

A THESIS

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Master of Science

in

The Department of Nuclear Engineering

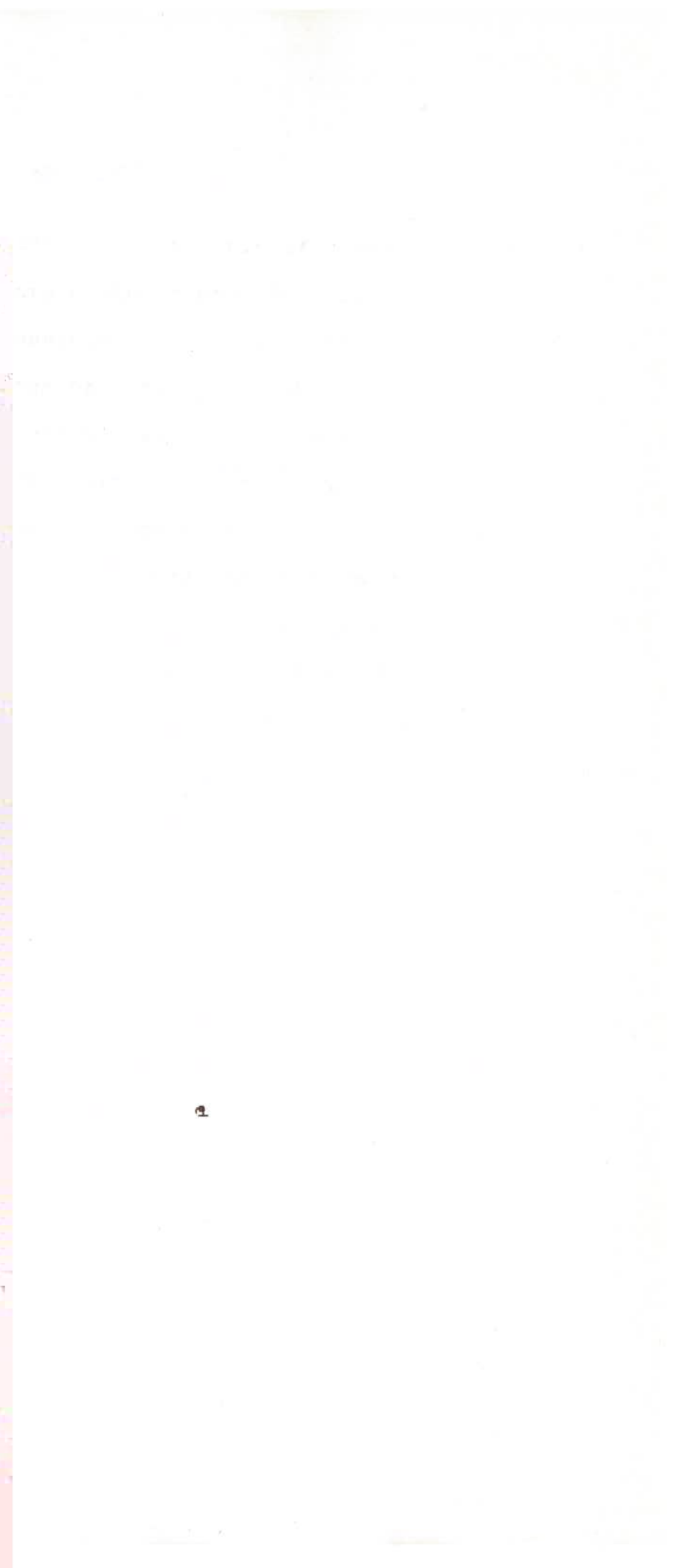
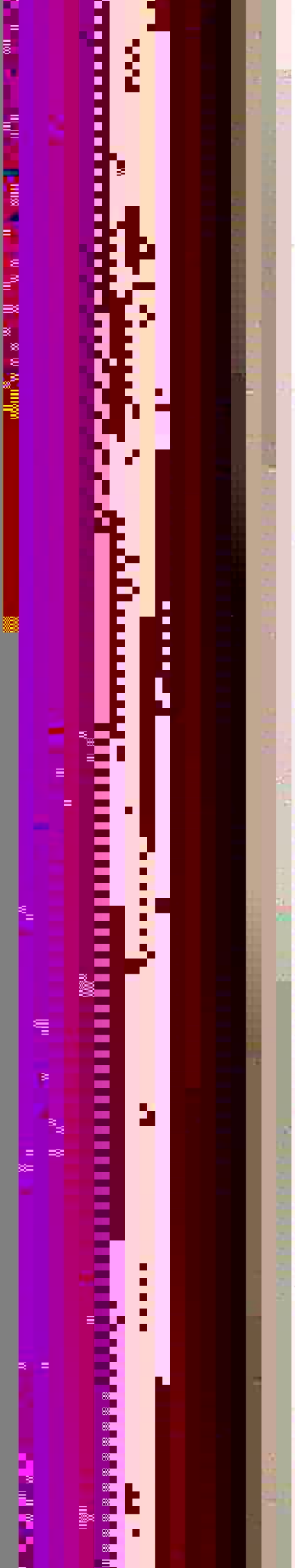
by

