	1	0	35447	61151

⁴Brooks, B. G., Ninth Annual Occupational Radiation Exposure Report, 1976, USNRC, NUREG-0322, October 1977.

the 1975 figure. During this same period, the number of personnel receiving measurable exposure increased 39%. The number of individuals receiving exposures in excess of 5 rem concurrently increased 12%.

The number of persons receiving whole body exposures in excess of the limits established by 10 CFR Part 20 at commercial reactors are reported for the years 1971 through 1976 in Table 4. Approximately 0.03% of the persons monitored for radiation exposure at commercial reactors received whole body overexposures in 1976. It should be noted that during 1977 the requirement in 10 CFR Part 20.407 for reporting exposures to excessive concentrations of radioactive material was changed from 40 to 520 MPC-hr (Maximum Permissible Concentration - hour).

TABLE 4

OVEREXPOSURES AT COMMERCIAL POWER REACTORS					
Year	Number of Overexposures to External Radiation	Whole Body Man-Rem Involved	Whole Body Maximum Exposure (Rems)	Reports of Exposure to Excessive Concentration of Radioactive Material	Maximum Exposure
1971	2	4.5	3.1	21	6.1 rem (thyroid)
1972	16	49.7	5.1	2	2000 MPC-hr
1973	19	61.2	4.0	0	
1974	43	155.9	6.1	12	433 MPC-hr
1975	14	44.2	3.8	7	13.5 rem (lung)
1976	20 ^a	74.3	10.0	1	248 MPC-hr

^aEighteen of the reported overexposures were quarterly overexposures where cumulative quarterly dose to an individual exceeded 3 rem.

EXPOSURE BY WORK AND JOB FUNCTIONS

Tables 5 and 6 present data submitted in accordance with Regulatory Guide 1.16 on radiation exposures at commercial reactors, categorized by work and job function. Personnel data received from the licensees varied because of differing interpretations of the format guidance presented in Regulatory Guide 1.16; therefore, categorization of personnel data is not included in this report.

Table 5a displays a tabulation of man-rem reported by licensees by work function. Routine and Special Maintenance functions together accounted for 71% of the exposures reported in 1976, as was also the case in 1975. Comparison of the exposures received by utility and contractor reveals that utility personnel (utility personnel brought in on a temporary basis as well as those individuals who are utility station personnel) received 3% more of the total dose than did the contractor personnel.

Categorization of the personnel dose in 1976 by job function is presented in Table 6. Each work function listed in Table 5 has been broken down further into the 5 basic job functions presented in Table 6. Maintenance as a job function accounts for over 70% of the reported exposures. Contractor personnel received a greater percentage of the total dose than utility personnel only in the maintenance job function area. Total dose to utility personnel by job function exceeded contractor exposure by 1% in 1976.

TABLE 5

PERSONNEL DOSE BY WORK FUNCTION (1976)
PER DATA SUPPLIED BY LICENSEE IN ACCORDANCE WITH R.G. 1.16

a. TABULATION OF MAN-REM BY WORK FUNCTION

<u>Work Function</u>	<u>Station Employees</u>	<u>Utility Employees</u>	<u>Contract Workers and Others</u>	<u>Total</u>
Reactor Operations	2131	108	301	2540
Routine Maintenance	2749	1250	3607	7606
Inservice Inspection	158	99	1196	1453
Special Maintenance	1468	2443	5837	9748
Waste Processing	864	40	285	1189
Refueling	<u>1032</u>	<u>274</u>	<u>604</u>	<u>1910</u>
Totals	8402	4214	11830	24446

b. PERCENTAGES OF EXPOSURE BY WORK FUNCTION

<u>Work Function</u>	<u>Utility</u>	<u>Contractor</u>	<u>Total</u>
Reactor Operations	9.1%	1.2%	10.3%
Routine Maintenance	16.3%	14.8%	31.1%
Inservice Inspection	1.1%	4.9%	6.0%
Special Maintenance	16.0%	23.9%	39.9%
Waste Processing	3.7%	1.2%	4.9%
Refueling	<u>5.3%</u>	<u>2.5%</u>	<u>7.8%</u>
Totals	51.5%	48.5%	100%

TABLE 6
PERSONNEL DOSE BY JOB FUNCTION (1976)

a. TABULATION OF MAN-REM BY JOB FUNCTION				
<u>Job Function</u>	<u>Station Employees</u>	<u>Utility Employees</u>	<u>Contract Workers and Others</u>	<u>Total</u>
Maintenance	3137	2785	8639	14561
Operations	2016	21	54	2091
Health Physics	752	45	367	1164
Supervisory	475	42	210	727
Engineering	<u>546</u>	<u>162</u>	<u>510</u>	<u>1218</u>
Totals	6926	3055	9780	19761 ^a

b. PERCENTAGES OF EXPOSURE BY JOB FUNCTION			
<u>Job Function</u>	<u>Utility</u>	<u>Contractor</u>	<u>Total</u>
Maintenance	30.0%	43.7%	73.7%
Operations	10.3%	0.3%	10.6%
Health Physics	4.0%	1.8%	5.8%
Supervisory	2.6%	1.1%	3.7%
Engineering	<u>3.6%</u>	<u>2.6%</u>	<u>6.2%</u>
Totals	50.5%	49.5%	100%

^aThe remaining 4685 man-rem of the 24446 man-rem total reported in Table 5 were not categorized by job function by the licensees.

APPENDIX A

PERSONNEL, EXPOSURE AND POWER GENERATION SUMMARY

EXPOSURE, PERSONNEL AND POWER GENERATION SUMMARY

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Opera- tions	Main- tenance	Contrac- tor	Station/ Utility		
ARKANSAS 1 Docket 50-313; DPR-51 1st commercial operation 12/74 Type - PWR Capacity - 836 MWe	75 76	588.0 464.6	76.5 56.6	147 476	46 289	27	262	100	189	0.31 0.61	0.1 0.62
BIG ROCK POINT Docket 50-155; DPR-6 1st commercial operation 3/63 Type - BWR Capacity - 71 MWe	69 70 71 72 73 74 75 76	43.2 43.5 44.4 43.5 50.9 40.7 35.1 29.5		165 290 260 195 119 281 216 488	136 194 184 181 336 276 180 289			140 42 20 105	196 234 160 184	0.82 0.67 0.7 0.92 2.8 0.98 0.83 0.59	3.1 4.5 4.1 4.1 6.6 6.6 5.1 9.80
BROWN'S FERRY, 2 Docket 50-259; 50-260; DPR-33, -52 1st commercial operation 8/74; 3/75 Type - BWR Capacity - 1055 MWe, 1065 MWe	75 76	328.9 337.6	17.8 26.9	2380 2207	325 234					0.14 0.11	1.0 0.69
BRUNSWICK 2 Docket 50-234; DPR-62 1st commercial operation 11/75 Type - BWR Capacity - 790 MWe	76	297.2	56.0	1265	326	15	311	222	104	0.26	1.10
CALVERT CLIFFS 1 Docket 50-317; DPR-53 1st commercial operation 5/75 Type - PWR Capacity - 800 MWe	76	753.4	95.2	507	74	28	46	8	66	0.15	0.10

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Operations	Maintenance	Contractor	Station/Utility		
COOK Docket 50-315; DPR-58 1st commercial operation 8/75 Type - PWR Capacity - 1044 MWe	76	807.4	83.1	395	116	13	103	71	45	0.29	0.14
	75 76	456.4 433.3	83.6 75.5	175 763	96 350	25 39	71 311	16 210	80 140	0.55 0.46	0.2 0.81
COOPER STATION Docket 50-298; DPR-46 1st commercial operation 7/74 Type - BWR Capacity - 764 MWe	75 76	456.4 433.3	83.6 75.5	175 763	96 350	25 39	71 311	16 210	80 140	0.55 0.46	0.2 0.81
	69 70 71 72 73 74 75 76	89.4 304.0 394.5 1243.7 1112.2 842.5 708.1 1127.2	54.9 54.6 80.8	1341 1594 3671 1746	286 143 715 728 909 1662 3209 1680	138 254 228	771 2955 1452	333 57 2111 749	576 1605 1098 931	0.68 1.04 0.87 0.96	3.2 1.5 1.8 .6 .8 2.0 4.5 1.49
DUANE ARNOLD Docket 50-331; DPR-49 1st commercial operation 2/75 Type - BWR Capacity - 515 MWe	76	305.2	78	350	105	14	91	62	43	0.30	0.34
	75	489.0	71.6	600	202					0.34	0.41
FITZPATRICK Docket 50-333; DPR-59 1st commercial operation 7/75 Type - BWR Capacity - 770 MWe	76	305.2	78	350	105	14	91	62	43	0.30	0.34
	75	489.0	71.6	600	202					0.34	0.41

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MM-YR
					Total	Operations	Maintenance	Contractor	Station/Utility		
FORT CALHOUN Docket 50-285; DPR-40 1st commercial operation 6/74 Type - PWR Capacity - 443 MWe	75	252.3	67.4	469	298	28	285	93	205	0.63	1.2
	76	265.9	69.5	516	313			38	275	0.61	1.18
GINNA Docket 50-244; DPR-18 1st commercial operation 3/70 Type - PWR Capacity - 470 MWe	70	268.5		170	207	94	113	15	192	1.21	0.8
	71	327.8		340	430	69	361	108	322	1.26	1.3
	72	295.6		677	1032	71	961	278	754	1.52	3.4
	73	409.5		421	244	60	184	91	153	0.58	0.6
	74	253.7	62.4	884	1224					1.38	4.8
	75	365.2	76.7	558	496					0.89	1.4
	76	248.8	58.2	758	636	29	607	210	426	0.84	2.56
HADDAM NECK (CONN. YANKEE) Docket 50-213; DPR-61 1st commercial operation 1/68 Type - PWR Capacity - 550 MWe	69	397.6		138	106			27	79	0.77	0.5
	70	424.7		734	689			463	226	0.94	1.7
	71	502.2		289	342			166	176	1.18	0.8
	72	515.6		355	325			181	144	0.91	0.7
	73	293.1		841	673			525	148	0.80	2.1
	74	519.1	91.2	550	201	19	650			0.37	0.4
	75	494.3	89.9	795	669	5	444	253	196	0.84	1.4
	76	482.9	82.5	644	449					0.70	0.93
HATCH Docket 50-321; DPR-57 1st commercial operation 12/75 Type - BWR Capacity - 786 MWe	76	496.3	83.8	630	134	79	55	4	130	0.21	0.27
HUMBOLDT BAY Docket 50-133; DPR-7 1st commercial operation 2/63 Type - BWR Capacity - 63 MWe	69	40.6		125	154	69	95	12	152	1.31	4.0
	70	49.3		115	209	130	79	37	172	1.81	4.3
	71	39.6		140	292	114	178	65	227	2.1	7.7
	72	43.1		127	253	81	172	57	196	1.99	5.9
	73	50.1		235	261	59	202			1.11	7.1
	74	43.4	83.8	296	318	103	215	110	222	1.07	7.3
	75	45.3	83.9	303	332	128	204	50	633	1.10	29.1
	76	23.5	46.4	523	683	37	646			1.31	

