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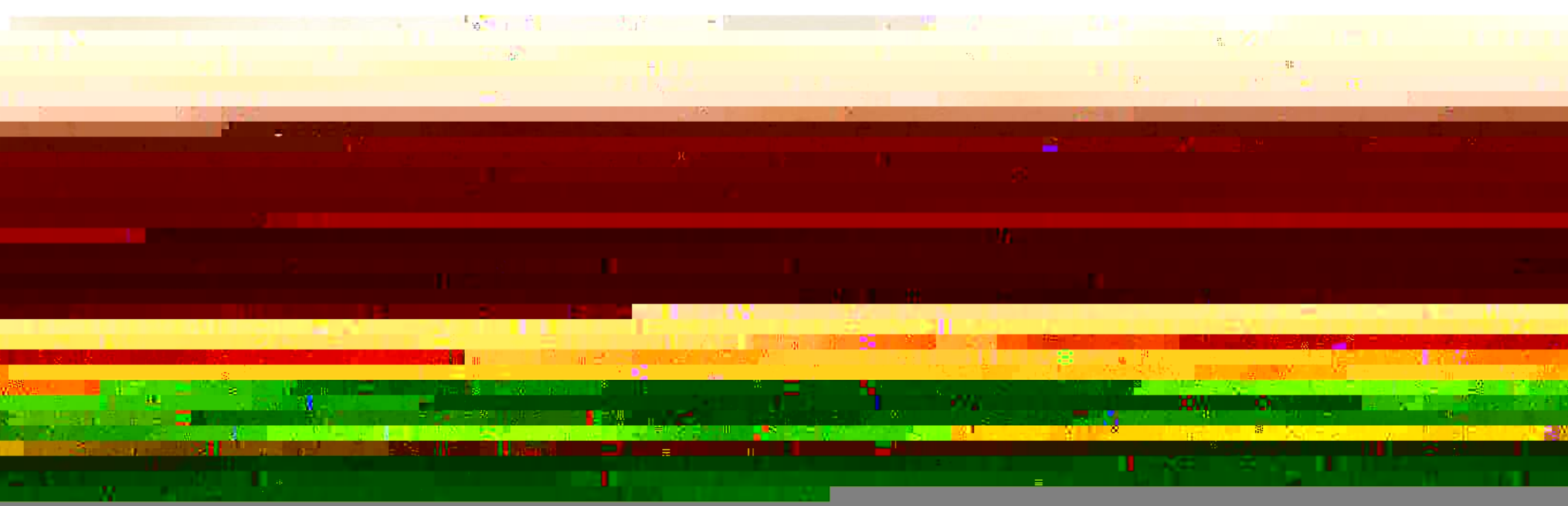
found to be marginally feasible for only a few of the radioisotopes currently used.