Calvin Errol Pepper
B.S., Louisiana State University, 1972
May, 1974



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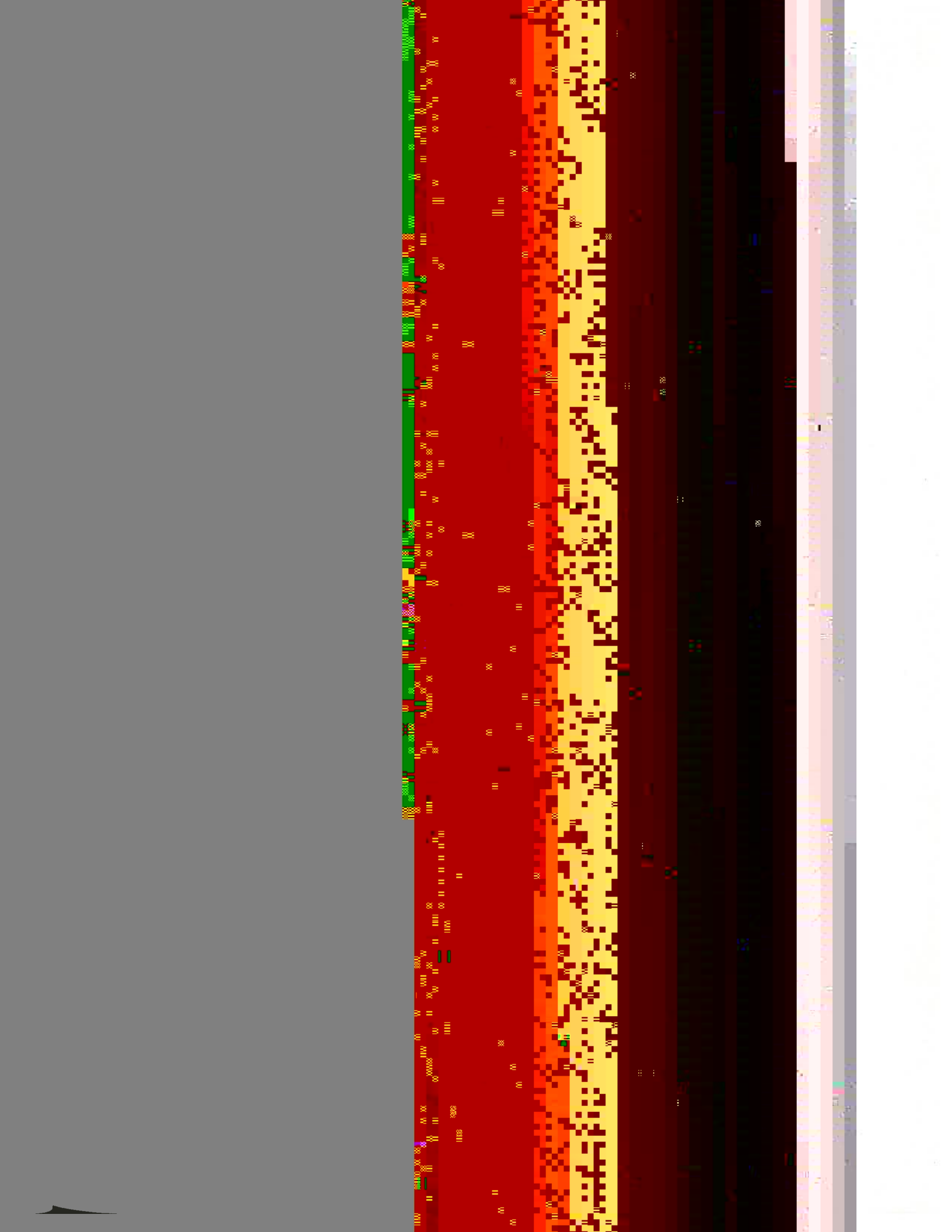


Figure 1-1

Plot of Concrete Capacity.

Table 1-1

Figure 1-2
Concrete
Gamma Spectrum

10,000

Al-28
1.8 MeV

1000

Activity (counts/10min./channel)