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Operations	Maintenance	Contractor	Station/Utility		
*INDIAN POINT 1, 2 Docket 50-3, 50-247; DPR-5, -26 1st commercial operation 10/62, 5/73 Type - PWR Capacity - 265 MWe, 864 MWe	69	183.3			298						1.6
	70	43.3			1639						5.0
	71	154.0			768						5.0
	72	142.3			967						6.6
	73	0		2998	5134	692	4442	2778	2356	1.71	
	74	556.1	59.4	1019	910					0.89	1.6
	75	584.4	74.8	480	626	147	479	42	584	1.3	1.1
	76	273.9	34.8	1590	1950	154	1796	172	1778	1.23	7.12
KENAUNEE Docket 50-305; DPR-43 1st commercial operation 6/74 Type - PWR Capacity - 515 MWe	75	401.9	88.2	54	25	1	24	11	14	0.5	0.06
	76	405.9	78.9	381	270	16	254	193	77	0.71	0.67
LACROSSE Docket 50-409; DPR-45 1st commercial operation 9/69 Type - BWR Capacity - 48 MWe	71	33.1		218	158					0.72	5.0
	72	29.2		151	172					1.13	5.9
	73	24.4		157	221					1.41	9.1
	74	37.9	81.0	115	139	89	50	6	133	1.21	3.7
	75	32.0	69.6	165	234					1.42	7.3
	76	21.2	47.6	118	111	40	71	6	105	0.94	5.24
MAINE YANKEE Docket 50-209; DPR-36 1st commercial operation 12/72 Type - PWR Capacity - 760 MWe	73	408.7		422	121					0.29	0.3
	74	432.6	68.7	620	420	64	356	61	60	0.68	1.0
	75	542.9	79.9	577	347	16	331	188	232	0.60	0.6
	76	712.2	95.0	27	85	27	58	197	150	0.35	0.12

*INDIAN POINT 1 was defueled in 1975.

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Opera- tions	Main- tenance	Contra- ctor	Station/ Utility		
MILLSTONE POINT 1 Docket 50-245; DPR-21 1st commercial operation 3/71 Type - BWR Capacity - 647 MWe	72	377.6		612	596	50	546	340	256	0.97	1.6
	73	225.1		1152	620	117	503	395	225	0.54	2.7
	74	430.3	79.1	2477	1430					0.58	3.3
	75	465.4	75.6	2587	2022					0.78	4.3
	76	449.8	76.1	1377	1194	54	1140	955	239	0.87	2.65
MILLSTONE POINT 2 Docket 50-336; DPR-65 1st commercial operation 12/75 Type - PWR Capacity - 780 MWe	76	545.7	78.7	620	168	26	142	73	95	3.27	0.31
	72	424.4		99	61	40	21	1	60	0.63	0.1
	73	389.5		276	154	42	112	59	95	0.56	0.4
	74	349.3	74.9	842	349			91	258	0.41	1.0
	75	344.8	72.2	1353	1353					1.0	3.9
MONTICELLO Docket 50-363; DPR-22 1st commercial operation 6/71 Type - BWR Capacity - 536 MWe	76	476.4	91.5	325	263	59	204	51	212	0.81	0.55
	70	227.0		821	44	12	32	17	27	0.05	0.2
	71	346.5		1006	195	43	152	63	89	0.19	0.6
	72	381.8		735	285	59	226	28	198	0.38	0.8
	73	411.0		550	517	127	390	108	409	0.94	1.3
NINE MILE POINT Docket 50-220; DPR-63 1st commercial operation 12/69 Type - BWR Capacity - 610 MWe	74	385.9	70.5	740	824	42	782	279	545	1.11	2.1
	75	359.0	72.1	649	681	68	613	203	478	1.04	1.9
	76	484.6	88.2	392	428	52	376	229	199	1.09	0.88
	74	724.3	60.1	844	517	18	499	144	373	0.61	0.7
	75	1838.3	75.5	541	457	66	391	83	374	0.84	0.3
OCONEE 1, 2, 3 Docket 50-269, -270, -287; DPR-38, -47, -55 1st commercial operation 7/73, 9/74, 12/74 Type - PWR Capacity - 871, 871, 871 MWe	76	1561.4	63.0	1215	1026	65	961	219	807	0.84	0.66

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Operations	Maintenance	Contractor	Station/Utility		
OYSTER CREEK Docket 50-219; DPR-16 1st commercial operation 12/69 Type - BWR Capacity - 620 MWe	69	40.1		95	63	21	42	11	52	0.66	0.2
	70	413.6		249	240	50	190	92	140	0.96	0.5
	71	448.9		339	582	150	432	167	415	1.71	1.1
	72	515.0		782	1236	195	1041	683	553	1.58	2.9
	73	424.6	70.4	935	984	166	818	162	822	1.05	2.3
	74	434.5	73.3	1210	1132	168	964	269	863	0.94	3.0
	75	373.6	79.3	1582	1078	70	1008	587	491	0.68	2.36
PALISADES Docket 50-255; DPR-20/ 1st commercial operation 12/71 Type - PWR Capacity - 684 MWe	72	216.8			78						
	73	286.8		901	1109	16	1093	647	462	1.23	3.8
	74	10.5	5.5	774	627					0.81	60.0
	75	300.2	64.5	474	292					0.62	0.97
PEACH BOTTOM 2, 3 Docket 50-277, -278; DPR 44, -56 1st commercial operation 12/74 Type - BWR Capacity - 1051, 1035 MWe	76	346.9	55.2	742	696	23	673	109	587	0.94	2.01
	75	1234.3	80.9	971	228					0.24	0.18
	76	1379.2	73.0	2136	840	180	660	434	406	0.39	0.61
PILGRIM Docket 50-293; DPR-35 1st commercial operation 12/72 Type - BWR Capacity - 670 MWe	73	484.0		53	74	29	45			1.4	0.2
	74	234.1	39.2	454	415					0.91	1.8
	75	308.1	71.3	473	744	132	612	384	360	1.6	2.4
	76	287.8	60.7	1317	2648	66	2582	2270	378	2.01	9.2
POINT BEACH 1, 2 Docket 50-266, -301; DPR-24, -27 1st commercial operation 12/70 4/73 Type - PWR Capacity - 495 MWe, 495 MWe	72	378.3			580						
	73	693.7		729	570	70	500			0.78	1.5
	74	760.2	81.3	400	295	70	225	81	214	0.74	0.8
	75	801.2	82.9	339	456					1.3	0.6
	76	857.3	86.7	313	370	58	312	107	263	1.18	0.43

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Opera- tions	Main- tenance	Contrac- tor	Station/ Utility		
PRAIRIE ISLAND 1, 2 Docket 50-282, -306; DPR-42,-60 1st commercial operation 12/73, 12/74 Type - PWR, PWR Capacity - 520 MWe, 520 MWe	74	181.9	43.9	150	18			5	13	0.12	0.1
	75	836.0	83.3	477	123					0.26	0.15
	76	725.2	76.6	818	447	68	379	235	212	0.55	0.62
QUAD CITIES 1, 2 Docket 50-254, -265; DPR-29, -30 1st commercial operation 2/73, 3/73 Type - BWR Capacity - 769 MWe, 769 MWe	73	1209.6		533	201	28	173	59	142	0.37	0.2
	74	958.1	72.3	678	482			36	446	0.71	0.5
	75	833.6	68.4	1972	1385	98	1287	592	793	0.70	1.7
	76	951.2	73.1	1225	1651	269	1382	648	1003	1.35	1.74
RANCHO SUCO Docket 50-312; DPR-54 1st commercial operation 4/75 Type - PWR Capacity - 868 MWe	76	268.1	30.4	297	58	6	52	17	41	0.20	0.22
ROBINSON 2 Docket 50-261; DPR-23 1st commercial operation 3/71 Type - PWR Capacity - 665 MWe	71	295.3		283	364	7	357	351	13	1.28	1.2
	72	580.0		245	215	42	173	137	78	0.87	0.4
	73	455.1		831	695					0.83	1.5
	74	578.1	83.3	853	672	185	487			0.78	1.2
	75	501.8	72.7	849	1142					1.35	2.3
	76	585.5	84.7	597	715	30	685	457	758	1.20	1.22
SAN ONOFRE 1 Docket 50-206; DPR-13 1st commercial operation 1/68 Type - PWR Capacity - 430 MWe	69	289.8		123	42	10	32	5	37	0.34	0.2
	70	365.9		251	155	13	142	59	96	0.61	0.4
	71	362.1		121	50	12	38	3	47	0.41	0.1
	72	372.2		326	256	29	227	117	139	0.78	0.7
	73	273.7		878	325	37	292	157	172	0.37	1.2
	74	377.8	86.1	219	71					0.32	0.2
	75	389.0	87.4	424	292					0.75	0.7
	76	297.9	70.2	1330	880	147	733	629	251	0.66	2.95

