ZPR6-7

Large plutonium uranium oxide physics assembly. Part of the Demonstration Reactor Benchmark Program.

Overview:
This was a large, cylindrical, single-zone, plutonium/uranium oxide benchmark assembly. It was the plutonium equivalent of ZPR6-6A. There were many measurements made in Assembly 7. It had a material composition and neutron spectrum typical of the proposed demonstration reactor and a simple, readily calculable configuration.

Assembly Dates:
July 1970-October 1971

Related Assemblies:
ZPR6-6A. It also had a similar composition to the inner cores of ZPPR-2, -3, -4, -5, and -6. The other assemblies in the Demonstration Reactor Benchmark Program were ZPR6-6A and ZPPR-2, -3, and -4

Assembly Details:

Type:	Cylindrical, single zone, clean critical
Fuel:	Typical plutonium uranium oxide with sodium cooling
Critical Mass:	1118 kg (Pu^{239} + Pu^{241})
Volume:	3100 liters
Blanket:	Depleted uranium

Assembly Variants:
There was an exact core region as in ZPR6-6A.
Sodium Voided Zone
Central Pin Zone
Central High Pu^{240} Zone
Central Sodium Voided High Pu^{240} Zone

Note: ZPR6-8 was planned to include a heated central zone containing rod type fuel. This was called the variable temperature rodded zone (VTRZ). Program priorities changed and ZPR8-6 was not constructed. ZPR6-9 was identical to ZPR9-36.