100

10

Ca-49
4.07 MeV

200

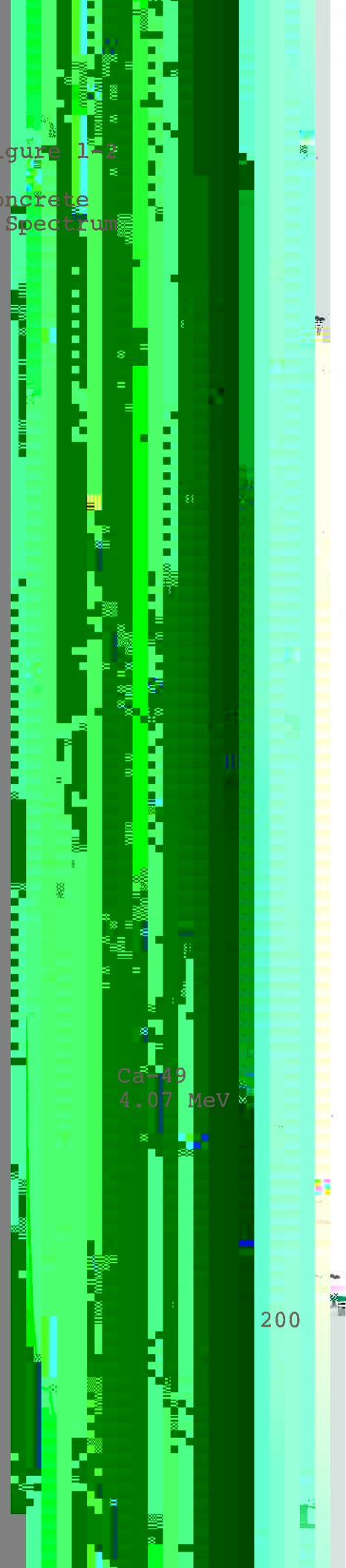