Reporting Organization	Year	Mega-watt year (MW-YR)	Unit Availability Factor	PERSONNEL Total	ANNUAL MAN-REM					Average Exposure REM per person	MAN-REM per MW-YR
					Total	Opera- tions	Main- tenance	Contrac- tor	Station/ Utility		
SURREY 1, 2 Docket 50-280, -281; DPR-32,-37 1st commercial operation 12/72, 5/73 Type - PWR Capacity - 788 MWe, 788 MWe	73	829.4		936	152	72	812			0.16	0.2
	74	717.4	49.8	1715	884					0.52	1.2
	75	1029.7	70.8	1948	1549	25	1524	1000	549	0.8	1.5
	76	930.7	60.4	2753	3165	444	2721	1873	1292	1.15	3.40
THREE MILE ISLAND 1 Docket 50-289; DPR-50 1st commercial operation 9/74 Type - PWR Capacity - 792 MWe	75	675.9	82.2	168	83					0.49	0.1
	76	530.0	65.4	819	286	23	263	21	62	0.35	0.54
TURKEY POINT 3, 4 Docket 50-250, -251; DPR-31,-41 1st commercial operation 12/72, 9/73 Type - PWR Capacity - 666 MWe, 666 MWe	73	565.9		444	78					0.18	0.1
	74	966.4	73.5	794	454	88	366	202	252	0.57	0.5
	75	1003.7	74.0	1175	875	270	605	558	317	0.74	0.87
	76	974.2	71.2	1647	1184	39	1095	868	316	0.72	1.21
VERMONT YANKEE Docket 50-271; DPR-28 1st commercial operation 11/72 Type - BWR Capacity - 504 MWe	73	222.1		244	85					0.35	0.4
	74	303.5	87.8	357	216	24	192	103	113	0.61	0.7
	75	429.0	77.1	247	139	64	75	57	82	0.56	0.3
	76	389.6		815	411	36	375	246	165	0.50	1.05
YANKEE ROWE Docket 50-29; DPR-3 1st commercial operation 7/61 Type - PWR Capacity - 175 MWe	69	123.1		193	215	46	169	78	91	1.1	1.8
	70	146.1		355	255	60	195	98	97	0.71	1.8
	71	173.5		155	90	44	46	19	71	0.58	0.5
	72	78.7		282	255	60	195	147	108	0.90	3.2
	73	127.1		263	146			70	76	0.56	1.1
	74	111.3		243	205			99	106	0.84	1.8
	75	145.1	82.4	210	138	62	76	78	60	0.66	1.0
	76	152.2	89.8	152	59	17	42	4	55	0.39	0.39

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APPENDIX B

LICENSED NUCLEAR POWER FACILITIES

10 CFR Part 20.407 Data

APPENDIX B
LICENSED NUCLEAR POWER FACILITIES
CY 1976 Whole Body Exposures (per 10 CFR 20.407 Reports)
Exposure Ranges (Rems)

Plant Name and License No.	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	Total Monitored	Total With Measurable Exposure
Arkansas 1 DPR-51, PWR	197	174	94	72	29	24	49	14	7	8	4	1				673	476
Big Rock Point DPR-6, BWR	15	205	90	50	33	23	41	27	12	6	1					503	488
Brown's Ferry 1, 2 DPR-33,-52; BWR	2,039	1,741	285	115	37	20	9									4,246	2,207
Brunswick 2 DPR-62, BWR	1,815	714	203	187	65	31	49	13	3							3,081	1,265
Calvert Cliffs 1 DPR-53, PWR	1,822	360	66	45	22	11	3									2,329	507
Cook DPR-58, PWR	977	164	93	67	35	17	18	1								1,372	395
Cooper Station DPR-46, BWR	757	352	100	76	61	55	101	16	1	0	1					1,520	763
Dresden 1, 2, 3 DPR-10,-19,-25; BWR	1,370	461	293	231	137	81	213	181	94	45	7	2	1			3,116	1,746
Duan Arnold DPR-49, BWR	725	148	77	55	35	17	18									1,075	350
Fitzpatrick DPR-59, BWR	705	262	152	84	32	18	42	5	3	2						1,305	600

NOTE: Only those facilities which had completed at least one full year of commercial operation as of December 31, 1976 are included in this summary.

APPENDIX B (Cont'd)
Exposure Ranges (Rems)

Plant Name and License No.	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	Total Monitored	Total With Measurable Exposure
Fort Calhoun DPR-40, PWR	130	261	40	47	44	21	59	20	17	7						646	516
Ginna DPR-18, PWR	111	139	113	92	72	56	240	41	4	1						869	758
Haddam Neck DPR-61, PWR	356	280	58	47	35	34	122	65	3							1,000	644
Hatch DPR-57, BWR	482	386	114	62	33	10	22	2	0	1						1,112	630
Humboldt Bay DPR-7, BWR	78	139	44	48	38	30	66	89	32	37						601	523
Indian Point 1*, 2 DPR-5, -26; PWR	656	368	217	177	112	111	272	135	68	63	49	14	3	0 (10-11) ^a		2,246	1,590
Kewaunee DPR-43, PWR	84	87	56	57	49	30	79	21	2							465	381
LaCrosse DPR-45, BWR	92	34	13	12	7	4	30	14	4							210	118
Maine Yankee DPR-36, PWR	265	115	44	25	22	14	24									509	244
Millstone Point 1 DPR-21, BWR	464	485	149	105	90	61	304	136	36	18	3					1,841	1,377

*Indian Point 1 was defueled in 1975.

^aIndian Point 1 & 2 reported 0 exposures in the 9.0-10.0 rem range, but reported 1 exposure in the 10.0-11.0 rem range.

APPENDIX B (Cont'd)
Exposure Ranges (Rems)

Plant Name and License No.	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	Total Monitored	Total With Measurable Exposure
Millstone Point 2 DPR-65, PWR	315	382	87	69	27	17	24	10	3	1						935	620
Monticello DPR-22, BWR	407	97	47	56	27	26	40	13	6	4	4	2	3			732	325
Nine Mile Point DPR-63, BWR	544	132	51	38	25	18	38	40	21	23	6					936	392
Oconee 1, 2, 3 DPR-38, -47, -55; PWR	266	288	181	156	120	92	225	108	44	1						1,481	1,215
Oyster Creek DPR-16, BWR	133	398	279	284	176	92	234	72	34	9	4					1,715	1,582
Palisades DPR-20, PWR	144	227	67	94	40	47	138	99	18	12						886	742
Peach Bottom 2, 3 DPR-24, -27; PWR	1,349	855	356	341	215	173	173	19	4							3,465	2,136
Pilgrim DPR-35, BWR	56	105	104	90	60	140	281	200	149	105	40	29	12	2		1,373	1,317
Point Beach 1, 2 DPR-24, -27; PWR	228	55	38	28	34	20	70	44	15	6	3					541	313
Prairie Island 1, 2 DPR-42, -60; PWR	550	306	128	116	67	60	103	20	14	4						1,368	818

APPENDIX B (Cont'd)
Exposure Ranges (Rems)

Plant Name and License No.	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	Total Monitored	Total With Measurable Exposure
Zion 1, 2 DPR-39,-48; PWR	1,073	192	129	98	72	68	155	52	5	2	0	0	0	1		1,847	774
TOTALS	25,704	12,821	5,130	4,135	2,520	2,030	4,880	2,354	789	487	188	70	26	11	5 (10-11) 1	61,151	35,447

APPENDIX C

ANNUAL MAN-REM SUMMARY

Per Reg. Guide 1.16 Data

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Arkansas

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	4.735	0	0.112
Operations Personnel	10.871	0	0
Health Physics Personnel	7.386	0	0
Supervisory Personnel	1.390	0	0
Engineering Personnel	0.170	0	0
Routine Maintenance			
Maintenance Personnel	8.518	0	2.15
Operations Personnel	0	0	0
Health Physics Personnel	1.04	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	97.435	0	52.229
Operations Personnel	13.335	0	0
Health Physics Personnel	9.914	0	1.308
Supervisory Personnel	5.125	0	10.461
Engineering Personnel	2.475	0.352	24.478
Waste Processing			
Maintenance Personnel	5.360	0	0
Operations Personnel	0.506	0	0
Health Physics Personnel	1.504	0	0
Supervisory Personnel	0.105	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	116.048	0	54.491
Operations Personnel	24.712	0	0
Health Physics Personnel	19.844	0	1.308
Supervisory Personnel	6.620	0	10.461
Engineering Personnel	2.645	0.352	24.478
Grand Totals- Man-Rems	169.869	0.352	90.738

Note: A "+" after a plant name indicates that licensee input was re-categorized by NRC staff.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Big Rock Point †

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	0
Operations Personnel	32.722	1.590	0
Health Physics Personnel	24.763	1.690	0
Supervisory Personnel	19.223	0.990	6.711
Engineering Personnel	13.229	1.018	0
Routine Maintenance			
Maintenance Personnel	51.965	19.586	66.955
Operations Personnel	9.531	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	1.871	17.468
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	3.871	0.083	0.251
Operations Personnel	0.787	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0.068	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	17.839
Operations Personnel	9.665	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	55.836	19.669	85.045
Operations Personnel	52.705	3.461	17.468
Health Physics Personnel	24.763	1.69	0
Supervisory Personnel	19.291	0.99	6.711
Engineering Personnel	13.229	1.018	0
Grand Totals- Man-Rems	165.824	26.828	109.224

† Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Browns Ferry 1, 2

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	3.3	0.1	0
Operations Personnel	2.2	0	0
Health Physics Personnel	1.0	0.1	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.4	0.6	0.7
Routine Maintenance			
Maintenance Personnel	14.3	10.9	0
Operations Personnel	0.1	0	0
Health Physics Personnel	0.5	0.1	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.3	0.8	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	7.983	77.394	0.241
Operations Personnel	3.584	0	0
Health Physics Personnel	0.631	0	0.131
Supervisory Personnel	0	0	0
Engineering Personnel	1.062	5.084	3.312
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0.3	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0.1
Totals			
Maintenance Personnel	25.583	88.394	0.241
Operations Personnel	6.184	0	0
Health Physics Personnel	2.131	0.2	0.131
Supervisory Personnel	0	0	0
Engineering Personnel	1.762	6.484	4.112
Grand Totals- Man-Rems	35.66	95.078	4.484

