

GENERAL DESCRIPTION

The Cycle 3 core will consist of those assembly types and numbers listed in Table 3-1. Ninety-seven Batch B assemblies and twelve Batch C will be removed from the Cycle 2 core to make way for 108 fresh, Batch E assemblies. Fifty-two Batch C and all Batch D assemblies now in the core will be retained. One Batch B assembly discharged at EOC1 will be reinserted into the core. Figure 3-1 shows the poison shim and zoning configuration for those assemblies.

The reload batch will consist of 24 type E0 assemblies, 20 type E1 assemblies with 16 burnable poison shims per assembly, 12 type E2 assemblies with 16 burnable poison shims per assembly, 12 type E3 assemblies with 16 burnable poison shims per assembly, 24 type E4 assemblies with 16 burnable poison shims per assembly, 8 type P2E1 assemblies with 16 burnable poison shims per assembly, and 8 type E5 assemblies with 4 burnable poison rods per assembly. These sub-batch types are zone-enriched and their configurations are shown in Figure 3-2.

The loading pattern for Cycle 3, showing fuel type and location, is displayed in Figure 3-3.

Figure 3-4 displays the beginning of Cycle 3 assembly average burnup distribution. The burnup distribution is based on a Cycle 2 length of 330 EFPD.

Control element assembly patterns and in-core instrument locations will remain unchanged from the Reference Cycle and are shown in Figures 3-5 A & B and Figure 3-6.

