UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

OCT 2 4 1984

MEMORANDUM FOR: Daniel R. Muller, Assistant Director for Radiation Protection, DSI

FROM: Frank J. Congel, Chief
Radiological Assessment Branch, DSI

SUBJECT: LWR OCCUPATIONAL DOSE DATA FOR 1982

Attached is a compilation and analysis of occupational radiation doses reported from 74 light water cooled nuclear reactors (LWRs) for the year 1982. The information in this memorandum was derived from reports submitted to the Commission in accordance with 10 CFR Part 20.407. Four pressurized water reactor units, Farley 2, McGuire 1, Salem 2 and Sequoyah 1, completed their first full year of commercial operation in 1982 and are included in this year's summary for the first time (indicated in Table 1 by an (N)). In addition, this summary includes four units (Dresden 1, Humboldt Bay, Indian Point 1, and Three Mile Island 2) that are currently shutdown for an indefinite period of time. These units have been retained in this summary since they are still licensed and dose is still accumulated to maintain them.

The total collective dose reported for 1982 was 52,190 person-rems, a decrease of 3.6 percent from the 1981 figure of 54,142 person-rems. This total gives an average of 705 person-rems per-unit, which is nearly eight percent lower than the 773 person-rems per unit reported for 1981. This is also the second year in a row in which the average person-rems per reactor has shown a decrease from the 1980 high of 791 person-rems per unit.

In 1982 the average dose for PWR units was 578 person-rems, an 11.3 percent decrease from the 1981 average of 652 person-rems. The number of PWRs in this year's compilation increased from 44 to 48. The 1982 average boiling water reactor (BWR) dose of 940 person-rems per unit is a 4 percent decrease from the 1981 average of 980 person-rems. The number of BWRs remained the same in 1982 at 26. The attached exposure compilation table (Table 1) presents a breakdown of the person-rems received at each of the LWRs which had completed at least one full year of commercial operation by the end of 1982. The exposure figures listed in Table 1 were derived from data submitted by the licensees in response to the requirements of 10 CFR Part 20.407 and plant technical specifications (the plant technical specifications require that only personnel receiving greater than 100 mrem be listed--these data are shown in parentheses in Table 1). The figures quoted above and used in the attached figures are from the 10 CFR Part 20.407 data.

Figure 1 shows the total average yearly person-rem figures for BWRs, PWRs, and LWRs for the years 1969-1982. For the ninth consecutive year, the average exposure for BWRs has remained higher than the average yearly PWR

exposure. Figure 2 shows the total number of operating reactors and the total collective L'R dose per year plotted for the years 1969-1982. Figures 3, 4a, and 4b provide a graphic comparision of the annual occupational exposures per unit, for each plant, for the three year period from 1980 through 1982.

This information was compiled by C. Hinson, RPS/RAB.

Frank J. Congel

Frank J. Congel, Chief
Radiological Assessment Branch
Division of Systems Integration

Enclosure
As Stated

cc: w/attachment
H. Denton
E. Bernero
D. Lynch
R. Alexander
E. Conti
M. Parsont
R. Cunningham
W. Pasciak, Reg. I
D. Shamhacky, Reg. I
C. Jenkins, Reg. II
R. Gregor, Reg. III
B. Murray, Reg, IV
P. Book, Reg. V
R. Hartfield
R. Brooks
A. Roecklein
C. Hinson
D. Eisenhut
J. Cunningham
J. Wigginton