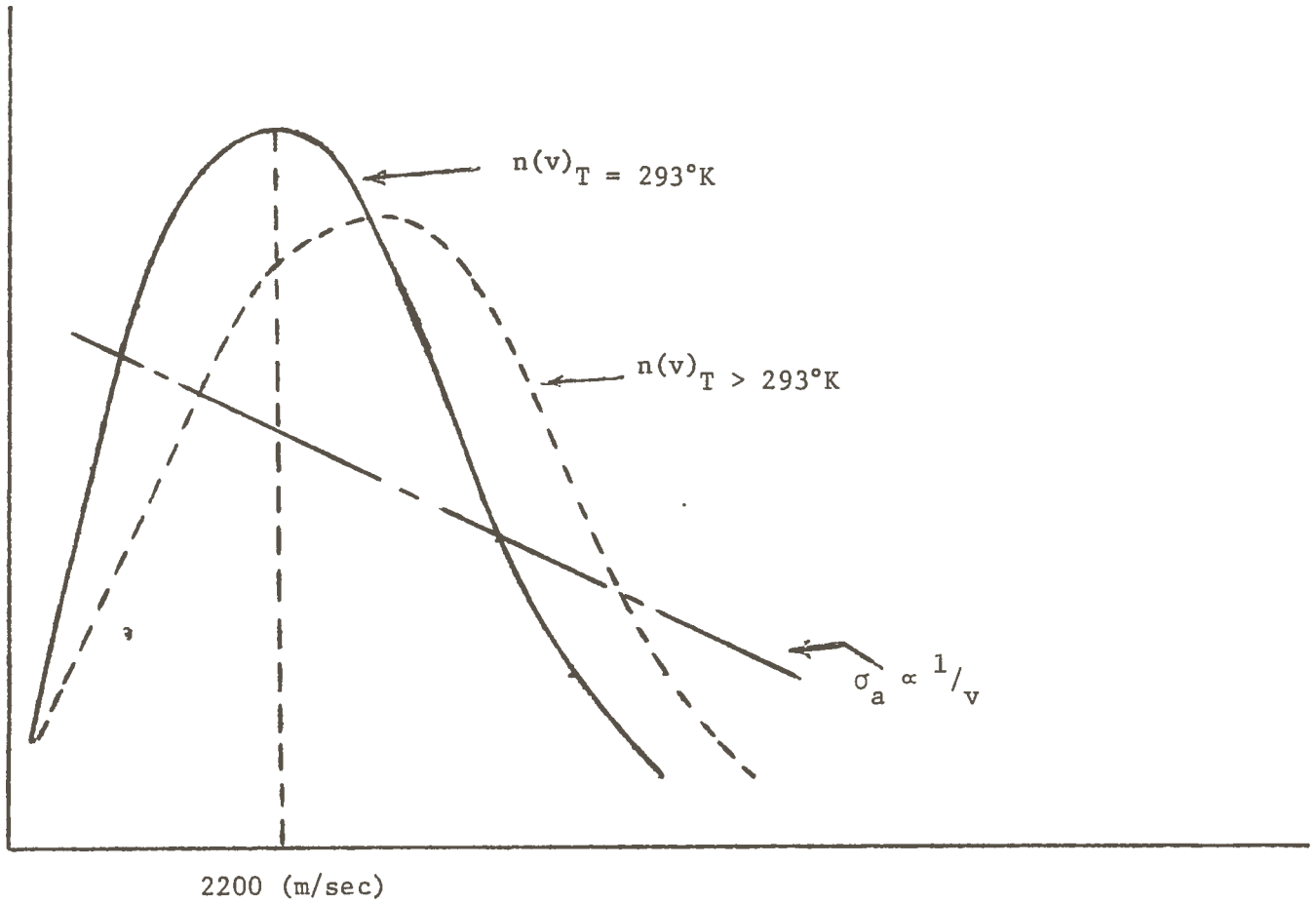


FIGURE 2. Maxwellian Velocity Distribution of Neutrons and Thermal Absorption Cross Section (for 1/v absorber).

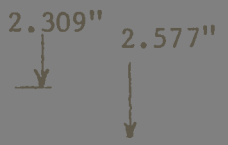
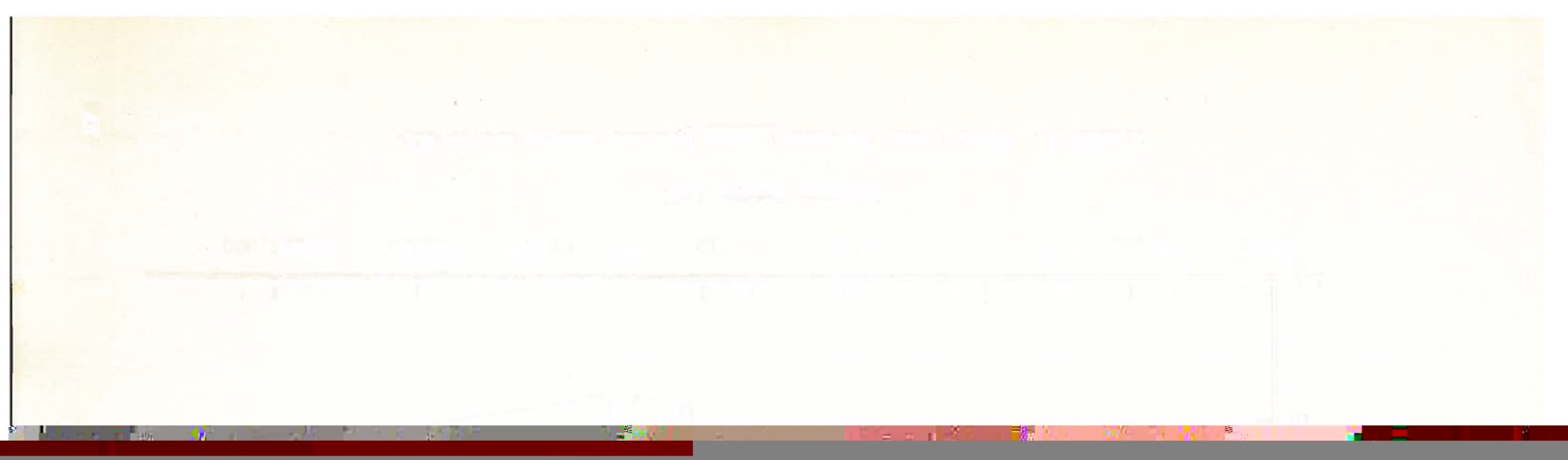

