

~~SECRET~~

DATE 6/17/59 INIT. T.G.L.

THIS DOCUMENT CONSISTS OF 21 PAGES
THIS IS COPY 1 OF 1

June 17, 1959

AIRMAIL

Mr. D. W. Sherwood
Office of Advanced Planning
Albuquerque Operations Office
U. S. Atomic Energy Commission
Post Office Box 5400
Albuquerque, New Mexico

Dear Wayne:

I am writing before I have had a chance to go over your notes in detail in order to fill in some of the gaps on projects we discussed at the last minute on Friday.

Uranium Isotope Separation The feasibility of separating U²³⁶ from spent, enriched U²³⁵ fuels by thermal diffusion of the hexafluorides is being studied. U²³⁶ can be irradiated to make Np²³⁷ which subsequently can be irradiated to make Pu²³⁸. At the present time, the method is being studied using the isotopes U²³³ and U²³⁸, with no U²³⁶ present, and really no implication that that is the actual isotope of interest.

Since the guides I have are non-specific on uranium hexafluoride technology, we have been guided largely by the classification of the reports from which information has been obtained. Many of these have been S-RD. Items we may want to have in our guide on this project might include:

1. Mere fact of study of uranium isotope separation by thermal diffusion at Mound.
 - a. Fact that uranium is in the form of UF₆.
 - b. Fact that mixtures of U²³³ and U²³⁸ are being used.
2. Method (s) for preparing hexafluoride for diffusion (not identified as actual UF₆ production method).
3. Effect of hexafluoride on column parts (i.e. brass, copper, Monel, etc.).

Released through the
MOUND LDR PROJECT
through DOE's OPENNESS INITIATIVE
Recent Copy held at Mound Facility

MOUND DECLASSIFICATION REVIEW	
1ST REVIEW DATE: <u>5/19/98</u>	DETERMINATION (CIRCLE NUMBER(S))
AUTHORITY: <input type="checkbox"/> AOC <input type="checkbox"/> ADC <input type="checkbox"/> ADD	1. CLASSIFICATION RETAINED
NAME: <u>H. Alderson</u>	2. CLASSIFICATION CHANGED TO: _____
2ND REVIEW DATE: <u>6/21/98</u>	3. CONTAINS NO DOE CLASSIFIED INFO
AUTHORITY: <u>ADD</u>	4. COORDINATE WITH: _____
NAME: <u>DeRatny</u>	5. CLASSIFICATION CANCELLED
	6. CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY): _____

~~SECRET~~

GROUP 1
Excluded from automatic
downgrading and
declassification

~~SECRET~~

- 2 -

4. The fact that the ultimate aim is the separation of U^{235} from reactor fuel.
 - a. Expected use of U^{235} .
5. Potential or actual thermal diffusion separation factors for:
 - a. U^{233}/U^{238}
 - b. U^{235}/U^{238}
6. Thermal diffusion column operating variables peculiar to operation with hexafluoride or to separation of particular uranium isotopes.
7. U^{235} content of reactor fuel
 - a. With reactor identified

Titanium Beds Dr. Grove stated that this project will involve the routine reclamation of hydrogen isotopes from these beds.

I think this covers the points we left open on Friday. I will begin going over your notes as rapidly as time permits. This week is going to be busy because of our monthly report editing schedule.

I hope travel arrangements finally worked out favorably for you. Many thanks for your valuable help last week. Best regards.

Sincerely yours,

T. G. Linweiler
Technical Editor

TGL:mo

Distribution:

- Copy 1 - D. W. Sherwood, ALO
- Copy 2 - W. B. Creaser
- Copy 3 - E. C. McCarthy
- Copy 4 - J. F. Eichelberger
- Copy 5 - T. G. Linweiler

~~SECRET~~