

February 6, 1958

Dr. D. Glenn Boyer  
Reactor Development Division  
United States Atomic Energy Commission  
Washington 25, D. C.

Dear Dr. Boyer:

An initial dry run loading of the Curtiss-Wright Research Reactor was made for the film "Research Reactors -- -- USA." Since without moderator this would be a potentially fast reactor, a fast neutron detector (methane filled counter, RCL Mark II-202 serial #136) was used for an inverse multiplication curve. A 25 curie Po-Be neutron source and the detector were placed on a center horizontal plane of the reactor at the positions shown in figure 1.

The first count was taken with the center 9 elements in position (items 1 through 9 in table I and 4c, 4d, 4e, 5c, 5d, 5e, 6c, 6d, 6e, Figure 1). The elements were then added in the order given in table I. As the elements were added in inverse multiplication curve (Figure 2) was plotted. There was no approach to criticality indicated by the inverse multiplication curve (figure 2).

A ring of dummy reflector elements was placed around the core built-up above. The dummy elements are elements in manufacture which had not yet received graphite or final welding.

Very truly yours,

CURTISS-WRIGHT CORPORATION  
RESEARCH DIVISION

William F. Sjoborg  
Nuclear Power Department

WFS:bb

CC: C. J. Roberts

28

D-67

TABLE I

Order of Elements Introduced  
for Film "Research Reactors U. S. A."

ORDER	ELEMENT POSITION	ELEMENT SERIAL NUMBER	GRAMS OF U <sup>235</sup> IN ELEMENT	TIME COUNTS 1/COUNTS/MIN.	REMARKS
1	4D	X-2	102	No count	
2	4C	X-1	102	No count	
3	6D	X-3	102	No count	
4	6C	X-4	102	No count	Safety-Rods Inserted
5	5D	IX-1	34	No count	
6	5C	VIII-1	34	No count	
7	5E	VI-1	68	No count	
8	6E	VII-1	68	No count	
9	4E	V-1	102	$1.32 \times 10^{-4}$	
10	7D	VI-1	102	No count	
11	3D	III-1	136	$1.32 \times 10^{-4}$	
12	7C	II-1	136	No count	
13	3C	I-18	170	$1.37 \times 10^{-4}$	
14	7E	I-8	170	No count	
15	3E	I-3	170	$1.26 \times 10^{-4}$	

FIGURE I  
LOADING FOR FILM "RESEARCH REACTORS U.S.A."

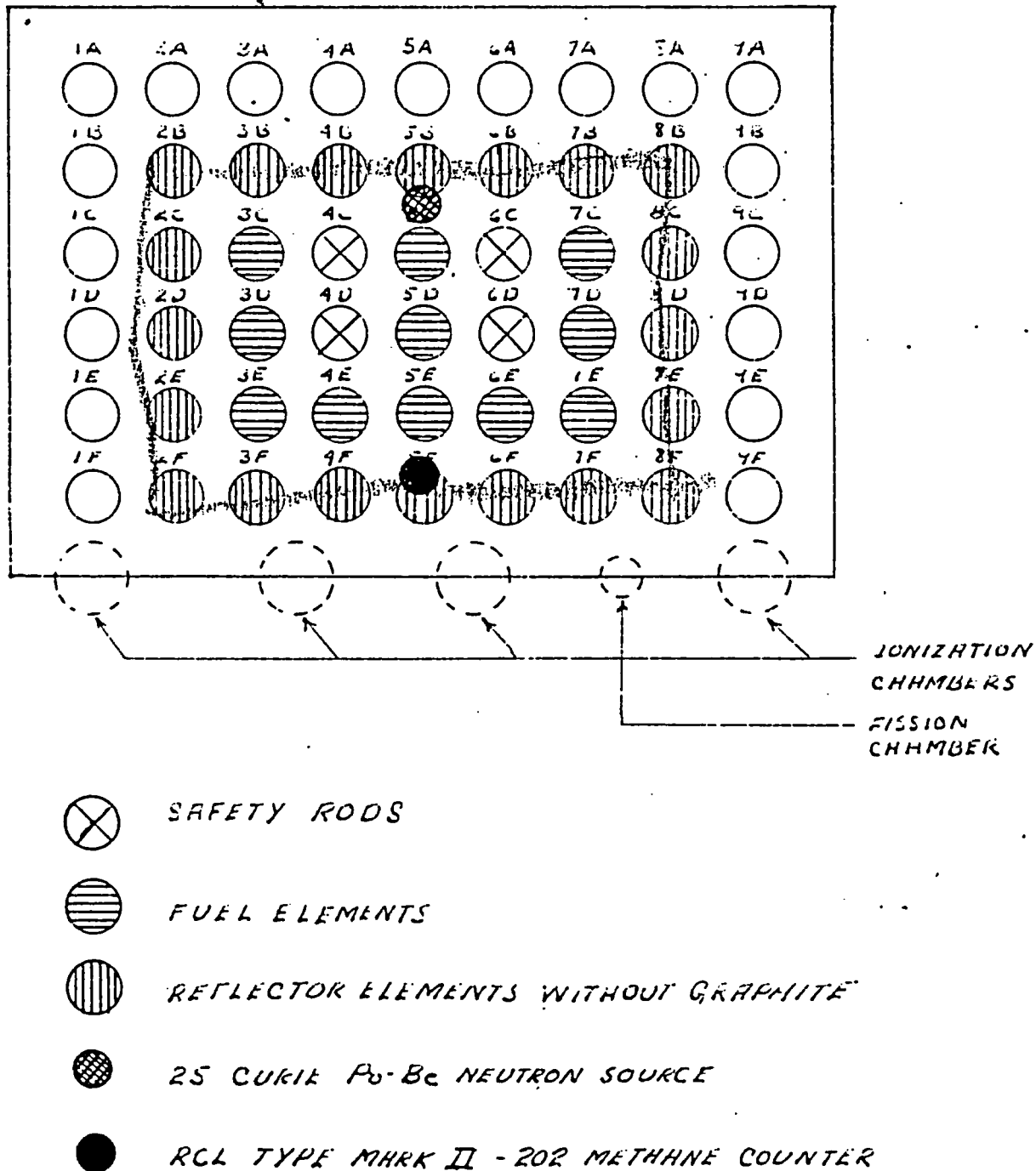


FIGURE II  
INVERSE MULTIPLICATION  
CURVE

