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THE REPORT

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HW-72745

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ANALYSIS OF THREE BATCHES OF
FB (PINCH BOTTLE)-1 MATERIAL - DECEMBER 1961

by

R. P. Ringle
and
J. C. Steinhauser

February 20, 1962

Analytical Control Operation
Special Separation Processing
and Auxiliaries Operation
Chemical Processing Department

Work performed under Contract No. AT(45-1)-1350 between the
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ANALYSIS OF THREE BATCHES OF
PB (PINCH BOTTLE)-1 MATERIAL - DECEMBER 1961

INTRODUCTION

The three batches were dissolved, sampled and analyzed starting December 14, 1961. The results of these analyses are the subject of this report.

RESULTS

Each test batch received an identification code in each Facility in which it was processed. All codes are listed for future reference.

DISCUSSION

Each batch of slugs was dissolved in the Redox Process B-2 dissolver. When complete dissolution was indicated by a leveling off of specific gravity, two 1 ml samples were taken and analyzed for U, SpG, HNO_3 . Following four hours of digestion, two more 1 ml samples and one 20 ml pig sample were taken, and analyzed for SpG, HNO_3 and U. Agreement between these samples and the previous ones confirmed complete dissolution and representative sampling. If agreement was not obtained, sampling was continued. The 20 ml pig was sampled for further analysis by Analytical Control Group.

Calculations used to arrive at the following results may be obtained from HW-68438, "Analysis of the Twelve Two-Ton Test Batches For The Review of Plutonium Formation Rates as a Function of MWD", W. H. Zimmer, February 9, 1961, (Secret).

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All $\pm$ values are reported at the 95% confidence level.

Sample Identification Codes

100 Area	Batch No. 1 C-Reactor	Batch No. 2 C-Reactor	Batch No. 3 C-Reactor
202-S	B-2 Run C-7	B-2 Run C-8	B-2 Run C-9
222-S Analytical	3089-X	3190-X	3269-X
Dissolver Sampling Date	12-14-61	12-20-61	12-26-61
lbs U/gal	2.818 $\pm$ 0.057	2.368 $\pm$ 0.013	3.258 $\pm$ 0.009
gm Pu/gal	0.7456 $\pm$ 0.0079	0.5133 $\pm$ 0.0103	0.8896 $\pm$ 0.0410
gm Pu/lb U	0.2646	0.2168	0.2731
gm Pu/c/m	1.268 $\times 10^{-11}$	1.314 $\times 10^{-11}$	1.252 $\times 10^{-11}$
gm Am ²⁴¹ /gal	6.92 $\times 10^{-5}$	2.30 $\times 10^{-5}$	1.04 $\times 10^{-4}$
gm Cm ²⁴² /gal	1.01 $\times 10^{-7}$	2.13 $\times 10^{-8}$	1.35 $\times 10^{-7}$
gm Np ²³⁷ /gal	4.04 $\times 10^{-3}$	3.43 $\times 10^{-3}$	6.46 $\times 10^{-3}$
Wt % Pu ²³⁸	0.009	0.006	0.011
Wt % Pu ²³⁹	94.52	95.96	94.14
Wt % Pu ²⁴⁰	5.10 $\pm$ 0.04	3.81 $\pm$ 0.03	5.44 $\pm$ 0.04
Wt % Pu ²⁴¹	0.36 $\pm$ 0.0020	0.22 $\pm$ 0.0015	0.41 $\pm$ 0.0027
Wt % Pu ²⁴²	0.02 $\pm$ 0.0004	0.01 $\pm$ 0.0002	0.01 $\pm$ 0.0002
Wt % U ²³⁵	0.846 $\pm$ 0.0015	0.888 $\pm$ 0.0062	0.864 $\pm$ 0.0036
Wt % U ²³⁶	0.0219 $\pm$ 0.0005	0.0196 $\pm$ 0.0003	0.0252 $\pm$ 0.0002
Wt % U ²³⁸	99.14	99.09	99.10

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