TABLE 1
1982 EXPOSURE DATA

PLANT NAME	Type	Age	20.407 (Tech. Spec. data)
Arkansas I, II	P	8 2	803 (670)
Beaver Valley I	P	6	599 (565)
Big Rock Point	B	14	328 (301)
Brown's Ferry 1, II, III	B	8 7 5	2220 (1730)
Brunswick, I, II	B	7 5	3792 (3711)
Calvert Cliffs I, II	P	7 5	1057 (941)
Cook I, II	P	7 4	699 (643)
Cooper Station	B	8	592 (506)
Crystal River III	P	5	177 (192)
Davis-Besse I	P	5	164 (263)
Dresden I, II, III	B	22 12 11	2923 (2852)
Duane Arnold	B	7	229 (298)
Farley I, II (N)	P	5 1	484 (446)
Fitzpatrick	B	7	1190 (1189)
Fort Calhoun I	P	9	217 (140)
Ginna	P	12	1140 (1108)
Haddam Neck (Conn. Yankee)	P	14	126 (122)
Hatch I, II	B	7 3	1460 (1282)
Humboldt Bay	B	19	19 (15)
Indian Pt. I, II	P	20 9	1635 (1754)
Indian Pt. III	P	6	1226 (1430)
Kewaunee	P	8	101 (89)
LaCrosse	B	13	205 (202)
Maine Yankee	P	10	619 (616)
McGuire I (N)	P	1	169 (336)
Millstone I	B	11	929 (936)
Millstone II	P	7	1413 (1422)
Monticello	B	11	993 (941)
Nine Mile Pt.	B	13	1264 (1487)
North Anna I, II	P	4 2	1915 (2024)
Oconee I, II, III	P	9 8 8	1792 (2068)

PLANT NAME	Type	Age	20.407 (Tech. Spec. data)
Oyster Creek	B	13	865 (7
Palisades	P	11	330 (2
Peach Bottom II, III	B	8 8	1977 (18
Pilgrim I	B	10	1539 (11
Point Beach I, II	P	12 10	609 (5
Prairie Island I, II	P	9 8	229 (2
Quad Cities I, II	B	9 9	3757 (36
Rancho Seco I	P	7	337 (3
Robinson II	P	11	1426 (13
Salem I, II (N)	P	5 1	1203 (10
San Onofre I	P	14	832 (78
Seguoyah I (N)	P	1	570 (26
St. Lucie I	P	6	272 (21
Surry I, II	P	10 9	1490 (13
Three Mile Island I, II	1	8 4	1004 (99
Trojan	P	6	419 (35
Turkey Point III + II	P	8 9	2119 (279
Vermont Yankee	B	10	205 (20
Yankee Rowe	P	16	474 (46
Zion	P	9 8	2103 (195

(N) ≡ Newly counted plant in 1982

Reactor Type	#	20.407 Total Person-Rem	20.407 Average Person-Rem/Reactor
PWR	48	27753	578
BWR	26	24437	940
LWR	74	52190	705