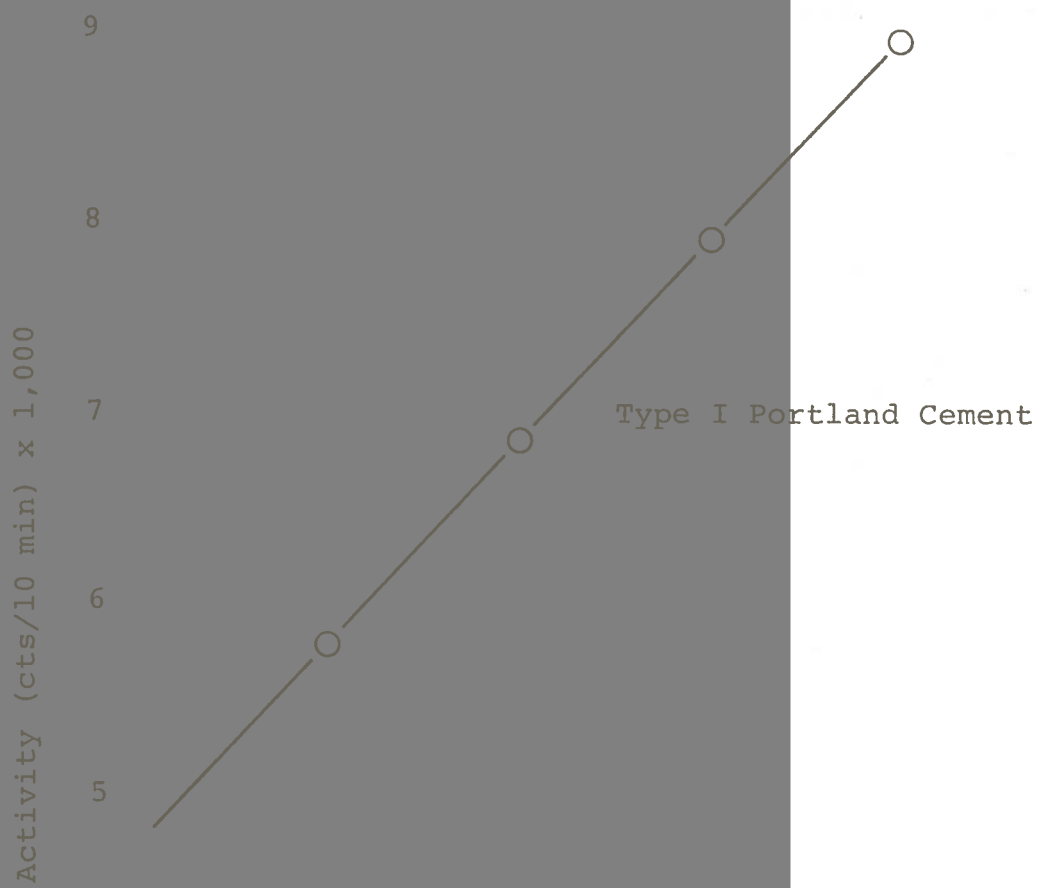
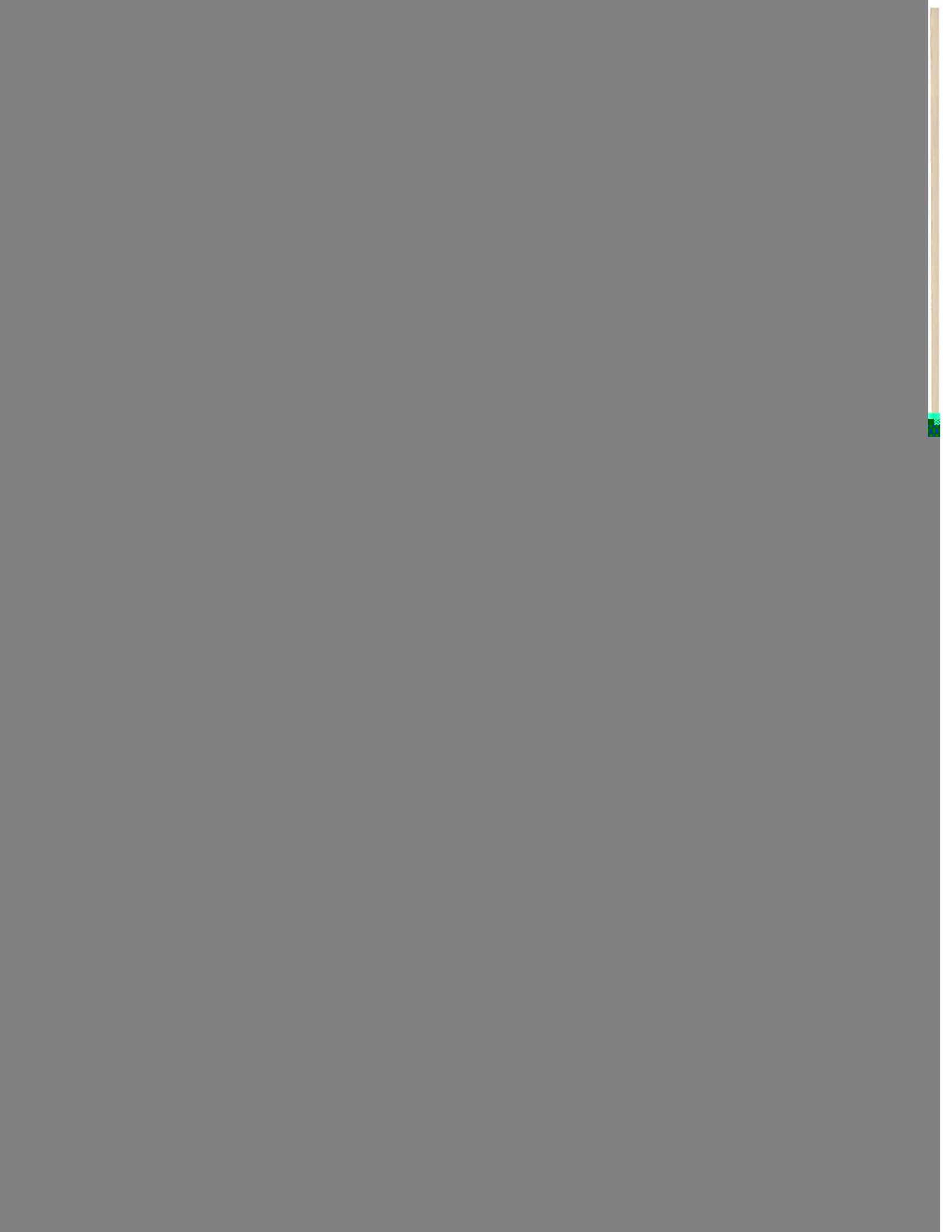