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Brunswick

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.200	0	0.560
Operations Personnel	10.475	0	0.431
Health Physics Personnel	1.635	0	0.510
Supervisory Personnel	0.375	0	0.011
Engineering Personnel	0.270	0.440	0
Routine Maintenance			
Maintenance Personnel	6.895	0.445	4.110
Operations Personnel	0.380	0	0
Health Physics Personnel	0.365	0	0.150
Supervisory Personnel	0.045	0	0
Engineering Personnel	0.090	0.440	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	39.800	3.100	183.823*
Operations Personnel	11.385	0	0
Health Physics Personnel	7.204	0	4.746*
Supervisory Personnel	0.536	0	0
Engineering Personnel	4.723	0.880	5.800
Waste Processing			
Maintenance Personnel	3.265	0.146	16.430*
Operations Personnel	7.615	0	0
Health Physics Personnel	0.619	0	0.277
Supervisory Personnel	0.053	0	0
Engineering Personnel	0.430	0.440	1.936
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	50.160	3.691	204.923*
Operations Personnel	29.855	0	0.431
Health Physics Personnel	9.823	0	5.683*
Supervisory Personnel	1.009	0	0.011
Engineering Personnel	5.513	2.200	7.736
Grand Totals- Man-Rems	96.360	5.891	218.784

*Includes exposures reported under "deconning" by licensee.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Calvert Cliffs

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2.51	0.15	1.06
Operations Personnel	7.36	0	0
Health Physics Personnel	9.09	0	0.23
Supervisory Personnel	0.31	0	0
Engineering Personnel	0	0	0
Routine Maintenance			
Maintenance Personnel	8.19	0.22	0.23
Operations Personnel	1.77	0	0
Health Physics Personnel	0.71	0	0
Supervisory Personnel	0.39	0.21	0
Engineering Personnel	0	0.09	0.28
Inservice Inspection			
Maintenance Personnel	0.17	0.09	0
Operations Personnel	1.92	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	9.25	2.70	3.80
Operations Personnel	1.71	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0.98	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0.20	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0.42	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	20.32	3.16	5.09
Operations Personnel	12.76	0	0
Health Physics Personnel	10.22	0	0.23
Supervisory Personnel	1.68	0.21	0
Engineering Personnel	0	0.09	0.28
Grand Totals- Man-Rems	44.98	3.46	5.60

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: D.C. Cook

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	0
Operations Personnel	4.900	0	0.270
Health Physics Personnel	4.110	0	0.250
Supervisory Personnel	0.930	0	0.130
Engineering Personnel	0.585	0	0
Routine Maintenance			
Maintenance Personnel	8.225	0	0.190
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0.100	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	4.990	0	3.890
Operations Personnel	0	0	0
Health Physics Personnel	0.170	0	0
Supervisory Personnel	0.110	0	4.200
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	12.741	0	40.672
Operations Personnel	0	0	0
Health Physics Personnel	0	0	2.218
Supervisory Personnel	0.130	0	2.390
Engineering Personnel	0.750	0	0.120
Waste Processing			
Maintenance Personnel	0.840	0	7.219
Operations Personnel	0.110	0	0
Health Physics Personnel	0.410	0	0
Supervisory Personnel	0.120	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	1.210
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	26.796	0	53.181
Operations Personnel	5.010	0	0.270
Health Physics Personnel	4.690	0	2.468
Supervisory Personnel	1.390	0	6.720
Engineering Personnel	1.335	0	0.120
Grand Totals- Man-Rems	39.221	0	62.759

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Cooper

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2.707	0	1.420
Operations Personnel	15.130	0	0
Health Physics Personnel	7.786	0	0
Supervisory Personnel	3.736	0.365	0.395
Engineering Personnel	1.681	1.535	0
Routine Maintenance			
Maintenance Personnel	52.041	0	5.611
Operations Personnel	1.315	0	0
Health Physics Personnel	1.367	0	0
Supervisory Personnel	3.496	0	1.489
Engineering Personnel	1.526	0.100	0
Inservice Inspection			
Maintenance Personnel	0	0	19.398
Operations Personnel	0	0	0
Health Physics Personnel	0.745	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	1.150	5.460
Special Maintenance			
Maintenance Personnel	0.297	0	118.217
Operations Personnel	1.596	0	0
Health Physics Personnel	3.270	0	2.440
Supervisory Personnel	0.560	0.175	12.255
Engineering Personnel	0.577	5.606	14.370
Waste Processing			
Maintenance Personnel	1.394	0	0
Operations Personnel	3.986	0	0
Health Physics Personnel	1.261	0	0
Supervisory Personnel	0.036	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0.389	0	4.243
Operations Personnel	8.235	0	0
Health Physics Personnel	1.581	0	0
Supervisory Personnel	0.522	0.400	1.435
Engineering Personnel	0.421	0	0
Totals			
Maintenance Personnel	0	0	19.398
Operations Personnel	0	0	0
Health Physics Personnel	0.745	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	1.150	5.460
Grand Totals- Man-Rems	115.655	9.331	186.733

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Dresden 1, 2, 3

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	5	0	0
Operations Personnel	122	0	0
Health Physics Personnel	22	0	0
Supervisory Personnel	15	0	0
Engineering Personnel	46	0	0
Routine Maintenance*			
Maintenance Personnel	318	0	720
Operations Personnel	90	0	0
Health Physics Personnel	70	0	0
Supervisory Personnel	52	0	0
Engineering Personnel	42	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	0	9	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	53	0	0
Health Physics Personnel	7	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	39	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	6	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	323	9	720
Operations Personnel	304	0	0
Health Physics Personnel	99	0	0
Supervisory Personnel	73	0	0
Engineering Personnel	88	0	0
Grand Totals- Man-Rems	887	9	720

*Includes Inservice Inspection Exposures.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Duane Arnold

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.106	0	0
Operations Personnel	8.975	0	0
Health Physics Personnel	1.388	0	0
Supervisory Personnel	1.044	0	0
Engineering Personnel	0	0	0
Routine Maintenance			
Maintenance Personnel	3.489	0	0
Operations Personnel	0	0	0
Health Physics Personnel	1.850	0	0
Supervisory Personnel	0.308	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	3.950
Special Maintenance			
Maintenance Personnel	6.589	0	38.081
Operations Personnel	0.176	0	0
Health Physics Personnel	0.542	0	4.256
Supervisory Personnel	0.553	0	0
Engineering Personnel	0	0	7.070
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	5.800	0	0
Supervisory Personnel	0.320	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	4.050	0	0
Health Physics Personnel	0	0	1.464
Supervisory Personnel	0.786	0	0
Engineering Personnel	0	0.320	0
Totals			
Maintenance Personnel	11.184	0	38.081
Operations Personnel	13.201	0	0
Health Physics Personnel	9.580	0	5.720
Supervisory Personnel	3.011	0	0
Engineering Personnel	0	0.320	11.020
Grand Totals- Man-Rems	36.976	0.320	54.821

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Fitzpatrick

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2.045	1.234	4.602
Operations Personnel	10.767	0	0
Health Physics Personnel	1.829	0	0
Supervisory Personnel	4.732	0.342	0.398
Engineering Personnel	0.030	0.093	0.100
Routine Maintenance			
Maintenance Personnel	7.095	1.178	7.964
Operations Personnel	0.960	0	0.002
Health Physics Personnel	0.326	0	0
Supervisory Personnel	0.804	0.069	0.218
Engineering Personnel	0.053	0.281	0.040
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	23.618	7.437	31.908
Operations Personnel	1.491	0	0
Health Physics Personnel	1.621	0	0
Supervisory Personnel	1.018	0.206	0.354
Engineering Personnel	0.412	2.381	0.327
Waste Processing			
Maintenance Personnel	2.526	0.697	13.580
Operations Personnel	10.305	0	0
Health Physics Personnel	0.672	0	0
Supervisory Personnel	1.141	0.012	0.048
Engineering Personnel	0.025	0.015	0.006
Refueling			
Maintenance Personnel	0.603	0.406	0.861
Operations Personnel	0.608	0	0
Health Physics Personnel	0.114	0	0
Supervisory Personnel	0.185	0.036	0
Engineering Personnel	0.116	0.042	0.020
Totals			
Maintenance Personnel	35.887	10.952	58.915
Operations Personnel	24.131	0	0.002
Health Physics Personnel	4.562	0	0
Supervisory Personnel	7.880	0.665	1.018
Engineering Personnel	0.636	2.812	0.493
Grand Totals- Man-Rems	73.096	14.429	60.428

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Fort Calhoun

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	3.155	1.509	1.070
Operations Personnel	13.409	0.093	0
Health Physics Personnel	7.247	0.796	4.575
Supervisory Personnel	0.806	0.045	0
Engineering Personnel	2.370	0.870	0
Routine Maintenance			
Maintenance Personnel	23.271	19.880	0.998
Operations Personnel	1.964	1.187	0
Health Physics Personnel	1.595	0.007	4.347
Supervisory Personnel	1.237	0.221	0
Engineering Personnel	5.101	0.520	0
Inservice Inspection			
Maintenance Personnel	0.536	0.635	2.008
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0.120
Supervisory Personnel	0	0.015	0
Engineering Personnel	0	0.022	0
Special Maintenance			
Maintenance Personnel	43.284	41.556	1.994
Operations Personnel	2.004	0.030	0
Health Physics Personnel	2.625	0.027	0.598
Supervisory Personnel	1.588	1.846	0
Engineering Personnel	6.483	0.951	0
Waste Processing			
Maintenance Personnel	14.487	18.058	1.168
Operations Personnel	3.500	0.030	0
Health Physics Personnel	3.686	0	0.686
Supervisory Personnel	0.078	0.053	0
Engineering Personnel	0.097	0.064	0
Refueling			
Maintenance Personnel	32.719	71.166	22.085
Operations Personnel	7.204	0.195	0
Health Physics Personnel	1.273	0.124	9.339
Supervisory Personnel	3.310	0.454	0
Engineering Personnel	6.031	2.487	0
Totals			
Maintenance Personnel	117.452	152.804	29.323
Operations Personnel	28.081	1.535	0
Health Physics Personnel	16.426	0.954	19.665
Supervisory Personnel	7.019	2.634	0
Engineering Personnel	20.082	4.914	0
Grand Totals- Man-Rems	189.06	162.841	48.988