FIGURE 1

COMMERCIAL LIGHT WATER COOLED REACTORS
1969-1982

OCCUPATIONAL RADIATION DOSES AT NUCLEAR POWER PLANTS

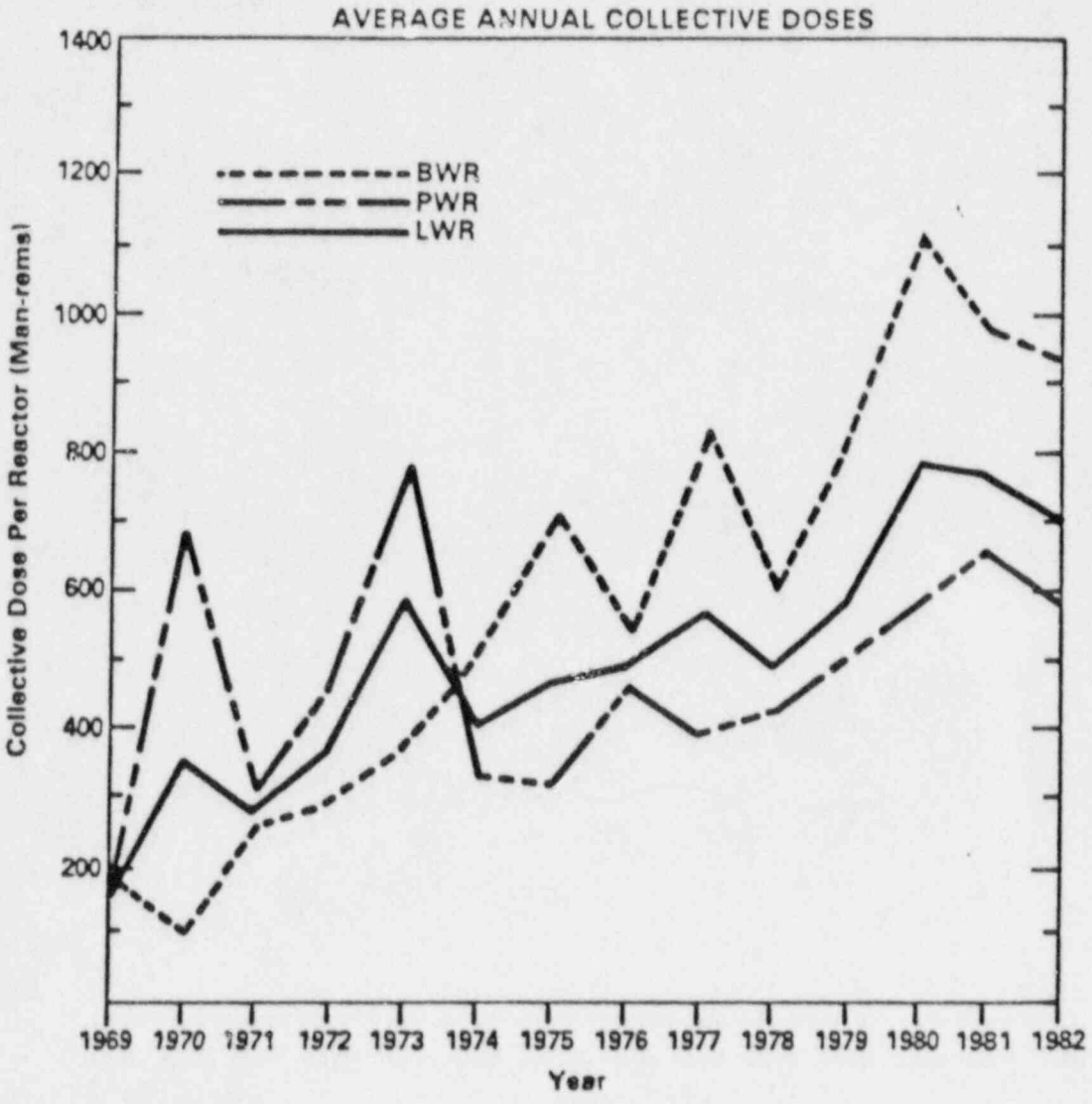
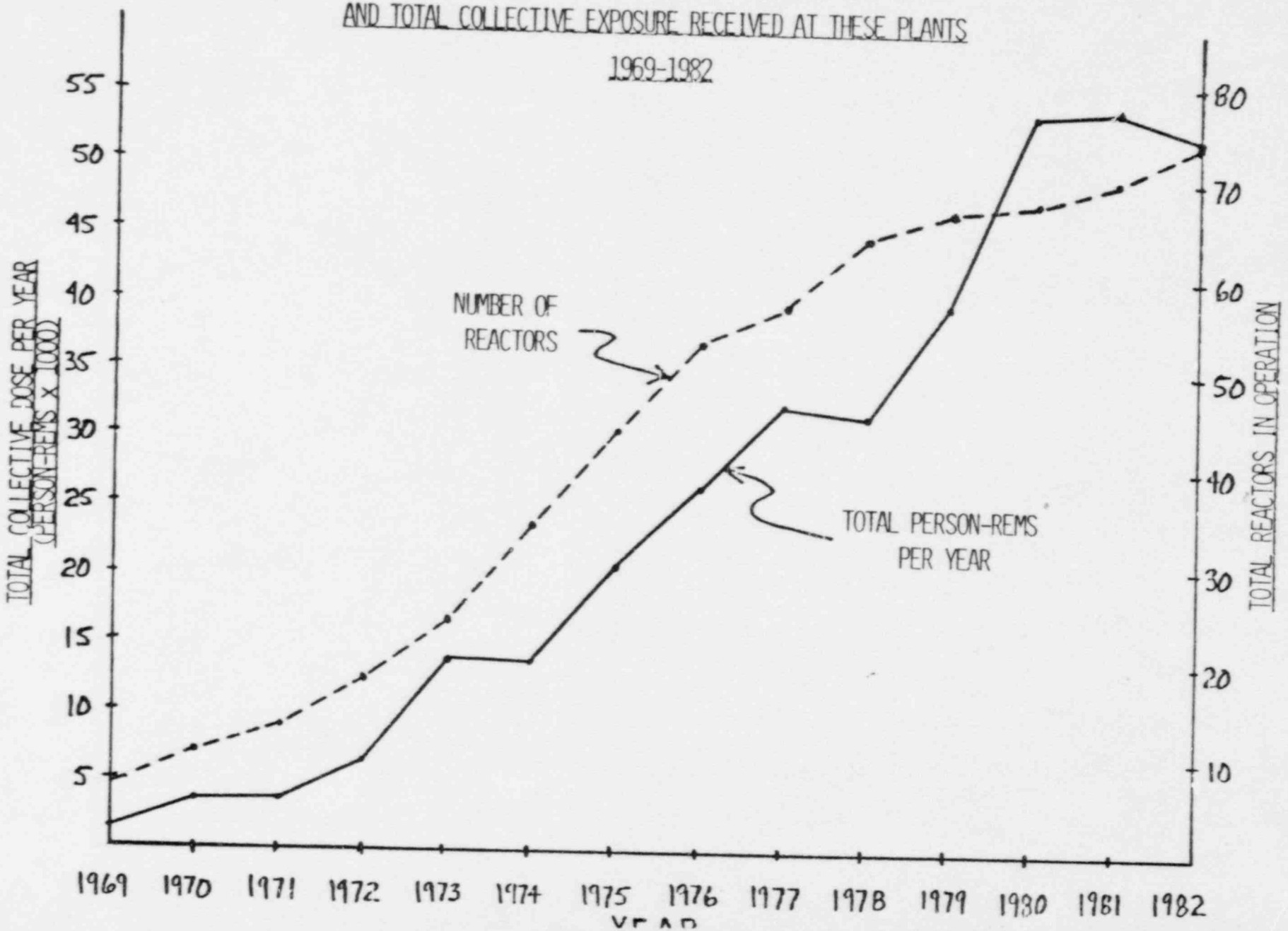