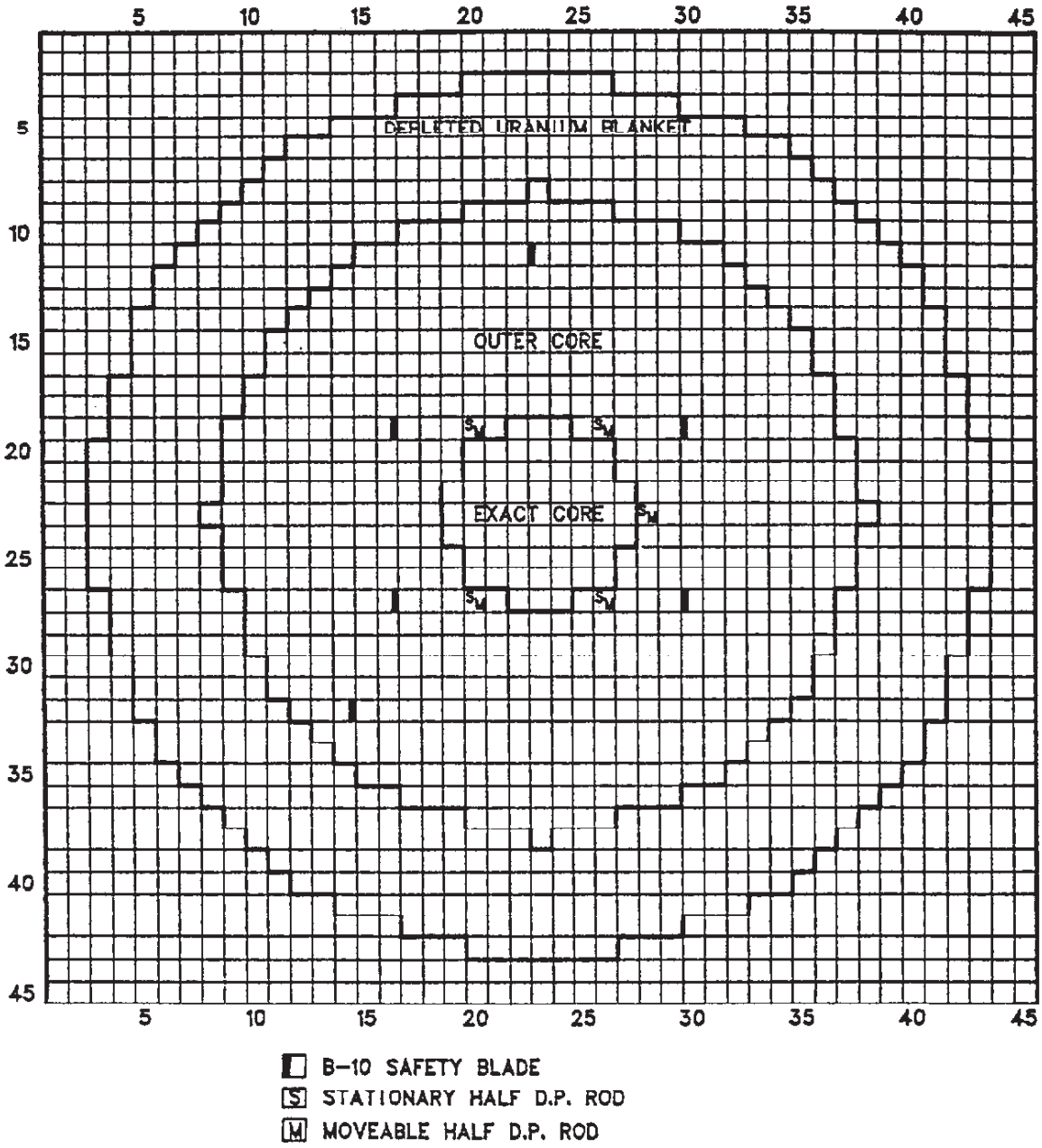

Fig. 131. Interface Diagram for ZPR6-7

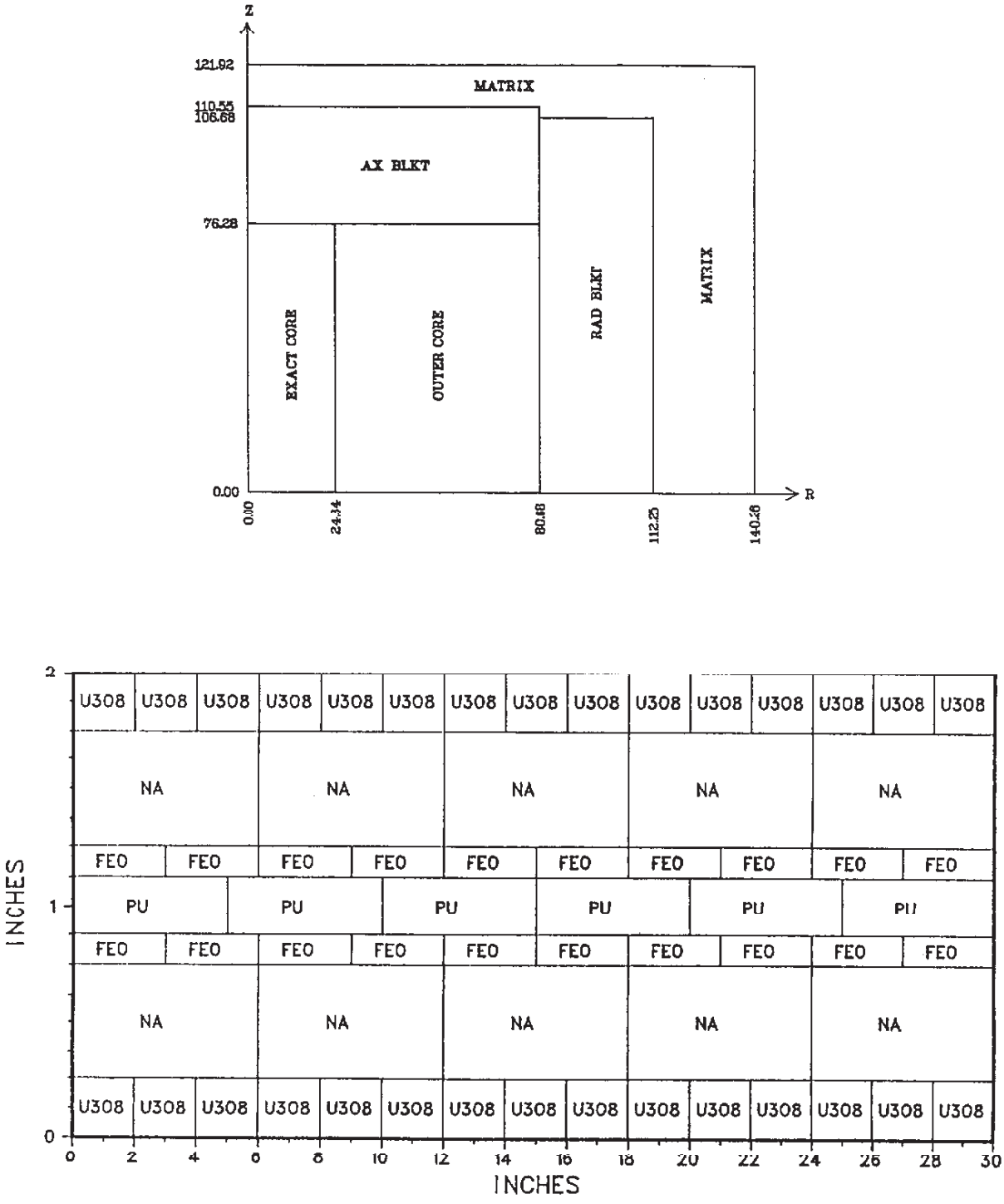

Fig. 132. R-Z Model and Drawer Loading Pattern for ZPR6-7

