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EXCERPTS FROM 63-8-243

MAY 3, 1963

MINUTES OF THE SECOND MEETING OF THE PLUTONIUM RESEARCH COORDINATING COMMITTEE - January 31 - February 1, 1963

A. Bureau of Mines Report on Electrorefining of Plutonium

Dr. T. Henrie and Mr. D. Baker have visited sites producing high purity plutonium: ANL, HAPO and LASL. They suggested that solid-state electrolysis of purified metal be tried; i.e. solute migration along a plutonium bar under the influence of an electric potential. Experiemnts have started at HAPO. Also suggested was the electrolytic reduction of PuO_2 in a fluoride bath.

The reasons for the poor coalescence of reduced plutonium observed at Hanford should be studied.

B. Plutonium Program at Mound

Probably the most impressive presentation from Mound was the DTA studies in phase transformation in plutonium and plutonium alloys.

C. Argonne Report

By the use of carefully dried salts, ANL has been able to electro refine plutonium with the following composition:

	by Weight ppm		Atomic ppm
C	4		80
H	0.5		120
N	20		346
O	8		121
Al	10		90
Fe	20		87
Am	8		8
	70.5	total	852

All other elements below limits of detectability

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Berndt at ANL is investigating a method for growing single crystals of plutonium based on an adaptation by Ewald for growing grey-tin crystals from mercury solutions. Alkali metals will be tried as a liquid phase to precipitate alpha and delta plutonium.

High cold reductions of alpha plutonium have been obtained, but the hardness decreases with increasing amounts of cold work beyond 50 per cent reduction.

A plutonium metallography meeting will be arranged.

D. LASL Report

Microcracking problem is related to the transformation of beta material to alpha as a part stays at room temperature. The problem was not met until higher purity plutonium was available since impurities apparently prevented the transformations from going to completion.

Possibility that Am stabilizes delta plutonium.

E. Plutonium Committees

1. Plutonium Research Coordinating Committee (PuRCC)

2. Libby-Cockroft Exchange on Plutonium (L-C)

3. Plutonium Weapons Information Exchange Group (PuWIEG)

4. Plutonium Compounds for Weapons (Dipper)

5. Exchange of Information, Visits and Reports on plutonium with United Kingdom (EIVR-7).

PuRCC Members: Delistraty (Chairman)
Rice
Sheely
Ramsey
Chiswik
Baker

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