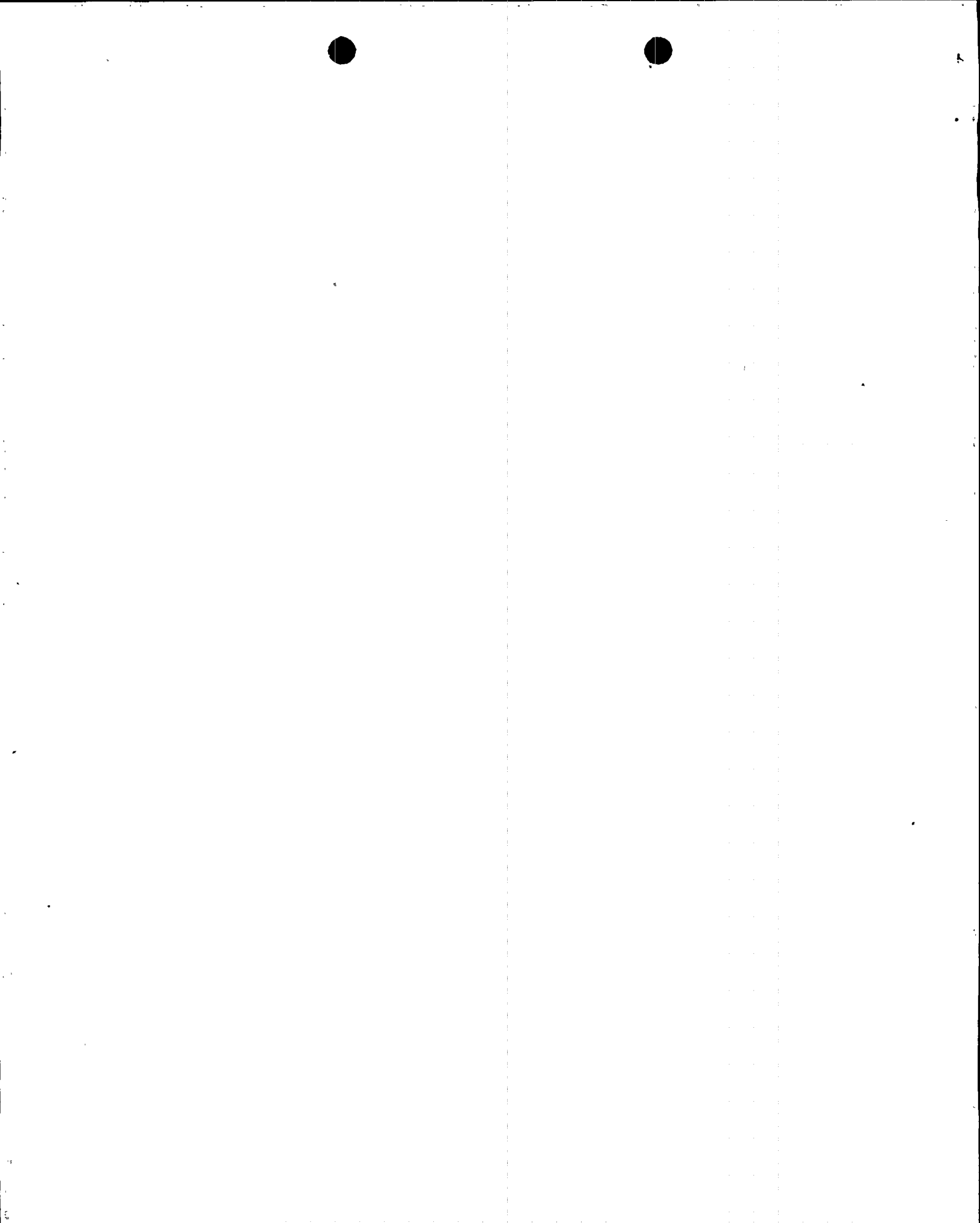


TABLE 3-1
PALO VERDE NUCLEAR GENERATING STATION UNIT 1
Cycle 3 Core Loading

Assembly Designation	Number of Assemblies	Fuel Rods per Assembly	Initial Enrichment (w/o U-235)	Number Shims/Assembly	Initial Shim Loading (gm B10/in)	Total of Fuel Rods	Number of Shim Rods
B	1	208 12	2.78 1.92	16	.01842	208 12	16
C	36	224 12	3.30 2.78	0	---	8064 432	0
C/	16	208 12	3.30 2.78	16	.01151	3328 192	256
D	36	184 52	4.05 3.36	0	---	6624 1872	0
D*	28	176 52	3.36 2.78	8	.008	4928 1456	224