Figure 1-3
Sample Calibration Curve





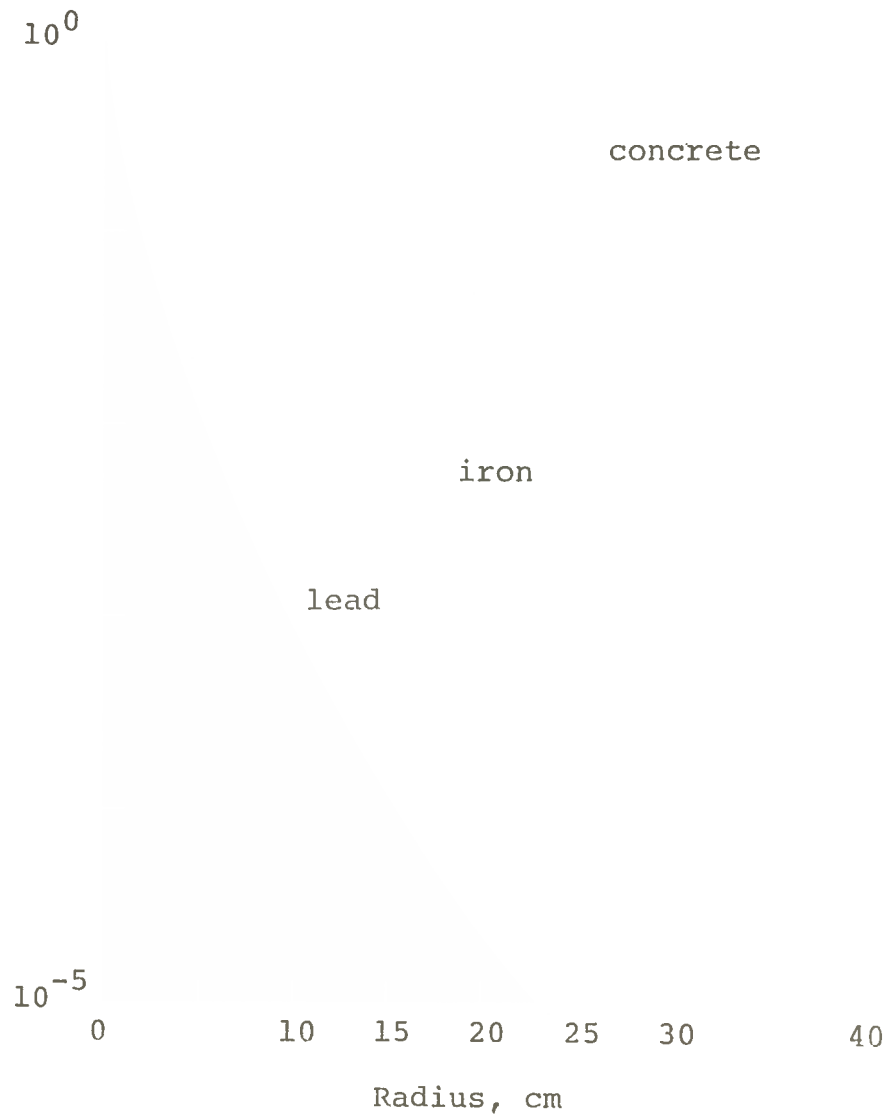
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Figure 2-1