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Ginna

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	4.670	0	0
Operations Personnel	21.840	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.580	0	0
Routine Maintenance			
Maintenance Personnel	44.610	172.860	89.340
Operations Personnel	0	0	0
Health Physics Personnel	7.000	0.340	4.000
Supervisory Personnel	1.740	0	0
Engineering Personnel	0.480	7.920	0
Inservice Inspection			
Maintenance Personnel	0.250	2.550	2.450
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	2.100	64.600	86.390
Operations Personnel	0	0	0
Health Physics Personnel	3.230	0	0.860
Supervisory Personnel	3.130	0.930	0.820
Engineering Personnel	2.030	0.810	0.230
Waste Processing			
Maintenance Personnel	10.000	0	9.990
Operations Personnel	8.715	0	0
Health Physics Personnel	3.850	0	1.060
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	27.430	1.210
Operations Personnel	4.350	0	0
Health Physics Personnel	0.600	0	0.600
Supervisory Personnel	1.300	0	0
Engineering Personnel	3.270	0	0
Totals			
Maintenance Personnel	61.630	267.440	189.380
Operations Personnel	34.905	0	0
Health Physics Personnel	14.680	0.340	6.520
Supervisory Personnel	6.170	0.930	0.820
Engineering Personnel	6.360	8.730	0.230
Grand Totals- Man-Rems	123.745	277.440	196.950

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Haddam Neck

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.745	0.045	0.025
Operations Personnel	2.205	0	0.060
Health Physics Personnel	0.445	0	0
Supervisory Personnel	0.085	0	0.010
Engineering Personnel	0.110	0.015	0
Routine Maintenance			
Maintenance Personnel	35.960	57.710	84.100
Operations Personnel	5.085	0	0.060
Health Physics Personnel	10.575	0.085	5.810
Supervisory Personnel	0.220	0	0.055
Engineering Personnel	0.675	0.055	0.520
Inservice Inspection			
Maintenance Personnel	0.435	4.265	9.635
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0.015
Supervisory Personnel	0	0	0
Engineering Personnel	0.215	1.285	0.355
Special Maintenance			
Maintenance Personnel	2.640	2.900	41.775
Operations Personnel	0.550	0	0
Health Physics Personnel	0.575	0	0.055
Supervisory Personnel	0.095	0	0.045
Engineering Personnel	0.670	3.685	0.940
Waste Processing			
Maintenance Personnel	1.740	2.185	0.720
Operations Personnel	5.465	0	0
Health Physics Personnel	0.395	0	0.340
Supervisory Personnel	0	0	0
Engineering Personnel	0.015	0	0
Refueling			
Maintenance Personnel	2.320	2.500	54.065
Operations Personnel	7.145	0	0
Health Physics Personnel	0.370	0	2.035
Supervisory Personnel	0.045	0	0.500
Engineering Personnel	0.860	0.995	0
Totals			
Maintenance Personnel	43.840	69.605	190.320
Operations Personnel	20.450	0	0.120
Health Physics Personnel	12.360	0.085	8.255
Supervisory Personnel	0.445	0	0.610
Engineering Personnel	2.545	6.035	1.815
Grand Totals- Man-Rems	79.640	75.725	201.12

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Hatch

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1	0	0
Operations Personnel	59	0	0
Health Physics Personnel	23	0	0
Supervisory Personnel	2	0	0
Engineering Personnel	5	0	0
Routine Maintenance			
Maintenance Personnel	39	0	0
Operations Personnel	8	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	8	3	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	4
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	48	3	0
Operations Personnel	67	0	0
Health Physics Personnel	23	0	0
Supervisory Personnel	2	0	0
Engineering Personnel	5	0	4
Grand Totals- Man-Rems	145	3	4

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Humboldt Bay †

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	0
Operations Personnel	25	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	5	0	0
Engineering Personnel	6	0	0
Routine Maintenance			
Maintenance Personnel	58	0	0
Operations Personnel	0	0	0
Health Physics Personnel	4	3	0
Supervisory Personnel	3	0	0
Engineering Personnel	1	0	0
Inservice Inspection*			
Maintenance Personnel	6	4	0
Operations Personnel	0	0	0
Health Physics Personnel	1	0	0
Supervisory Personnel	2	0	0
Engineering Personnel	2	0	1
Special Maintenance			
Maintenance Personnel	11	365	27
Operations Personnel	0	0	0
Health Physics Personnel	7	11	7
Supervisory Personnel	4	11	1
Engineering Personnel	8	36	12
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	1	0	0
Health Physics Personnel	1	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	30	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	7	0	0
Engineering Personnel	1	0	0
Totals			
Maintenance Personnel	75	369	27
Operations Personnel	56	0	0
Health Physics Personnel	13	14	7
Supervisory Personnel	21	11	1
Engineering Personnel	18	36	13
Grand Totals- Man-Rems	183	430	48

*Includes exposures reported under "construction" by licensee.

†Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Indian Point 1, 2

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance	120.2		
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Routine Maintenance	181.7	0.6	
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Inservice Inspection	15.5		
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Special Maintenance	76.7	699.4	93.7
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Waste Processing	106.8	0.5	
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Refueling	169.6	15.8	40.5
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Totals			
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Grand Totals- Man-Rems	670.5	716.3	134.2

*Breakdown by Job Function not provided by licensee.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REMS
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Kewaunee

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.937	0.140	1.790
Operations Personnel	2.749	0	0
Health Physics Personnel	4.267	0	0
Supervisory Personnel	0.690	0.500	1.860
Engineering Personnel	0.130	0	1.950
Routine Maintenance			
Maintenance Personnel	7.265	6.234	11.754
Operations Personnel	3.170	0	0
Health Physics Personnel	1.891	0	0
Supervisory Personnel	1.280	0.340	0
Engineering Personnel	0.140	0	0.080
Inservice Inspection			
Maintenance Personnel	0	0	6.843
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0.430	0.010	3.660
Engineering Personnel	0	0	1.050
Special Maintenance			
Maintenance Personnel	8.222	6.885	118.465
Operations Personnel	1.670	0	0
Health Physics Personnel	1.217	0	0
Supervisory Personnel	0.744	0.450	1.330
Engineering Personnel	0.470	0	2.320
Waste Processing			
Maintenance Personnel	0	0	0.060
Operations Personnel	0	0	0
Health Physics Personnel	0.550	0	0
Supervisory Personnel	0.040	0	0.010
Engineering Personnel	0	0	0.090
Refueling			
Maintenance Personnel	4.586	9.701	19.088
Operations Personnel	1.541	0	0
Health Physics Personnel	3.895	0	11.380
Supervisory Personnel	0.706	2.440	1.080
Engineering Personnel	0.320	0.040	0
Totals			
Maintenance Personnel	21.010	22.960	158.000
Operations Personnel	9.130	0	0
Health Physics Personnel	11.820	0	11.380
Supervisory Personnel	3.890	3.740	7.940
Engineering Personnel	1.060	0.040	5.490
Grand Totals- Man-Rems	46.910	26.740	182.810

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: LaCrosse

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.35	0	0
Operations Personnel	26.63	0	0
Health Physics Personnel	7.12	0	0
Supervisory Personnel	5.09	0	0
Engineering Personnel	0.42	0	0.35
Routine Maintenance			
Maintenance Personnel	13.60	0	0
Operations Personnel	1.69	0	0
Health Physics Personnel	2.68	0	0
Supervisory Personnel	1.71	0	0
Engineering Personnel	0.78	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0.29
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	33.22	0	5.21
Operations Personnel	2.09	0	0
Health Physics Personnel	2.64	0	0
Supervisory Personnel	4.51	0	0
Engineering Personnel	1.87	0	0
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	1.33	0	0
Supervisory Personnel	0.31	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	47.17	0	5.50
Operations Personnel	30.41	0	0
Health Physics Personnel	13.77	0	0
Supervisory Personnel	11.62	0	0
Engineering Personnel	3.07	0	0.35
Grand Totals- Man-Rems	106.04	0	5.85

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Maine Yankee

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	1.719
Operations Personnel	13.629	0	0
Health Physics Personnel	6.320	0.400	0
Supervisory Personnel	0.192	0	0
Engineering Personnel	2.991	1.245	1.096
Routine Maintenance			
Maintenance Personnel	17.101	0.450	8.454
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	3.252	0	3.219
Operations Personnel	0	0	0
Health Physics Personnel	0.922	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	2.299	0	0.387
Waste Processing			
Maintenance Personnel	0.916	0.651	9.809
Operations Personnel	7.677	0	0
Health Physics Personnel	0.820	0	1.742
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	21.264	1.101	23.201
Operations Personnel	21.306	0	0
Health Physics Personnel	8.062	0.400	1.742
Supervisory Personnel	0.192	0	0
Engineering Personnel	5.290	1.245	1.483
Grand Totals- Man-Rems	56.119	2.746	26.426

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Millstone 1

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	8.675	4.735	5.895
Operations Personnel	16.705	0.005	0.215
Health Physics Personnel	8.505	0	0.918
Supervisory Personnel	2.185	0	0.050
Engineering Personnel	0.265	0.050	0.070
Routine Maintenance			
Maintenance Personnel	9.870	0.335	4.215
Operations Personnel	2.685	0.005	0
Health Physics Personnel	0.335	0	0.420
Supervisory Personnel	0.080	0	0
Engineering Personnel	0.050	0	0.015
Inservice Inspection			
Maintenance Personnel	0.280	0.010	28.480
Operations Personnel	0.775	0	0
Health Physics Personnel	0.020	0	0.035
Supervisory Personnel	1.870	0.075	1.670
Engineering Personnel	2.170	1.710	1.090
Special Maintenance			
Maintenance Personnel	65.760	7.170	712.345
Operations Personnel	7.845	0	1.490
Health Physics Personnel	2.515	0	24.525
Supervisory Personnel	2.290	0.015	26.760
Engineering Personnel	6.340	0.595	10.905
Waste Processing			
Maintenance Personnel	2.020	0	9.865
Operations Personnel	8.855	0	0
Health Physics Personnel	2.415	0	0.010
Supervisory Personnel	0.120	0	0.150
Engineering Personnel	0.060	0	0
Refueling			
Maintenance Personnel	12.255	8.485	17.890
Operations Personnel	14.205	0	0.610
Health Physics Personnel	3.300	0	5.510
Supervisory Personnel	0.540	0	1.850
Engineering Personnel	1.840	6.590	0.745
Totals			
Maintenance Personnel	98.860	20.735	778.690
Operations Personnel	51.070	0.010	2.315
Health Physics Personnel	17.090	0	31.418
Supervisory Personnel	7.085	0.090	30.480
Engineering Personnel	10.725	8.945	12.825
Grand Totals- Man-Rems	184.830	29.780	855.728

