~~CONFIDENTIAL~~ **UNCLASSIFIED**
CONFIDENTIAL COVER SHEET

OAK RIDGE NATIONAL LABORATORY

Operated By

UNION CARBIDE NUCLEAR COMPANY

POST OFFICE BOX P
OAK RIDGE, TENNESSEE

EXTERNAL TRANSMITTAL AUTHORIZED

ORNL
CENTRAL FILES NUMBER
56-4-20

~~For Internal Use Only~~
COPY NO. 2

DATE: April 12, 1956

SUBJECT: Antimony-125 in Thorex Streams

TO: W. T. McDuffee, Jr.

FROM: T. H. Handley and S. A. Reynolds

CLASSIFICATION CANCELLED

DATE MAR 14 1957

For The Atomic Energy Commission

H. F. Canale

Chief, Declassification Branch *TC*

DISTRIBUTION

APR 17 1956

1. G. E. Boyd
2. F. R. Bruce
3. L. T. Corbin
4. H. K. Jackson
5. M. T. Kelley
6. R. E. Leuze
7. W. T. McDuffee, Jr.
8. S. A. Reynolds
9. E. I. Wyatt
- 10-11. Lab Records
12. ORNL - RC

RESTRICTED DATA

This document contains Restricted Data as defined in the Atomic Energy Act of 1954. Its transmittal or the disclosure of its contents in any manner to an unauthorized person is prohibited.

NOTICE

This document contains information of a preliminary nature and was prepared primarily for internal use at the Oak Ridge National Laboratory. It is subject to revision or correction and therefore does not represent a final report.

~~CONFIDENTIAL~~ **UNCLASSIFIED**
CONFIDENTIAL COVER SHEET

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

TO: W. T. McDuffee, Jr.

DATE: April 12, 1956

COPY TO: Distribution Shown

SUBJECT: Antimony-125 in Thorex Streams

At your request, analyses for fission-product antimony-125 have been made on samples of selected Thorex streams (Run HD 16). The results are summarized in Table I. Since this was a "survey" program, no attempt was made to secure analyses of highest possible precision. However, gamma spectrometric studies were made on portions of separated antimony which contained sufficient activity, and no significant contamination was found.

In studies of BTC samples by gamma spectrometry, it has been noted that the amount of Sb-125 varies considerably. One BTC contained more Sb than Pa. No Sb has been found on isolation-column resin (two samples) by this method. The principal Sb-125 gamma peaks, as measured by scintillation spectrometry, are at energies of approximately 0.18, 0.44, and 0.64 Mev.

T. H. Handley
T. H. Handley

S. A. Reynolds
S. A. Reynolds
Analytical Chemistry Division

THH;SAR:pip

Table I

Antimony-125 Analyses

Sample	Sb, cpm/ml*	Gy, cpm/ml*	% Sb*
AF-600	$2.0_1 \times 10^6$	7.0×10^7	2.9
3-BTC-500-5	$1.5_1 \times 10^3$	4.2×10^5	0.4
BTC**	$1.0_2 \times 10^3$	7.2×10^4	1.4
CUF-1000-3	$8.7_2 \times 10^3$	1.8×10^5	4.8
CUF-1200-3	$1.0_9 \times 10^3$	1.1×10^4	10
IWN-54	$1.1_9 \times 10^2$	2.0×10^2	~60
IP-59	$1.7_6 \times 10^4$	1.3×10^6	1.4

* Scintillation counter, Pb absorber; April 6, 1956.

** Special large sample taken for W. R. Laing.

DECLASSIFIED