2.309"
2.577"

FIGURE Auxiliary Vessel Design



Total Cross Section (barns)

10,000
1,000
100
10
1.0
0.01

100,000
10,000

FIGURE 10. Schematic of Counting System

FIGURE 12. Thermal Flux Distribution Obtained from ANISN and DOT Code Calculations

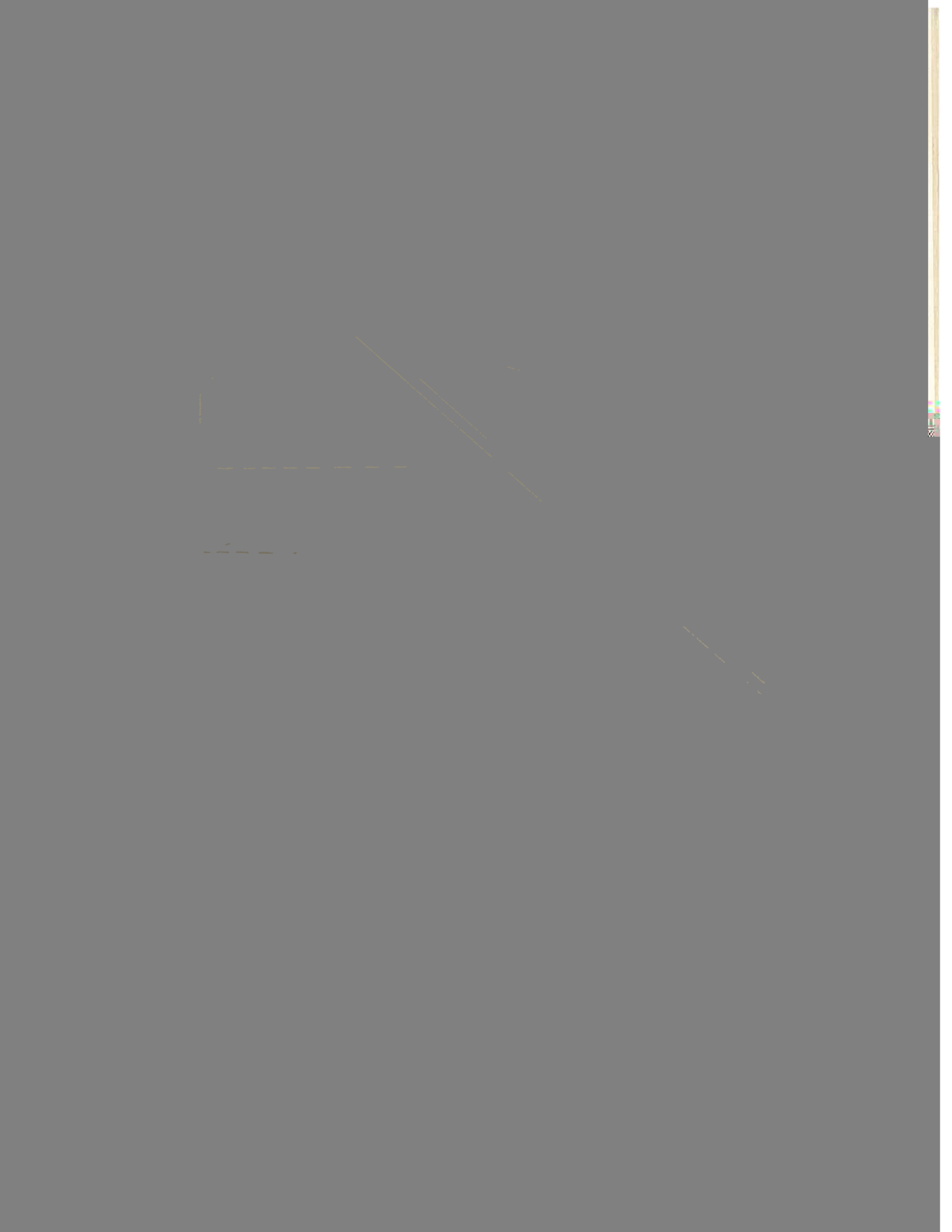
Cr-55		0.00024	0.00024	0.00024	4	
Mn-56		0.082	0.335	0.349	0.349	
Fe-59		$<10^{-7}$	$<10^{-5}$	$<10^{-5}$	0.000038	Iron Absorption in Blood
Ni-65		0.000098	0.00039	0.0004	0.0004	
Cu-64		0.0033	0.03	0.046	0.063	Copper Metabolism
Cy-66		0.012	0.012	0.012	0.012	Copper Metabolism
Zn-69		0.0023	0.0045	0.0045	0.0045	Wound Healing
Ga-72		0.0019	0.018	0.028	0.04	Lymphoid Tumors, Lung & Bone Scanning
	82.8m	0.4			0.0032	0.0032	
	11.3hr	0.18			0.0003	0.0003	
	27.hr	3.7			0.079	0.08	Brain Scanning
	3.9m	0.33			0.0016	0.0016	Dynamic Studies
	18.m	0.44			0.0044	0.0044	
	57.m	0.03			0.0003	0.0003	
	17.6m	7.5			0.078	0.078	Bladder Scanning
	4.42hr	2.6			0.027	0.027	Bladder Scanning