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Millstone 2

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.180	0.175	0
Operations Personnel	3.639	0	0.005
Health Physics Personnel	1.390	0	0.295
Supervisory Personnel	0.130	0.055	0
Engineering Personnel	0.225	0.035	0.045
Routine Maintenance			
Maintenance Personnel	3.785	0.435	1.385
Operations Personnel	0.730	0.030	0
Health Physics Personnel	0.335	0	0.395
Supervisory Personnel	0.040	0	0
Engineering Personnel	0.005	0	0
Inservice Inspection			
Maintenance Personnel	0.010	0.020	0
Operations Personnel	0.015	0	0
Health Physics Personnel	0	0	0.015
Supervisory Personnel	0	0.005	0.010
Engineering Personnel	0.170	0.205	0.025
Special Maintenance			
Maintenance Personnel	7.805	2.755	15.545
Operations Personnel	1.905	0	0.020
Health Physics Personnel	0.005	0	0.250
Supervisory Personnel	0.025	0	0
Engineering Personnel	0.265	0.295	0.935
Waste Processing			
Maintenance Personnel	0.010	0	0.485
Operations Personnel	0.065	0	0
Health Physics Personnel	0.085	0	0.345
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	12.790	3.385	17.415
Operations Personnel	6.354	0.030	0.025
Health Physics Personnel	1.815	0	1.300
Supervisory Personnel	0.195	0.060	0.010
Engineering Personnel	0.665	0.535	1.005
Grand Totals- Man-Rems	21.819	4.010	19.755

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Monticello [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2.87	0	0
Operations Personnel	32.05	0	0
Health Physics Personnel	16.20	0	0
Supervisory Personnel	3.61	0	0.315
Engineering Personnel	3.61	0	0.315
Routine Maintenance			
Maintenance Personnel	45.20	1.44	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	54.50	32.86	40.12
Operations Personnel	0	0	0
Health Physics Personnel	4.75	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0.40	0	0
Operations Personnel	13.81	0	9.99
Health Physics Personnel	0	0	0
Supervisory Personnel	0.22	0	0
Engineering Personnel	0.22	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	102.97	34.30	40.12
Operations Personnel	45.86	0	9.99
Health Physics Personnel	20.95	0	0
Supervisory Personnel	3.83	0	0.315
Engineering Personnel	3.83	0	0.315
Grand Totals- Man-Rems	177.44	34.30	50.74

[†] Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Nine Mile Point [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	5.525	0.310	2.275
Operations Personnel	16.524	0	0
Health Physics Personnel	3.506	0	0
Supervisory Personnel	10.434	0.010	0.276
Engineering Personnel	0.244	0.616	0.392
Routine Maintenance			
Maintenance Personnel	10.362	1.663	7.279
Operations Personnel	0.590	0	0
Health Physics Personnel	0.655	0	0
Supervisory Personnel	1.069	0	0.065
Engineering Personnel	0.073	0.022	0.025
Inservice Inspection			
Maintenance Personnel	1.570	0.729	7.774
Operations Personnel	0	0	0
Health Physics Personnel	0.249	0	0
Supervisory Personnel	0.353	0	0
Engineering Personnel	0.015	0.235	0.235
Special Maintenance			
Maintenance Personnel	16.946	1.566	123.950
Operations Personnel	0.149	0	0
Health Physics Personnel	2.754	0	0
Supervisory Personnel	2.167	0.010	0.430
Engineering Personnel	0.260	0.345	2.099
Waste Processing			
Maintenance Personnel	20.358	3.946	28.576
Operations Personnel	31.097	0	0
Health Physics Personnel	10.301	0	0
Supervisory Personnel	8.610	0	0.640
Engineering Personnel	0.002	0.118	0.001
Refueling			
Maintenance Personnel	0.362	0.030	2.829
Operations Personnel	0.058	0	0
Health Physics Personnel	0.052	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.013	0.016	0
Totals			
Maintenance Personnel	55.123	8.244	172.683
Operations Personnel	48.418	0	0
Health Physics Personnel	17.517	0	0
Supervisory Personnel	22.633	0.020	1.411
Engineering Personnel	0.607	1.352	2.752
Grand Totals- Man-Rems	144.298	9.616	176.846

[†] Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Oconee 1, 2, 3

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.52	2.46	0
Operations Personnel	30.22	0.57	0
Health Physics Personnel	5.21	1.53	3.47
Supervisory Personnel	1.56	0	0
Engineering Personnel	14.13	1.54	0.4
Routine Maintenance			
Maintenance Personnel	26.61	55.03	7.5
Operations Personnel	22.6	0.43	0
Health Physics Personnel	5.28	1.56	3.52
Supervisory Personnel	0.27	0	0
Engineering Personnel	0.99	0.43	3.1
Inservice Inspection			
Maintenance Personnel	7.26	15.72	2.47
Operations Personnel	0	0	0
Health Physics Personnel	1.46	0.43	0.98
Supervisory Personnel	0	0.35	0
Engineering Personnel	2.06	2.3	20.01
Special Maintenance			
Maintenance Personnel	106.32	219.93	29.98
Operations Personnel	30.96	0.59	0
Health Physics Personnel	22.97	6.65	16.79
Supervisory Personnel	2.53	0.37	0
Engineering Personnel	23.1	13.07	102.17
Waste Processing			
Maintenance Personnel	2.06	4.25	0.58
Operations Personnel	20.81	0.39	0
Health Physics Personnel	0.81	0.77	0
Supervisory Personnel	0.12	0	0
Engineering Personnel	0.05	0	0.19
Refueling			
Maintenance Personnel	23.9	49.43	6.74
Operations Personnel	37.79	0.72	0
Health Physics Personnel	1.4	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	4.04	1.74	12.61
Totals			
Maintenance Personnel	167.67	346.82	47.27
Operations Personnel	142.38	2.7	0
Health Physics Personnel	37.13	10.94	24.76
Supervisory Personnel	4.48	0.72	0
Engineering Personnel	44.37	19.08	138.48
Grand Totals- Man-Rems	396.03	380.26	210.51

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Oyster Creek

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	0
Operations Personnel	28.285	0	19.445
Health Physics Personnel	2.430	0	1.655
Supervisory Personnel	2.220	0	0.235
Engineering Personnel	3.695	0	11.435
Routine Maintenance			
Maintenance Personnel	95.050	0	0
Operations Personnel	0	2.315	0
Health Physics Personnel	9.260	0	0
Supervisory Personnel	2.940	1.455	0
Engineering Personnel	11.415	7.570	0
Inservice Inspection			
Maintenance Personnel	0	0	18.980
Operations Personnel	0	0	0
Health Physics Personnel	0.335	0	2.130
Supervisory Personnel	0.370	0	2.830
Engineering Personnel	4.505	2.350	18.185
Special Maintenance			
Maintenance Personnel	62.045	57.320	398.690
Operations Personnel	32.540	4.015	0
Health Physics Personnel	16.500	0	25.230
Supervisory Personnel	2.205	0.110	14.270
Engineering Personnel	8.200	9.430	61.175
Waste Processing			
Maintenance Personnel	49.505	0	3.810
Operations Personnel	49.685	0	0
Health Physics Personnel	6.940	0	0.150
Supervisory Personnel	4.450	0	0
Engineering Personnel	3.425	0	1.590
Refueling			
Maintenance Personnel	1.200	0	0
Operations Personnel	0.720	0	0
Health Physics Personnel	0.275	0	0.150
Supervisory Personnel	0.665	0	0
Engineering Personnel	1.275	0	0
Totals			
Maintenance Personnel	207.800	57.320	421.480
Operations Personnel	111.230	6.330	19.445
Health Physics Personnel	35.740	0	29.315
Supervisory Personnel	12.850	1.565	17.335
Engineering Personnel	32.515	19.350	92.485
Grand Totals- Man-Rems	400.135	84.565	580.060

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Palisades

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	3.037	0	0
Operations Personnel	8.872	0	0
Health Physics Personnel	6.126	0	0
Supervisory Personnel	2.637	0	0
Engineering Personnel	3.585	0	0
Routine Maintenance			
Maintenance Personnel	34.737	56.182	8.342
Operations Personnel	1.708	0	0
Health Physics Personnel	3.736	0	0
Supervisory Personnel	2.794	0	0
Engineering Personnel	2.622	0	0
Inservice Inspection			
Maintenance Personnel	2.621	0	0
Operations Personnel	1.247	0	0
Health Physics Personnel	2.352	1.446	0
Supervisory Personnel	2.625	0	0
Engineering Personnel	13.084	0	11.653
Special Maintenance			
Maintenance Personnel	43.415	262.325	68.805
Operations Personnel	3.947	0	0
Health Physics Personnel	3.764	2.375	2.950
Supervisory Personnel	5.053	0	0
Engineering Personnel	6.601	0	13.098
Waste Processing			
Maintenance Personnel	7.869	0	0
Operations Personnel	8.153	0	0
Health Physics Personnel	5.831	0	0
Supervisory Personnel	4.674	0	0
Engineering Personnel	4.408	0	0
Refueling			
Maintenance Personnel	33.305	0	0
Operations Personnel	6.513	0	0
Health Physics Personnel	3.110	0	2.740
Supervisory Personnel	5.542	0	0
Engineering Personnel	55.696	0	5.595
Totals			
Maintenance Personnel	124.984	319.007	77.147
Operations Personnel	30.440	0	0
Health Physics Personnel	24.919	3.821	5.690
Supervisory Personnel	23.325	0	0
Engineering Personnel	85.996	0	30.346
Grand Totals- Man-Rems	289.664	322.828	113.183