FIGURE 2

TOTAL NUMBER OF COMMERCIAL OPERATING NUCLEAR PLANTS
AND TOTAL COLLECTIVE EXPOSURE RECEIVED AT THESE PLANTS
1969-1982



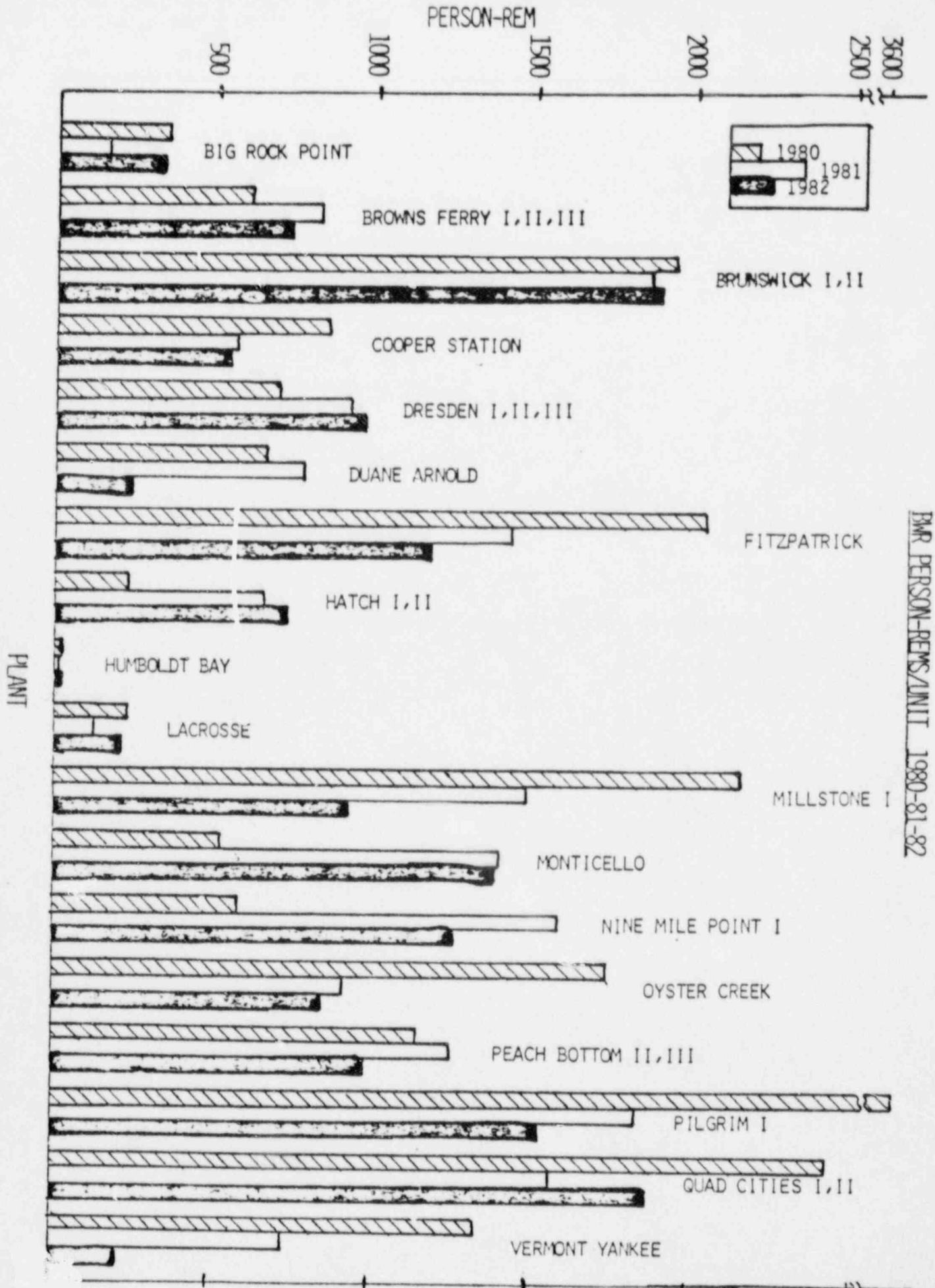

PERSON-REM
500
1000
1500
2000
2500
3600
1980
1981
1982
BIG ROCK POINT
BROWNS FERRY I,II,III
BRUNSWICK I,II
COOPER STATION
DRESDEN I,II,III
DUANE ARNOLD
FITZPATRICK
HATCH I,II
HUMBOLDT BAY
LACROSSE
MILLSTONE I
MONTICELLO
NINE MILE POINT I
OYSTER CREEK
PEACH BOTTOM II,III
PILGRIM I
QUAD CITIES I,II
VERMONT YANKEE
PLANT
BWR PERSON-REMS/UNIT 1980-81-82