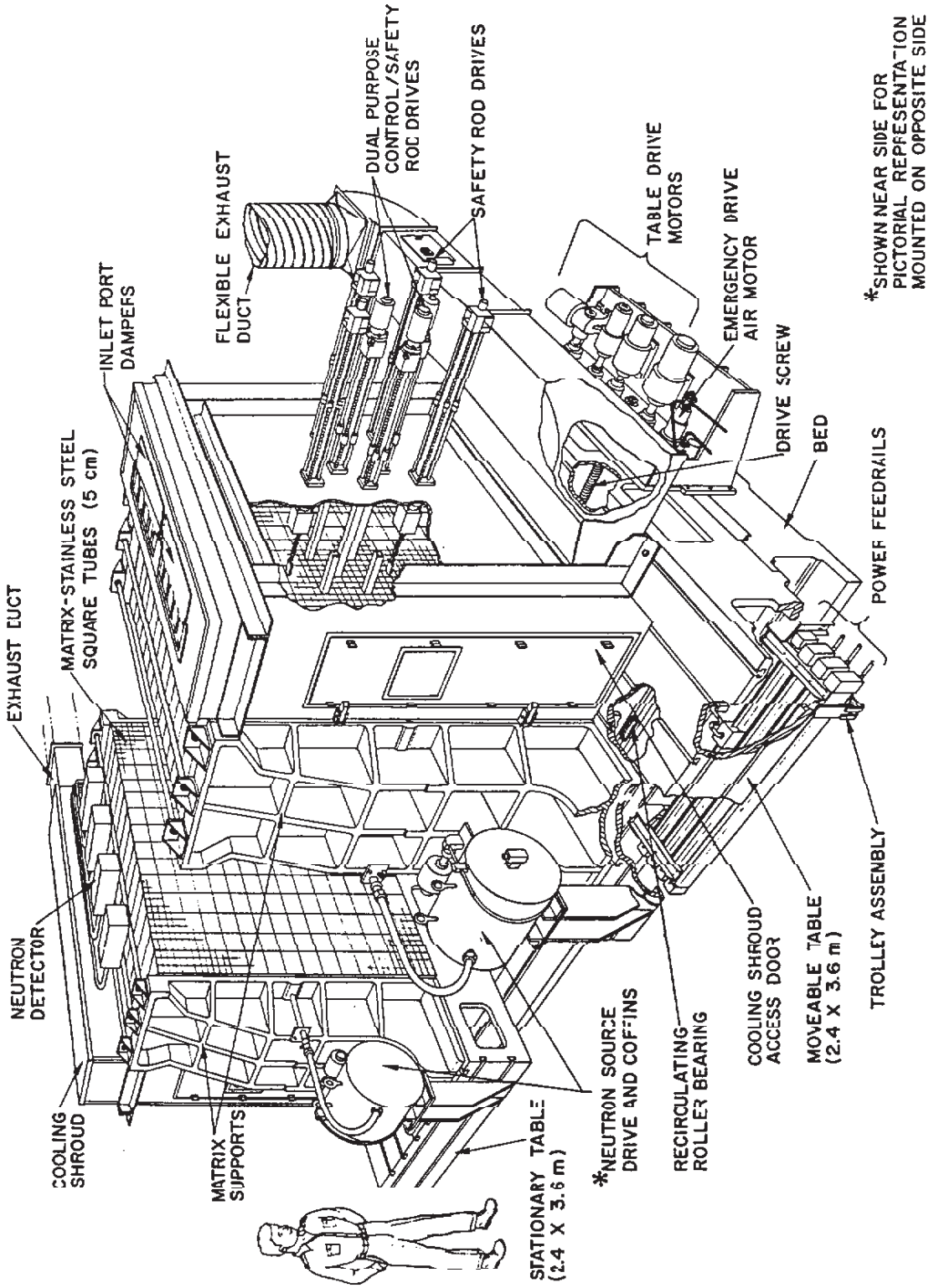

Fig. 135. Outline Drawing of the ZPR6 and ZPR9 Critical Facilities (Before Modifications to Allow the Use of Plutonium Fuel). The general features are typical of all the ZPRs.