DECLASSIFIED

[redacted]

APPROVED FOR
PUBLIC RELEASE

BEST AVAILABLE COPY

This document consists of
5 pages. [redacted]

Classification Cancelled and Changed To
DECLASSIFIED
By Authority of TeleDoc
May 1973
By J Miles, 10-20-99
Verified By J E Savely 3-21-00

June 18, 1956 [redacted]

HANFORD ATOMIC PRODUCTS OPERATION
DESIGN SECTION
ENGINEERING DEPARTMENT

IMPROVEMENTS TO TASK I AND TASK II - 234-5 BUILDING MEETING MINUTES OF JUNE 8, 1956

By

E. O. Swain

SPECIAL RE-REVIEW
FINAL DETERMINATION
DECLASSIFICATION CONFIRMED
BY J. Jordan DATE 7-16-81
BY J P Derouin DATE 7-17-81

[redacted]

This docum[redacted] defined in the A[redacted] Act of 1954. Its transmi[redacted] the discl[redacted] its content[redacted]y manner to an unauth[redacted] [redacted] prohibited.

[redacted]

BEST AVAILABLE COPY

DECLASSIFIED

[redacted]

DISTRIBUTION

1. JG Antanas
2. WJ Browne
3. JB Fecht
4. JB Fritz
5. EM Harmon
6. HH Hopkins
7. HP Shaw
8. EC Swain
9. JF Yuenger
10. 300 File
11. File Copy ←

[redacted]

IMPROVEMENTS TO TASK I AND TASK II - 234-5 BUILDING
MEETING MINUTES OF JUNE 8, 1956

Those attending were:

JG Attanas - Manufacturing
RL Beede - Separations Technology
CG Berglund - Separations Technology
HW Crocker - Separations Technology
JR Fritz - Design
KM Harmon - Separations Technology
HH Hopkins - Separations Technology
RA Pugh - Separations Technology
EO Swain - Design

This was the fourth of a series of meetings that had been called in order that the various personnel associated with scoping and development work on the continuous Task I and Task II process could discuss the various problems of these new processes. In this meeting the following items were discussed:

1. Killing of Task I Filtrate

   H. H. Hopkins reported that the process for continuous killing of Task I filtrate has been demonstrated and may now be considered as chemically feasible. Since the chemical feasibility of batch killing had already been established, Mr. Hopkins stated that he felt that the selection of which killing process should be used is primarily an engineering consideration. Agreement was reached that the scope drawings now being prepared by Separations Design and Development will be revised for continuous killing if more detail study indicates that this is practical. The Technical flowsheets for the continuous Task I process that have previously been issued are still satisfactory except for some minor changes. However, Separations Technology will issue a new technical specification on the continuous killing process.

2. Storage of Fluoride Powder

   Two alternate schemes for storage of the plutonium fluoride powder were discussed. The first scheme employs a new storage hood located in the Task II area with one of the Task III storage hoods still used for storage of castings. Under an alternate storage scheme the fluoride powder would be stored in the Task III storage hoods and a new storage hood would be installed in the metal fabrication line for storage of castings and machine pieces. Mr. J. G. Attanas of Manufacturing stated a preference for the second alternate. It was agreed, however, that Separations Design & Development would study this problem more thoroughly before any final decision would be made.

[redacted]

3. Weighing of Fluoride Powders

Mr. Attanas pointed out some of the advantages of being able to weigh the fluoride powder at or near the station where the powders are loaded into the pan. Additional studies will be made to determine if such a weighing station can be conveniently and economically installed at these load out points. In any case, however, the existing Task II balance will be re-installed for purposes of accountability, and as a possible Task III spare.

4. Storage of Task I Liquids

Agreement was reached that provisions will be made in any new continuous Task I equipment so that the existing Task I vessels may be used if necessary for killing and for storage of Task I filtrate.

5. The Tri-Fluoride Precipitation Process

Recent developments at Hanford and at other sites on the tri-fluoride precipitation process prompted a short discussion on the relative merits of the tri-fluoride process and the oxalate process. The principal advantage of the tri-fluoride process is that it normally permits the filtrates to be thrown away. It was pointed out by the various members of Separations Technology that the iron and aluminum in the Redox feed and the concentrator products in the Purex feed prevents use of the tri-fluoride process at Hanford at this time. Some other disadvantages of this process include:

(a) Provisions must be made to neutralize, sample and occasionally re-process the filtrate from off standard batches.

(b) Reduction yields are lower

(c) Liquid HF is used instead of a gas

(d) More iodine is required in Task III

(e) Clean up of product is inferior to the oxalate process.

(f) Since a long-range objective is to throw away slag and crucible the tri-fluoride process does not appear feasible.

Separations Technology is now preparing a document that discusses this problem in more detail.

6. Evaporation of Task I Filtrate

C. J. Berglund reported the results of some tests which he performed in the 234-5 Building Development Laboratory on the evaporation of Task I filtrate.

[redacted]

The principal purpose of these tests was to determine the molarity of acid in the evaporator bottoms and to determine if any problem existed with precipitation of solids. At a concentration factor of eight and four, the molarity of acid was 5 and 4-1/2 respectively. No problem with solid precipitation was encountered; however some MnO_2 solids appeared above the liquid level on the heated surfaces. This MnO_2 was apparently formed by the action of nitric acid oxidizing manganous ion to MnO_2. Although it appears that the formation of this solid will not occur in the Recuplex type evaporator, Mr. Hopkins agreed to investigate this problem further in the laboratory.

E.O. Swain
Separations Design & Development
Design Section
ENGINEERING DEPARTMENT

EO Swain:vsc