Attenuation of Primary Gamma Rays
Savannah River Laboratory Report DP - 1246





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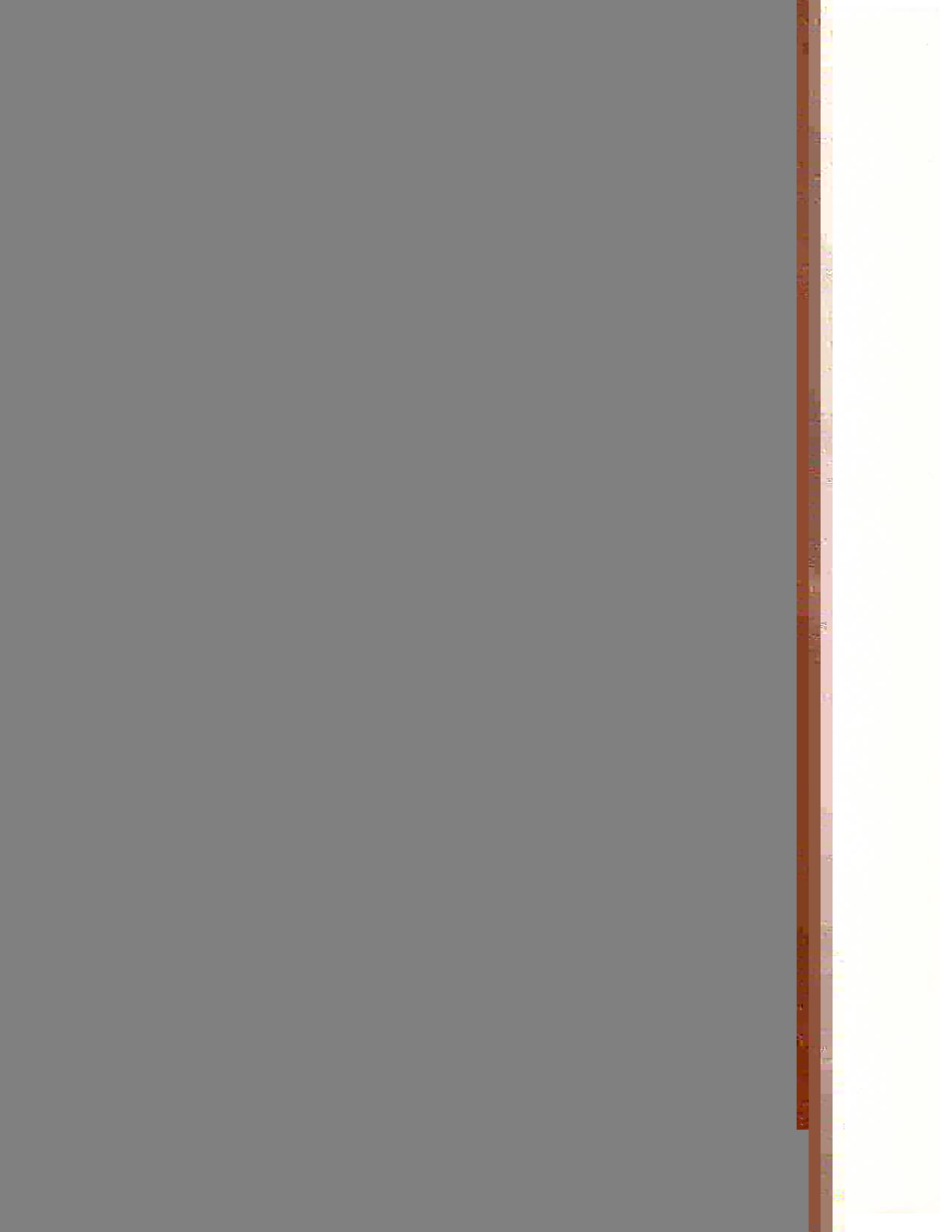
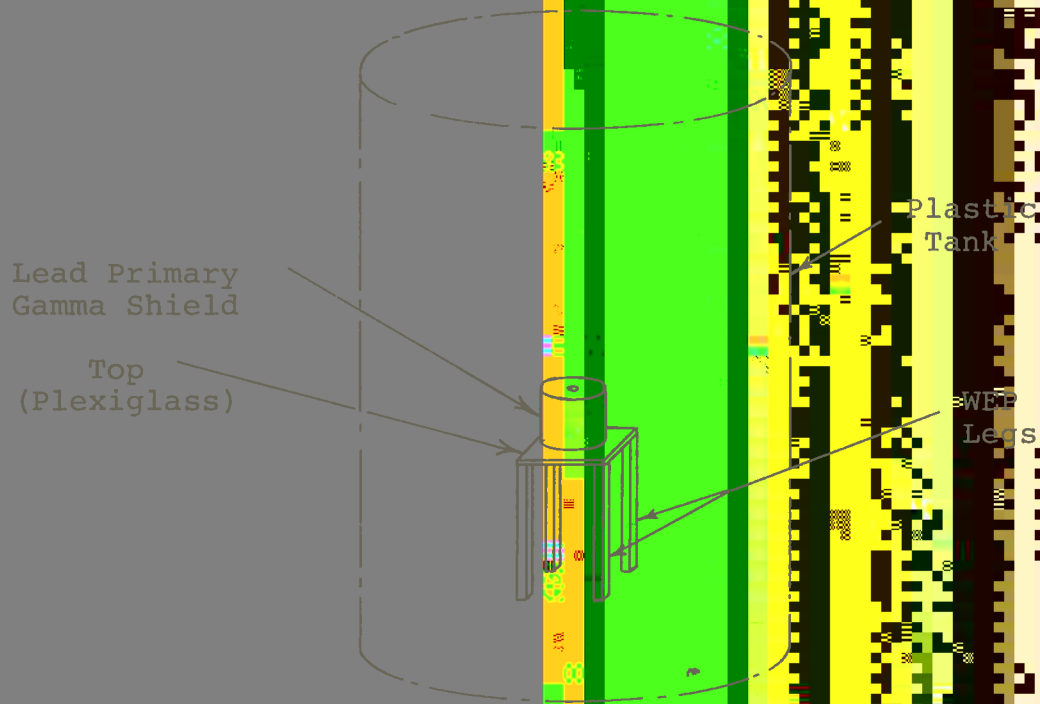