Dx	12	216 12	3.36 2.78	8	.008	2592 144	96
D/	4	216 12	3.36 2.78	8	.020	864 48	32
E0	24	184 52	4.03 3.90	0	---	4416 1248	0
E1	20	168 52	4.03 3.90	16	.024	3360 1040	320
E2	12	168 52	3.90 3.60	16	.024	2016 624	192
E3	12	168 52	3.90 3.60	16	.026	2016 624	192
E4	24	168 52	3.90 3.60	16	.016	4032 1248	384
E5	8	180 52	4.03 3.90	4	.012	1440 416	32
P2E1	8	168 52	4.03 3.70	16	.016	1344 416	128
TOTAL	<u>241</u>					<u>55004</u>	<u>1872</u>

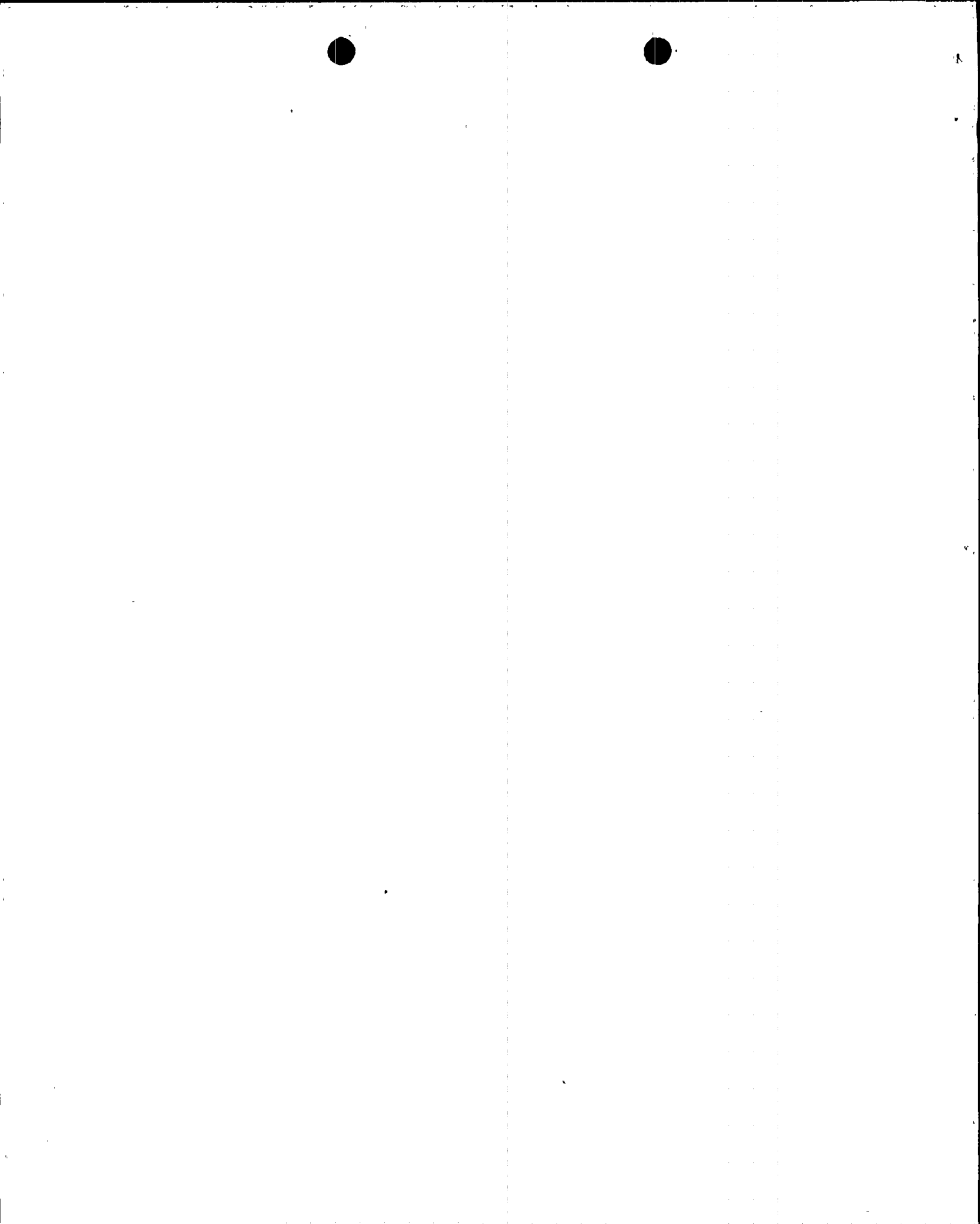
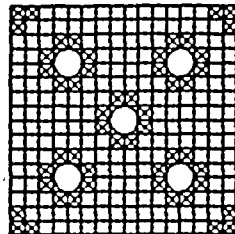