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Peach Bottom 2, 3

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.14	30.11	23.68
Operations Personnel	17.18	4.39	1.75
Health Physics Personnel	2.75	0	47.00
Supervisory Personnel	0.13	0	0.24
Engineering Personnel	12.01	4.61	4.20
Routine Maintenance			
Maintenance Personnel	0.75	238.03	172.54
Operations Personnel	0.88	0.59	1.22
Health Physics Personnel	0	0	0.73
Supervisory Personnel	0	0	0
Engineering Personnel	0.23	2.05	3.18
Inservice Inspection			
Maintenance Personnel	0	5.97	24.88
Operations Personnel	0	0.16	0.76
Health Physics Personnel	0	0	0.32
Supervisory Personnel	0	0	0.13
Engineering Personnel	0	0	0.22
Special Maintenance			
Maintenance Personnel	0	0	54.09
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0.31
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	6.67
Waste Processing			
Maintenance Personnel	0.14	1.75	1.25
Operations Personnel	7.54	0	0.10
Health Physics Personnel	0	0	1.34
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	5.95	12.42
Operations Personnel	0.65	0	0.18
Health Physics Personnel	0	0	3.62
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	2.03	281.81	288.86
Operations Personnel	26.25	5.14	4.01
Health Physics Personnel	2.75	0	53.32
Supervisory Personnel	0.13	0	0.37
Engineering Personnel	12.24	6.66	14.27
Grand Totals- Man-Rems	43.40	293.61	360.83

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Pilgrim

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	5.551	0.518	10.679
Operations Personnel	19.720	0	0
Health Physics Personnel	1.030	0	0.932
Supervisory Personnel	8.542	0.177	0.140
Engineering Personnel	0	0	0.056
Routine Maintenance			
Maintenance Personnel	29.533	4.524	189.533
Operations Personnel	4.259	0	0
Health Physics Personnel	0.210	0	5.373
Supervisory Personnel	6.711	0.177	0
Engineering Personnel	0	0.972	0.105
Inservice Inspection			
Maintenance Personnel	0.938	0	92.352
Operations Personnel	0.025	0	0
Health Physics Personnel	0	0	0.530
Supervisory Personnel	1.442	0	0
Engineering Personnel	0.033	0	0.446
Special Maintenance			
Maintenance Personnel	34.717	30.187	1045.082
Operations Personnel	13.348	0	0
Health Physics Personnel	0.110	0	15.987
Supervisory Personnel	21.044	1.245	1.815
Engineering Personnel	0.442	4.521	0
Waste Processing			
Maintenance Personnel	5.570	1.655	119.345
Operations Personnel	5.299	0	0
Health Physics Personnel	0.092	0	3.840
Supervisory Personnel	1.468	0	0
Engineering Personnel	0.010	1.295	0
Refueling			
Maintenance Personnel	19.572	16.762	117.166
Operations Personnel	8.481	0	0
Health Physics Personnel	0.05	0	15.137
Supervisory Personnel	11.571	0.085	0
Engineering Personnel	6.031	1.725	0
Totals			
Maintenance Personnel	95.881	53.546	1574.157
Operations Personnel	51.132	0	0
Health Physics Personnel	1.492	0	41.799
Supervisory Personnel	50.778	1.684	1.955
Engineering Personnel	6.516	8.513	0.607
Grand Totals- Man-Rems	205.799	63.843	1618.518

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Point Beach 1 & 2 †

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	* Contract Employees
Reactor Operations & Surveillance			0.500
Maintenance Personnel	3.595	0	-
Operations Personnel	34.72	0	-
Health Physics Personnel	17.16	0	-
Supervisory Personnel	0.240	0	-
Engineering Personnel	0.205	0	-
Routine Maintenance			10.790
Maintenance Personnel	15.090	0	-
Operations Personnel	0.250	0	-
Health Physics Personnel	0	0	-
Supervisory Personnel	0	0	-
Engineering Personnel	0	0	-
Inservice Inspection			90.46
Maintenance Personnel	16.580	0	-
Operations Personnel	13.940	0	-
Health Physics Personnel	0.145	0	-
Supervisory Personnel	0.100	0	-
Engineering Personnel	0.615	0	-
Special Maintenance			1.720
Maintenance Personnel	0.970	0	-
Operations Personnel	3.605	0	-
Health Physics Personnel	0.025	0	-
Supervisory Personnel	0	0	-
Engineering Personnel	0	0	-
Waste Processing			0
Maintenance Personnel	0.555	0	-
Operations Personnel	22.390	0	-
Health Physics Personnel	3.435	0	-
Supervisory Personnel	0	0	-
Engineering Personnel	0	0	-
Refueling			1.25
Maintenance Personnel	91.550	0	-
Operations Personnel	20.24	0	-
Health Physics Personnel	7.910	0	-
Supervisory Personnel	0.325	0	-
Engineering Personnel	3.270	0	-
Totals			104.72
Maintenance Personnel	95.145	0	-
Operations Personnel	128.340	0	-
Health Physics Personnel	28.675	0	-
Supervisory Personnel	0.665	0	-
Engineering Personnel	4.090	0	-
Grand Totals- Man-Rems	256.915	0	104.72

*Complete breakdown not supplied by licensee.

†Op cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Prairie Island 1 & 2 [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.395	0	0
Operations Personnel	39.735	0	0
Health Physics Personnel	17.54	0	0
Supervisory Personnel	2.843	0	0
Engineering Personnel	2.843	0	0
Routine Maintenance			
Maintenance Personnel	1.17	0.08	27.59
Operations Personnel	0.18	0	0
Health Physics Personnel	0.38	0	0
Supervisory Personnel	0.273	0	0
Engineering Personnel	0.273	0	0
Inservice Inspection			
Maintenance Personnel	1.44	0	17.49
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	4.445	0.32	0
Engineering Personnel	4.445	0.32	0
Special Maintenance			
Maintenance Personnel	70.505	17.02	168.08
Operations Personnel	3.165	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	1.633	0	0
Engineering Personnel	1.633	0	0
Waste Processing			
Maintenance Personnel	1.907	0	0
Operations Personnel	2.895	0	0
Health Physics Personnel	1.47	0	0
Supervisory Personnel	0.767	0	0
Engineering Personnel	0.767	0	0
Refueling			
Maintenance Personnel	11.825	1.83	9.7
Operations Personnel	4.495	0	0
Health Physics Personnel	0.41	0	0
Supervisory Personnel	1.685	0	0
Engineering Personnel	1.685	0	0
Totals			
Maintenance Personnel	88.242	18.93	222.86
Operations Personnel	50.470	0	0
Health Physics Personnel	19.800	0	0
Supervisory Personnel	11.646	0.32	0
Engineering Personnel	11.646	0.32	0
Grand Totals- Man-Rems	181.804	19.570	222.86

[†] Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Quad Cities 1, 2

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	6	0	0
Operations Personnel	184	0	0
Health Physics Personnel	43	0	0
Supervisory Personnel	15	0	0
Engineering Personnel	34	0	0
Routine Maintenance			
Maintenance Personnel	254	0	680
Operations Personnel	11	0	0
Health Physics Personnel	14	0	0
Supervisory Personnel	47	0	0
Engineering Personnel	30	0	0
Inservice Inspection*			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	0	219	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	2	0	0
Operations Personnel	127	0	0
Health Physics Personnel	28	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	2	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	34	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	2	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	262	219	680
Operations Personnel	356	0	0
Health Physics Personnel	85	0	0
Supervisory Personnel	64	0	0
Engineering Personnel	66	0	0
Grand Totals- Man-Rems	833	219	680

*Inservice Inspection data was combined with Routine Maintenance data.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Rancho Seco

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.346	0	0.046
Operations Personnel	2.172	0	0
Health Physics Personnel	1.513	0	0.240
Supervisory Personnel	0.136	0	0.054
Engineering Personnel	0.467	0	0.002
Routine Maintenance			
Maintenance Personnel	5.181	0	1.497
Operations Personnel	0.686	0	0
Health Physics Personnel	1.174	0	0.163
Supervisory Personnel	0.258	0	0.031
Engineering Personnel	0.135	0	0.013
Inservice Inspection*			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	6.938	0	5.778
Operations Personnel	1.573	0	0
Health Physics Personnel	3.232	0	0.672
Supervisory Personnel	1.562	0	0.426
Engineering Personnel	1.193	0	0.405
Waste Processing			
Maintenance Personnel	3.316	0	3.274
Operations Personnel	0.755	0	0
Health Physics Personnel	2.167	0	0.298
Supervisory Personnel	0.149	0	0.114
Engineering Personnel	0.050	0	0
Refueling			
Maintenance Personnel	1.944	0	1.906
Operations Personnel	0.774	0	0
Health Physics Personnel	0.424	0	0.077
Supervisory Personnel	0.475	0	0
Engineering Personnel	0.295	0	0
Totals			
Maintenance Personnel	17.725	0	12.501
Operations Personnel	5.960	0	0
Health Physics Personnel	8.510	0	1.450
Supervisory Personnel	2.580	0	0.625
Engineering Personnel	2.140	0	0.420
Grand Totals- Man-Rems	36.915	0	14.996

*Inservice Inspection data was combined with Routine Maintenance data.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: H. B. Robinson [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.577	0	0.185
Operations Personnel	16.385	1.748	0
Health Physics Personnel	9.224	0	0.760
Supervisory Personnel	0.261	0	0
Engineering Personnel	2.129	1.030	0
Routine Maintenance			
Maintenance Personnel	16.836	0.196	2.533
Operations Personnel	0.523	0	0
Health Physics Personnel	1.379	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.394	0	0
Inservice Inspection			
Maintenance Personnel	2.110	0	31.107
Operations Personnel	0.310	0	0
Health Physics Personnel	0	0	2.100
Supervisory Personnel	0	0	0
Engineering Personnel	0.585	1.155	5.823
Special Maintenance			
Maintenance Personnel	59.072*	32.393	230.973*
Operations Personnel	5.186	0	0
Health Physics Personnel	10.137*	1.070	35.475
Supervisory Personnel	2.722	0	0
Engineering Personnel	12.394	3.829	27.668
Waste Processing			
Maintenance Personnel	9.024	0	29.474*
Operations Personnel	8.465	0	0
Health Physics Personnel	3.925	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0.200	0	0
Refueling			
Maintenance Personnel	30.689	15.839	120.017
Operations Personnel	16.499	0	0
Health Physics Personnel	4.449	0.804	6.180
Supervisory Personnel	1.406	0	0
Engineering Personnel	7.031	2.076	6.359
Totals			
Maintenance Personnel	118.308	48.428	414.289
Operations Personnel	47.368	1.748	0
Health Physics Personnel	29.114	1.874	44.515
Supervisory Personnel	4.389	0	0
Engineering Personnel	22.733	8.090	39.850
Grand Totals- Man-Rems	221.912	60.140	498.654

*Includes exposures reported under "deconning" by licensee.

†Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: San Onofre

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.130	1.970	8.930
Operations Personnel	11.720	0	0
Health Physics Personnel	4.470	2.600	0
Supervisory Personnel	0.500	0.710	5.630
Engineering Personnel	5.370	5.880	14.600
Routine Maintenance			
Maintenance Personnel	16.580	130.840	360.790
Operations Personnel	2.970	0	0
Health Physics Personnel	5.830	2.500	0
Supervisory Personnel	0.310	7.130	68.440
Engineering Personnel	3.820	1.050	37.340
Inservice Inspection			
Maintenance Personnel	0	0	26.330
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	5.050
Engineering Personnel	0	0	0.730
Special Maintenance			
Maintenance Personnel	2.070	2.400	2.430
Operations Personnel	1.030	0	0
Health Physics Personnel	0.480	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0	0.100	0.100
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	8.730	0.290	19.840
Operations Personnel	0.700	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	1.050	0	2.150
Engineering Personnel	0.410	0	4.680
Totals			
Maintenance Personnel	27.510	135.600	418.420
Operations Personnel	16.420	0	0
Health Physics Personnel	10.780	5.100	0
Supervisory Personnel	1.860	7.840	81.270
Engineering Personnel	9.600	6.930	57.350
Grand Totals- Man-Rems	66.170	155.470	557.040

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Surry 1, 2 [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance	357.355	16.265	55.633
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Routine Maintenance	321.118	277.683	611.516
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Inservice Inspection	0	0	0
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Special Maintenance	40.350	125.206	1121.401
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Waste Processing	0	0	0
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Refueling	87.847	23.076	22.237
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Totals			
Maintenance Personnel	-	-	-
Operations Personnel	-	-	-
Health Physics Personnel	-	-	-
Supervisory Personnel	-	-	-
Engineering Personnel	-	-	-
Grand Totals- Man-Rems	806.67	442.23	1810.787

*Breakdown by Job Function not provided by licensee.

[†]Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Three Mile Island [†]

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0.840	0.185	1.037
Operations Personnel	9.325	0	0
Health Physics Personnel	1.280	0	0.053
Supervisory Personnel	7.375	0.063	0.278
Engineering Personnel	0.512	0.439	2.096
Routine Maintenance			
Maintenance Personnel	12.827	0.775	0.919
Operations Personnel	1.360	0.059	0
Health Physics Personnel	0.230	0	0.103
Supervisory Personnel	2.078	0.077	0.043
Engineering Personnel	0.176	0.127	0.454
Inservice Inspection			
Maintenance Personnel	1.858	0.819	6.535
Operations Personnel	1.454	0	0
Health Physics Personnel	0.180	0	0.537
Supervisory Personnel	1.270	0.335	0.574
Engineering Personnel	1.109	0.037	0.512
Special Maintenance			
Maintenance Personnel	63.992	4.553	7.173
Operations Personnel	7.471	0.160	0
Health Physics Personnel	1.415	0	8.480
Supervisory Personnel	15.733	0.174	14.544
Engineering Personnel	0.715	1.848	19.010
Waste Processing			
Maintenance Personnel	16.934	1.205	0.112
Operations Personnel	6.802	0	0
Health Physics Personnel	0	0	0.144
Supervisory Personnel	1.775	0	0
Engineering Personnel	0.050	0.004	0
Refueling			
Maintenance Personnel	21.196	1.282	4.189
Operations Personnel	14.046	0.020	0
Health Physics Personnel	0.555	0.032	0.857
Supervisory Personnel	12.181	0.493	0.829
Engineering Personnel	4.148	1.186	2.274
Totals			
Maintenance Personnel	117.647	8.819	19.965
Operations Personnel	40.458	0.239	0
Health Physics Personnel	3.660	0.032	10.174
Supervisory Personnel	40.412	1.142	16.268
Engineering Personnel	6.710	3.641	24.346
Grand Totals- Man-Rems	208.887	13.873	70.753

[†]Op. cit., pg. 35.

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Turkey Point 3, 4

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2.94	5.52	5.60
Operations Personnel	29.11	0	0
Health Physics Personnel	16.26	0.71	32.11
Supervisory Personnel	0.71	2.04	3.61
Engineering Personnel	7.12	0	0
Routine Maintenance			
Maintenance Personnel	140.41	110.67	59.77
Operations Personnel	0.45	0	0
Health Physics Personnel	3.97	0	0
Supervisory Personnel	0.90	5.17	1.31
Engineering Personnel	0.43	0	0
Inservice Inspection			
Maintenance Personnel	13.28	0.42	626.70
Operations Personnel	0.24	0	0
Health Physics Personnel	6.15	0	2.77
Supervisory Personnel	0	0	4.13
Engineering Personnel	0.28	0	0
Special Maintenance			
Maintenance Personnel	1.62	3.90	281.96
Operations Personnel	0	0	0
Health Physics Personnel	0	0	5.17
Supervisory Personnel	0	0	0.16
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	7.88	0.23	0.10
Operations Personnel	3.51	0	0
Health Physics Personnel	7.19	0	3.58
Supervisory Personnel	0.83	0	0.18
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	2.46	0	4.48
Operations Personnel	0.48	0	0
Health Physics Personnel	0	0	1.35
Supervisory Personnel	0	0	0
Engineering Personnel	0.33	0	0
Totals			
Maintenance Personnel	168.59	120.74	978.61
Operations Personnel	33.79	0	0
Health Physics Personnel	33.57	0.71	44.98
Supervisory Personnel	2.44	7.21	9.39
Engineering Personnel	8.16	0	0
Grand Totals- Man-Rems	246.55	128.66	1032.98

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Vermont Yankee

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	0	0	0
Operations Personnel	27.804	0	0
Health Physics Personnel	8.166	0	0
Supervisory Personnel	0.336	0	0
Engineering Personnel	0.342	0	0
Routine Maintenance			
Maintenance Personnel	40.726	29.412	79.517
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Inservice Inspection			
Maintenance Personnel	0.868	45.229	54.740
Operations Personnel	0	0	0
Health Physics Personnel	0.728	2.321	2.329
Supervisory Personnel	0	0	0
Engineering Personnel	0.594	0	0
Special Maintenance			
Maintenance Personnel	0	0	110.555
Operations Personnel	0	0	0
Health Physics Personnel	0.727	2.321	2.329
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	1.973	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	1.472	0.737	0
Operations Personnel	2.267	0	0
Health Physics Personnel	0.162	0.515	0.517
Supervisory Personnel	0	0	0
Engineering Personnel	1.400	0	0
Totals			
Maintenance Personnel	43.066	75.378	244.812
Operations Personnel	32.044	0	0
Health Physics Personnel	9.783	5.157	5.175
Supervisory Personnel	0.336	0	0
Engineering Personnel	2.336	0	0
Grand Totals- Man-Rems	87.565	80.535	249.987

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Yankee Rowe

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	1.36	1.33	0.62
Operations Personnel	8.87	0	0
Health Physics Personnel	2.46	0	0.285
Supervisory Personnel	0.434	0	0.06
Engineering Personnel	0.19	0.123	0
Routine Maintenance			
Maintenance Personnel	4.57	3.31	0.03
Operations Personnel	0.706	0	0
Health Physics Personnel	2.35	0	0
Supervisory Personnel	0.046	0	0.04
Engineering Personnel	0.020	0.02	0
Inservice Inspection			
Maintenance Personnel	0.124	0.007	0
Operations Personnel	0.360	0	0
Health Physics Personnel	0.182	0	0
Supervisory Personnel	0.002	0	0
Engineering Personnel	0.003	0	0
Special Maintenance			
Maintenance Personnel	6.75	6.34	1.37
Operations Personnel	0.250	0	0
Health Physics Personnel	1.37	0	0.744
Supervisory Personnel	0.742	0	0
Engineering Personnel	0.091	0.026	0
Waste Processing			
Maintenance Personnel	2.60	1.39	0.092
Operations Personnel	3.92	0	0
Health Physics Personnel	0.715	0	0
Supervisory Personnel	0.350	0	0.02
Engineering Personnel	0.602	0	0.008
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	15.404	12.377	2.112
Operations Personnel	14.106	0	0
Health Physics Personnel	7.077	0	1.029
Supervisory Personnel	1.574	0	0.12
Engineering Personnel	0.906	0.169	0.008
Grand Totals- Man-Rems	39.067	12.546	3.269

APPENDIX C
STANDARD FORMAT FOR ANNUAL REPORTING OF MAN-REM
AND NUMBER OF PERSONNEL BY WORK AND JOB FUNCTION

Plant: Zion 1, 2

Work and Job Function	Total Man-Rem		
	Station Employees	Utility Employees	Contract Employees
Reactor Operations & Surveillance			
Maintenance Personnel	2	0	0
Operations Personnel	23	0	0
Health Physics Personnel	4	0	0
Supervisory Personnel	14	0	0
Engineering Personnel	16	0	0
Routine Maintenance			
Maintenance Personnel	123	0	236
Operations Personnel	0	0	0
Health Physics Personnel	35	0	0
Supervisory Personnel	26	0	0
Engineering Personnel	19	0	0
Inservice Inspection*			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Special Maintenance			
Maintenance Personnel	0	0	0
Operations Personnel	0	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Waste Processing			
Maintenance Personnel	0	0	0
Operations Personnel	10	0	0
Health Physics Personnel	4	0	0
Supervisory Personnel	0	0	0
Engineering Personnel	0	0	0
Refueling			
Maintenance Personnel	0	0	0
Operations Personnel	8	0	0
Health Physics Personnel	0	0	0
Supervisory Personnel	5	0	0
Engineering Personnel	0	0	0
Totals			
Maintenance Personnel	125	0	236
Operations Personnel	41	0	0
Health Physics Personnel	43	0	0
Supervisory Personnel	45	0	0
Engineering Personnel	35	0	0
Grand Totals- Man-Rems	289	0	236

*Inservice Inspection data was combined with Routine Maintenance data.