Figure 3-1

Pedestal and Primary Gamma Shield Assemblies
Used in Preliminary Study







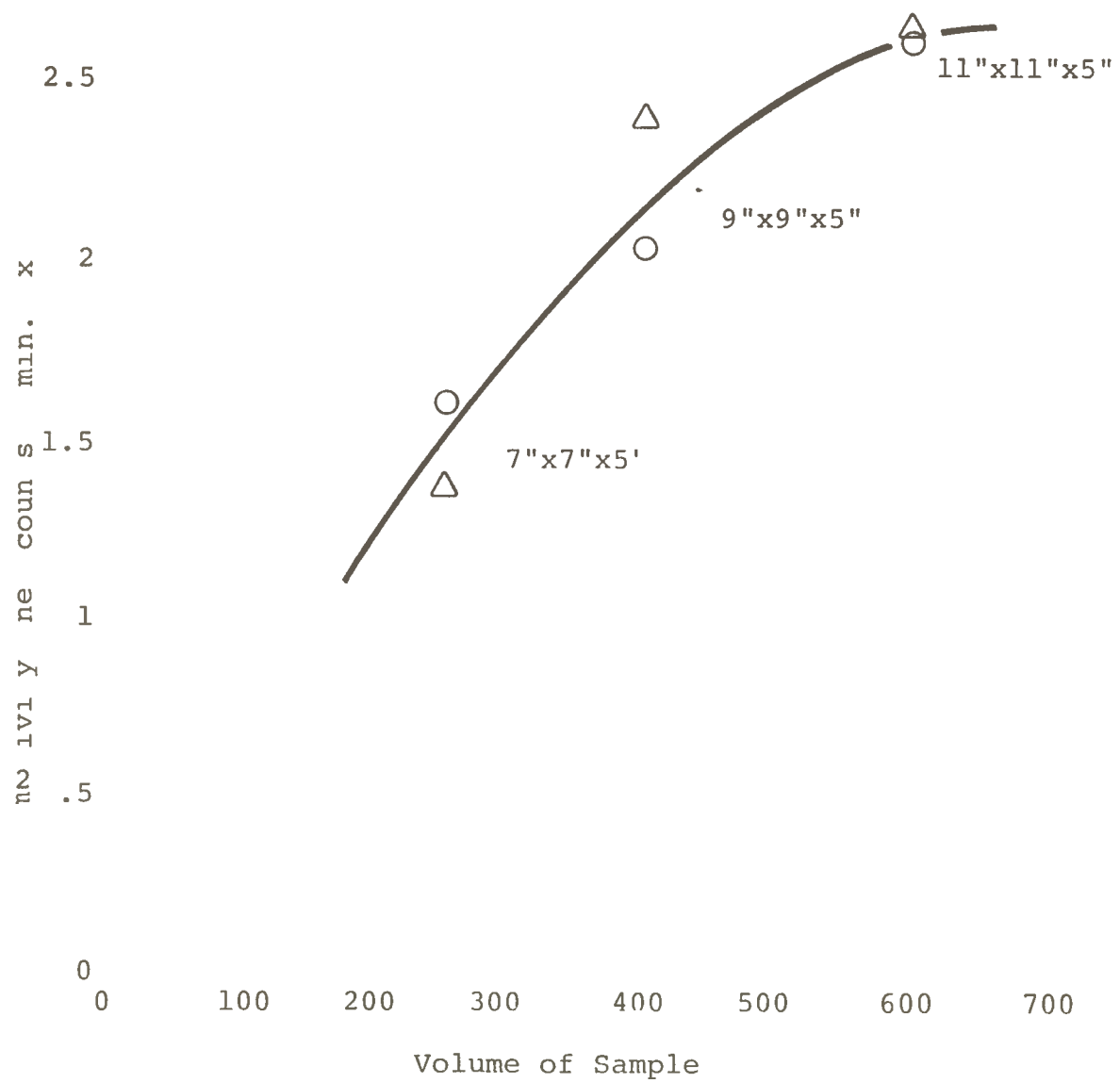


Figure 4-2

Dose Rate Depression By Boration





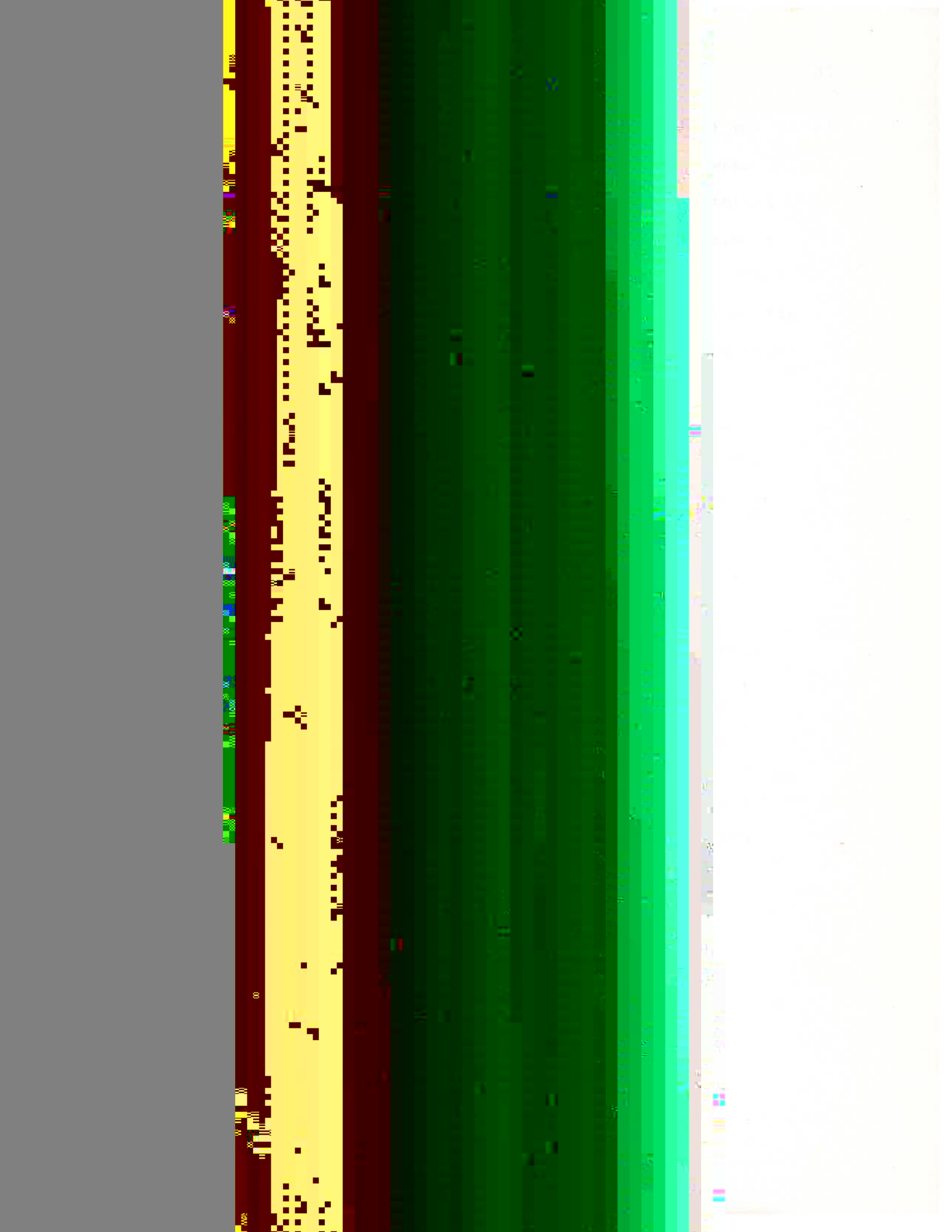


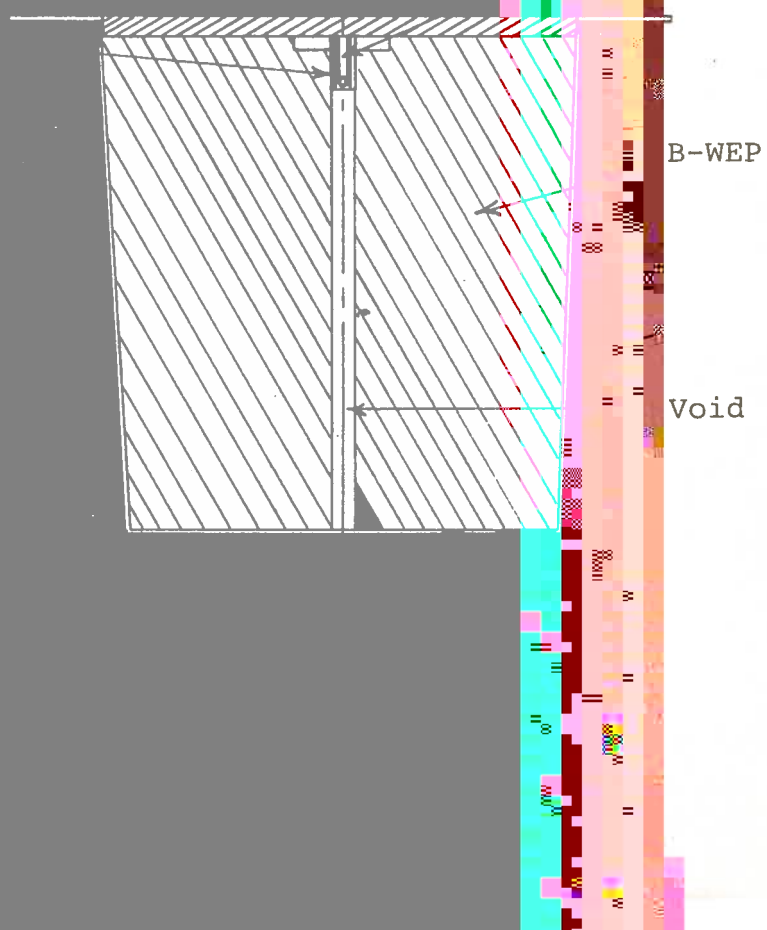


cap be fabricated for the moderator end to facilitate activation of cores. Studies should be implemented to obtain data on effects on count rates by aggregate ratio, sub-surface conditions, admixture content, surface glazing by calcium chloride, and other such highway construction and/or maintenance practices.