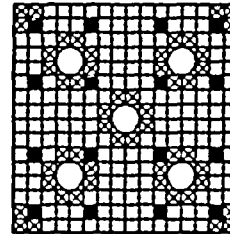
FIGURE 3-2

CURRENT CYCLE ASSEMBLY FUEL LOADINGS WATERHOLE AND SHIM PLACEMENT



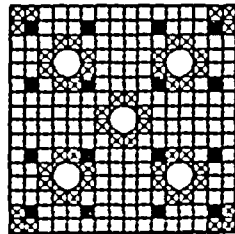
SUB-BATCH E0- 24 ASSEMBLIES

- 4.03 W/O U-235
- ⊗ 3.80 W/O U-235



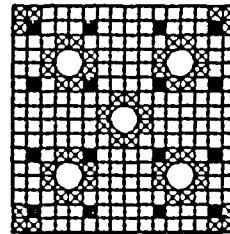
SUB-BATCH E3- 12 ASSEMBLIES

- 3.80 W/O U-235
- ⊗ 3.80 W/O U-235
- $B_4C-AL_2O_3$ SHIM PIN
.028 gm B-10/IN



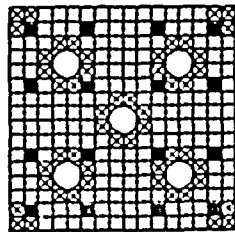
SUB-BATCH E1- 20 ASSEMBLIES

- 4.03 W/O U-235
- ⊗ 3.80 W/O U-235
- $B_4C-AL_2O_3$ SHIM PIN
.024 gm B-10/IN



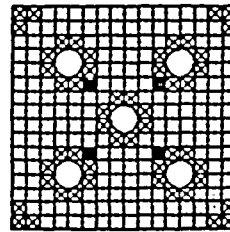
SUB-BATCH E4- 24 ASSEMBLIES

- 3.80 W/O U-235
- ⊗ 3.80 W/O U-235
- $B_4C-AL_2O_3$ SHIM PIN
.018 gm B-10/IN



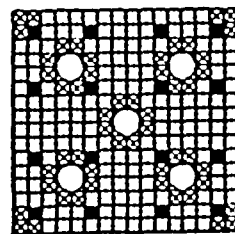
SUB-BATCH E2- 12 ASSEMBLIES

- 3.80 W/O U-235
- ⊗ 3.80 W/O U-235
- $B_4C-AL_2O_3$ SHIM PIN
.024 gm B-10/IN



SUB-BATCH E5- 8 ASSEMBLIES

- 4.03 W/O U-235
- ⊗ 3.80 W/O U-235
- $B_4C-AL_2O_3$ SHIM PIN
.012 gm B-10/IN



SUB-BATCH P2E1- 8 Assemblies

- 4.03 W/O U-235
- ⊗ 3.70 W/O U-235
- $B_4C-AL_2O_3$ Shim Pin
0.016 gm B-10/in

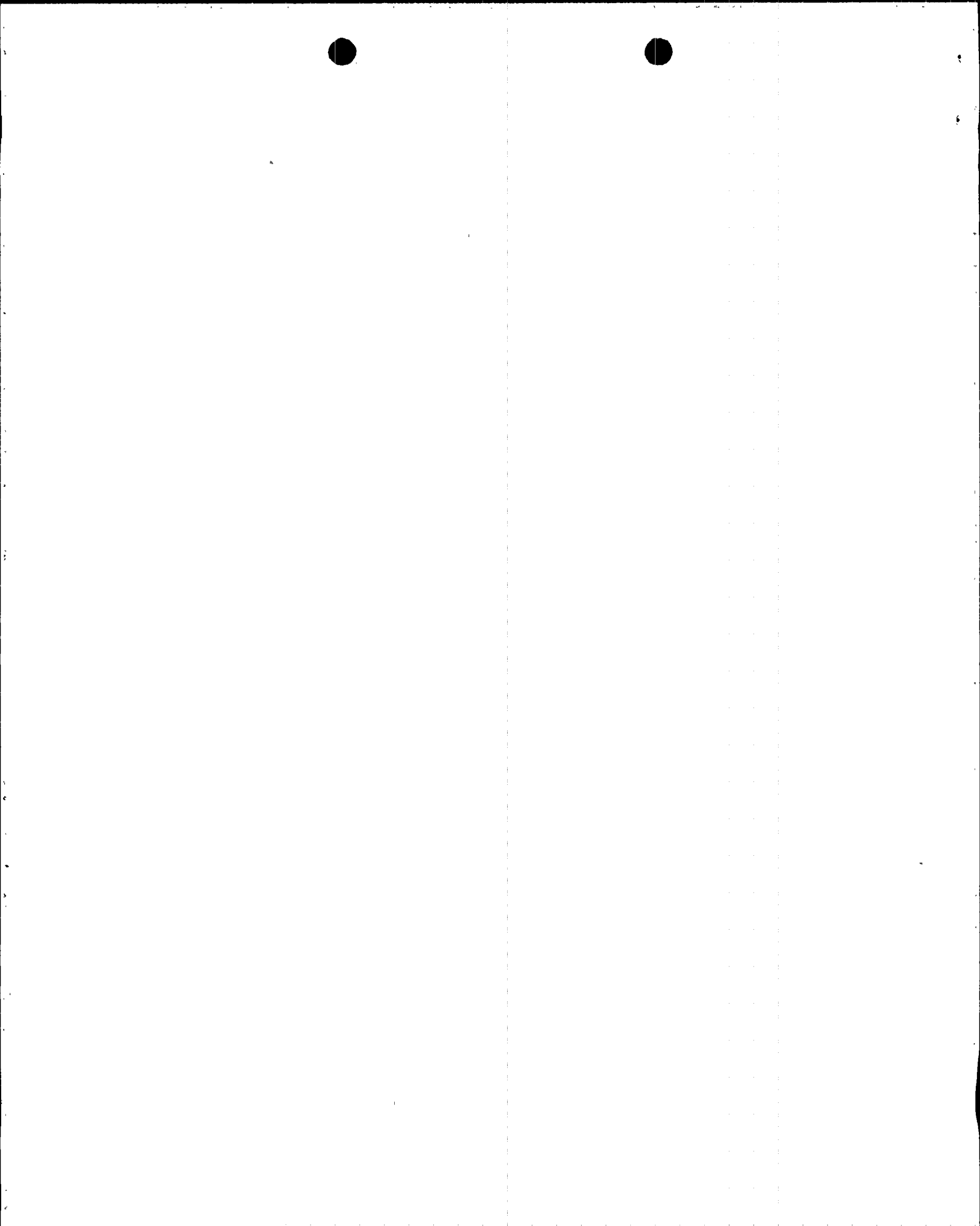


FIGURE 3-3

PVNGS UNIT 1 CYCLE 3 FUEL MANAGEMENT

					C/	D	E0	E3
			C/	E0	P2E1	E4	D	E2
		C	E0	C	E4	Dx	E1	C
	C/	E0	E3	C	D	D*	D*	E1
	E0	C	C	C	E1	D	E3	Dx
C/	P2E1	E4	D	E1	D*	E2	D*	E3
D	E4	Dx	D*	D	E2	C	E4	C
E0	D	E1	D*	E3	D*	E4	D	D/
E3	E2	C	E1	Dx	E3	C	D/	B

Assy Type	# Shims	# Fuel Pins	Pin Enrichments & Zoning				Shim Loading, g B-10/in	No. of Assy.	Avg. Assy. Enrichment
			# Pins	W/O	# Pins	W/O			
E0	0	236	184	4.03	52	3.90	--	24	4.001
E1	16	220	168	4.03	52	3.90	.024	20	3.999
E2	16	220	168	3.90	52	3.30	.024	12	3.829
E3	16	220	168	3.90	52	3.60	.026	12	3.929
E4	16	220	168	3.90	52	3.60	.016	24	3.829
E5	4	232	180	4.03	52	3.90	.012	8	4.001
P2E1	16	220	168	4.03	52	3.70	.016	8	3.952

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