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Subject Prod. Test #305-9-P - Poisoning
Effectiveness and Uniformity of Myrmalloy
Slugs

To _____ File

From ... C. W. J. Vlende

Copy No. 3-18
W. C. Kay

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INCORPORATED

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#7 - W. E. Jordan - 700
#8 - G. P. Kidder
#9 - G. W. J. Wende - H. A. Fowler
#10 - Pink
#11 - Yellow

February 19, 1946

THIS DOCUMENT CONSISTS OF 2 PAGES NO. 1

PRODUCTION TEST NO. 103-9-P

OF 2 COPIES, SERIES 0

POISONING EFFECTIVENESS AND UNIFORMITY OF MYRMALLOY SLUGS

Objective

To determine the poisoning effectiveness and uniformity of a batch of approximately thirty myrmalloy slugs prior to charging into the B Pile.

Basis

Small-scale tests (Final Report on Production Test 303-8-P, Relative Poisoning Effectiveness of Myrmalloy and Pb-04 Slugs, December 21, 1945, Doc. No. 7-3205) have shown that a reactivity loss of 34.4 ± 5 inhours is expected when heavy metal is replaced by myrmalloy in an unshadowed central column of a 103 pile. The first production batch of approximately thirty myrmalloy slugs has been canned and is scheduled for charging into the B Pile in the near future (Production Test 103-49-P). A test of this material in the 303 Test Pile will yield an improved figure for the expected reactivity loss and will also measure the uniformity of the production batch. This test is made in preparation of the 3rd special irradiated sample (F. Daniels to R. M. Evans, 8/15/45, #7-7386).

Procedure

The following equipment is required:

- (1) Production batch of approximately thirty canned myrmalloy slugs. These are to be tested in groups of four.
- (2) Comparison column of lead slugs, identical in length with a column of four myrmalloy slugs (approximately 16 inches). This column will be made up of three standard six-inch lead slugs, one of which is cut down to eight.
- (3) Comparison column of lead-cadmium slugs, prepared as in (2).

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7-3486

Production Test No. 303-9-2

-2-

February 19, 1946

Two standard heavy metal slugs at the center of the 303 test stringer will be replaced by the sixteen-inch test columns as shown below. A rising period of the pile will be taken twice after each substitution.

- (a) Insert 16" lead column, remove skin and control rods. A period of about 25 seconds is expected.
- (b) Insert 16" Pb-Cd column. The expected period is about 6 minutes.
- (c) Insert 16" myralloy column. A period of about one minute is expected.

Retain these myralloy slugs in the same order as standards.

- (d) Test four sets of four myralloy slugs each. The expected period is about one minute.
- (e) Retest the standard myralloy column.
- (f) Test the remaining sets of four myralloy slugs each. If the last set is incomplete, fill it with one or more previously tested slugs.
- (g) Retest the standard myralloy column.

Data

Data will be collected jointly by the 303 operating crew and the Technical Department, and will be analyzed by the Technical Department.

Equipment

Use of the 303 pile will be furnished by the P Department; test samples will be furnished by Technical.

Responsibility

C. W. J. Woods, 100 Technical
H. A. Fowler, 100 Technical

Estimated Completion

The test is tentatively scheduled for February 26, and a final report for March 1.

Approval

<u>C. E. Gross</u>	C. E. Gross	2/22/46	Date
	P Department		
<u>W. E. Jordan</u>	W. E. Jordan	2-22-46	Date
	100-300 Technical		
<u>W. M. Sloan</u>	W. M. Sloan	2-22-46	Date
	P Department - 300 Area		

CWJ:SW

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