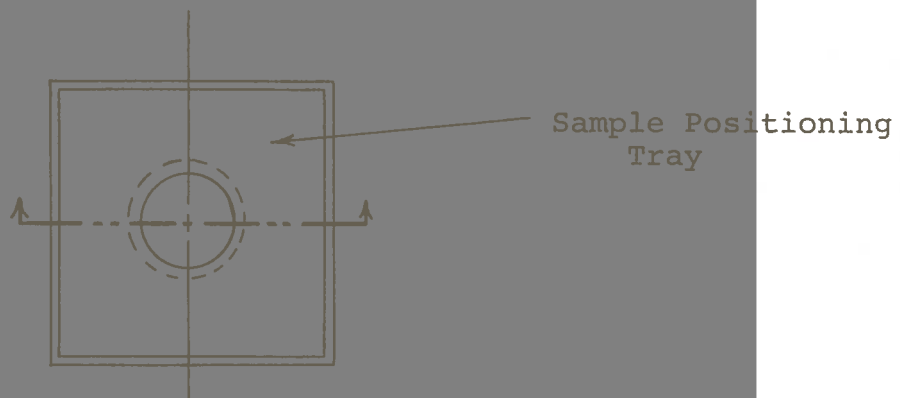
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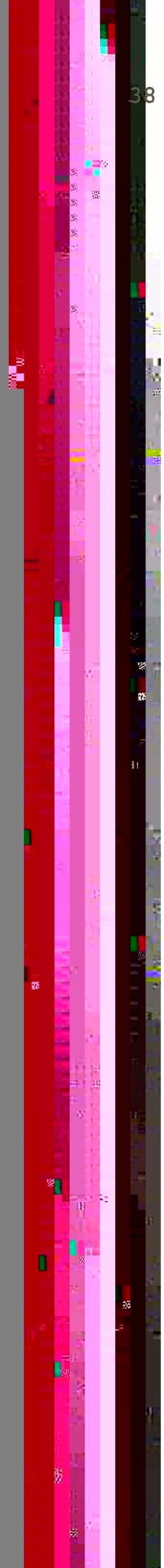






APPENDIX C
Laboratory Counting System







APPENDIX F
Field Portable Counting System

Appendix G

Calibration Samples

A table is presented here to show the differences existant in those samples prepared to be used in the determination of a calibration curve for cement content in concrete.

Appendix H
Count Rate Versus Sample Thickness

10

0
0

2

3

4

5

Inches of Concrete