FIGURE 3

FIGURE 4A

PWR PERSON-REMS/UNIT 1980-81-82

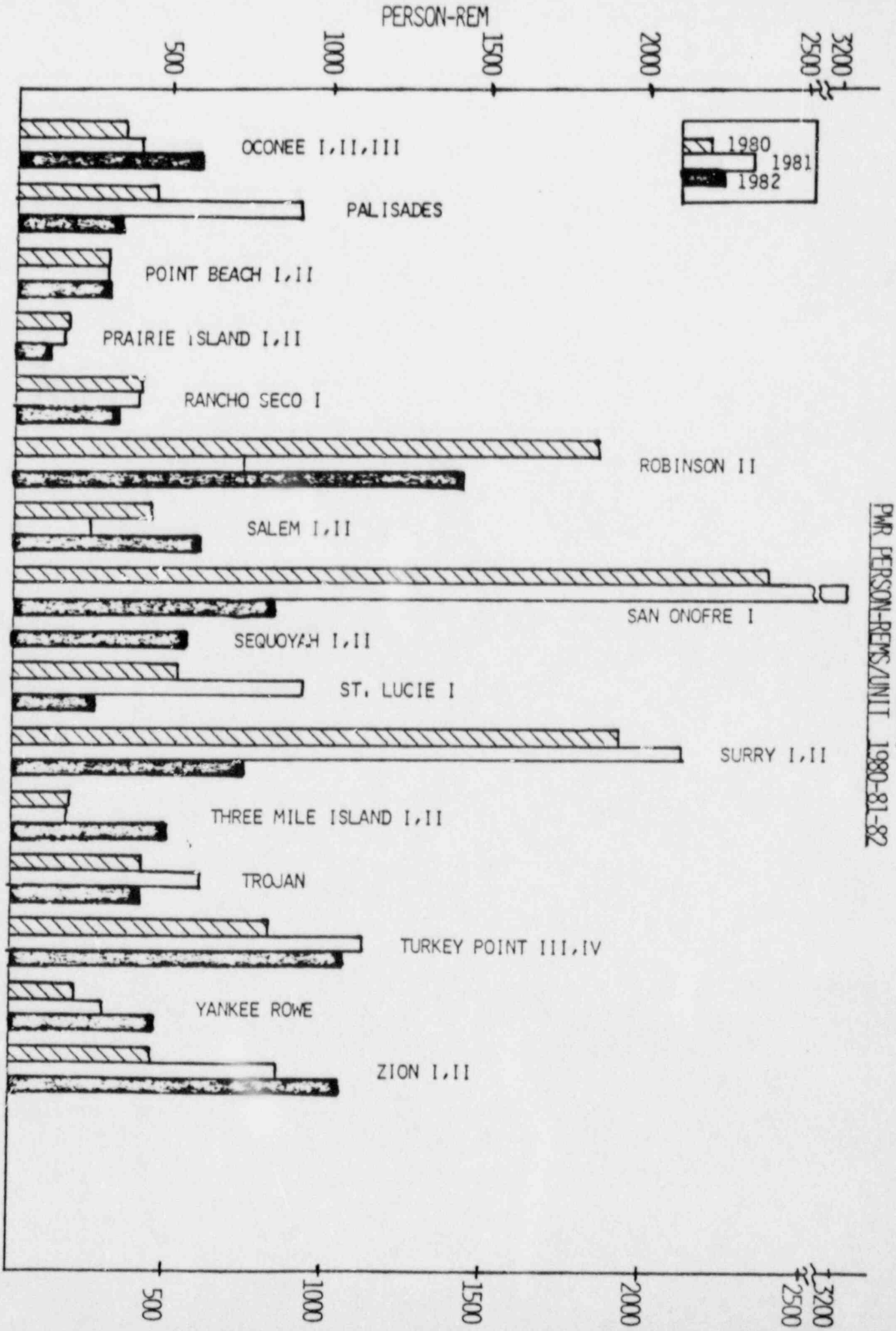


FIGURE 4B
PWR PERSON-REMS/UNIT 1980-81-82

DI AMT