

~~SECRET~~  
DATE 1/11/72 INIT [initials]

THIS DOCUMENT CONSISTS OF 2 PAGES  
THIS IS COPY 5 OF 7A

ALMD62071210343

ROUND LABORATORY (INDICATED)  
Central File No. 62-7-121

July 11, 1962

Mr. H. C. Anderson, Director  
Analytical Laboratories  
The Dow Chemical Company  
Rocky Flats Division  
P.O. Box 2131  
Denver 1, Colorado

Dear Mr. Anderson:

We have completed a series of analyses on the samples received. The results of our analyses on samples 4621 and 4622 are presented below. We have reported isotopic weight percentages which have been corrected. These corrections were based on duplicate run calibrations with the other samples which you sent.

Mass Spectrometer Analysis In  
Isotopic Weight Percentages

<u>Sample No.</u>	<u>Pu 239</u>	<u>Pu 240</u>	<u>Pu 241</u>
4621	93.67%	5.93%	0.406%
4622	93.64%	5.93%	0.427%

The calibrations are by no means complete, but they have indicated an unexpected behavior in our instrument. It seems that the major error in the instrument is due to a non-linearity in the output system rather than a mass discrimination effect. Further study is required to resolve this problem. Any comments by any of the participating contractors on similar experiences would be appreciated. Also it would be very helpful if any standards having a vastly different isotopic composition were available.

You will note that no accuracy figures have been included in the analyses. The only data presently available are based solely on the precision of the instrument and, therefore, have no comparison significance for you.

**ROUND DECLASSIFICATION REVIEW**

1. REVIEW DATE: 7/2/72

2. AUTHORITY: EAOB EAOB EAOB

3. NAME: [redacted]

4. REVIEW DATE: 11/10/72

5. APPROVED BY: [signature]

6. OTHER COMMENTS:

1. CLASSIFICATION (GICL) NUMBER(S)

2. CLASSIFICATION RETAINED

3. CLASSIFICATION CHANGED TO

4. CONTAINS NO DOW CLASSIFIED INFO

5. COORDINATE WITH

6. CLASSIFICATION CANCELLED

7. CLASSIFIED INFO REJECTED

**RESTRICTED DATA**  
This document contains restricted data as defined in the Atomic Energy Act of 1954. Its transmission or the disclosure of its contents in any manner to an unauthorized person is prohibited.

~~SECRET~~

~~SECRET~~

Mr. H. C. Anderson

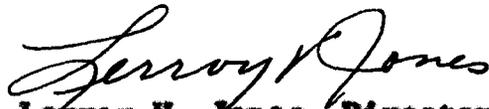
-2-

July 11, 1962

The plutonium nitrate samples were mounted in the same form they were received. Ten lambda aliquots containing 50 micrograms of plutonium were loaded from sample 4612. Thirty lambda aliquots containing 150 micrograms of plutonium were loaded from the other samples. Duplicate runs were made on each sample. Ten to twelve scans consisting of an equal number of "up" and "down" mass scans were used on each aliquot. Lambda pipets of the "to contain" type were used. Tantalum ribbon was used for the sample filaments, and rhenium ribbon was used for the ionization filaments. The mass spectrometer is a Nuclide Analysis Associates Model SU (12 inch radius - 60° sector), equipped with a vacuum lock, and a triple filament source.

The standards which you supplied have already proved to be extremely valuable. We expect to be able to contribute more to the program in the form of better results as our familiarity with the instrument increases.

Very truly yours,

  
Lerroy V. Jones, Director  
Technical Support Department

LWJ:elt

**Distribution:**

Copy 1A - H. C. Anderson  
Copy 2A - L. V. Jones  
Copy 3A - J. F. Eichelberger  
Copy 4A - T. B. Rhinhammer  
Copy 5A - R. M. Watrous  
Copy 6A - D. M. Scott  
Copy 7A - W. L. Flint

~~SECRET~~