Cd-107	6.5h	0.9	0.00002	0.00012	0.00017
Cd-111	48.6m	0.2	0.00021	0.00036	0.00036
Cd-117	2.5hr	1.3	0.00034	0.00135	0.0014
In-114	71.9sec	1.9	0.0012	0.0012	0.0012
In-116^{m}	54.1m	129.0	0.937	1.75	1.75
Sn-121	26.2hr	0.12	0.000014		0.00053
Sn-123	40.3m	0.14	0.00006		0.00009
Sn-125	9.6m	0.18	0.00013		0.00013
Sb-122	2.74da	6.0	0.00046		0.038
Te-127	9.3hr	0.7	0.00012		0.0017
Te-129	69.m	0.12	0.00023		0.0005
Te-131	25.m	0.2	0.00015		0.00018
I-128	25.m	4.9	0.050		0.062
Cs-134^{m}	2.9hr		0.00004	0.00017	0.00018
Ba-135^{m}	28.7hr		0.000013	0.00016	0.00057
Ba-137^{m}	2.55m		0.00037	0.00037	0.00037
Ba-139	83.2m		0.00145	0.0037	0.0037

La-140	0.0015	
Ce-137	$<10^{-5}$	
Ce-141	$<10^{-5}$	
Pr-142	0.037	
Pr-142	0.0035	
Nd-147	$<10^{-5}$	
Nd-149	0.00066	
Nd-151	0.00144	
Sm-153	0.005	Bone Scanning
Sm-155	0.010	Bone Scanning
Eu-152	0.007	
Eu-152	0.454	
Gd-159	0.00033	
Dy-165	1.328	
Ho-166	0.013	
Er-163	0.000097	
Er-169	0.000014	Bone Scanning
Er-171	0.001	Bone Scanning
Yb-169	0.00013	

4.19da	53.0	0.00095	0.0124	0.1564	
1.9hr	4.9	0.0017	0.0056	0.0057	
3.7hr	31.0	0.048	0.251	0.2809	
6.7da	3,540.0	0.0034	0.042	0.773	
5.5hr	57.6	0.0085	0.056	0.072	
42.4da	8.9	0.000017	0.00023	0.011	
15.9m	0.03	0.00025	0.00026	0.00027	
2 hr	30.0	0.0021	0.0218	0.0746	
	88.6	0.002	0.025	0.2875	
	3.80 (12)	0.0005	0.0033	0.0044	
	8.07 (12)	0.00095	0.0086	0.0183	
	7.1	0.000029	0.00035	0.0119	
	1.4	0.0001	0.0011	0.00486	
	621.0	0.00075	0.0091	0.481	
	115.2	0.024	0.141	0.609	
	1.1	0.00002	0.00024	0.003	
	70.9	0.005	0.051	0.149	
	3.5	0.0015	0.002	0.002	
	85.1	0.007	0.084	0.703	Liver Function; Aerosol Lung Scanning

23.8hr	115.0	0.00041	0.0007	0.00138	0.00139	Kidney Function
64.1hr	2750.0	0.0004	0.00076	0.028	0.033	Kidney Function
46.6da	3.4	0.00006	0.00012	0.0008	0.003	Kidney Function



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* These are theoretical values obtained from Heath (14).

Saturated Activity Yield Versus Moderator Thickness

TABLE IX.

MEDICALLY USEFUL RADIOISOTOPES SHOWING PROMISE FOR PRODUCTION WITH 10 MILLIGRAMS OF CALIFORNIUM-252

FIGURE 15.

EXAMINATION AND THESIS REPORT

edical and Industrial

EXAMINING COMMITTEE:

Date of Examination: