LOCKET NO. 70-58

ISOTOPES
NUCLEAR SYSTEMS DIVISION
EASTERN BLVD AT MARTIN BLVD N. I.
P. O. BOX 4937
MIDDLE RIVER, MARYLAND 21220
(301) 682-5800 TWX (710) 239-9037

A TELEDYNE COMPANY

Refer to: 00768-02-07-69
PJK:1210-026

February 5, 1969

U. S. Atomic Energy Commission
Division of Nuclear Materials Safeguards
Washington, D. C. 20545

Attention: Mr. F. J. Miraglia

Subject: Fundamental Material Controls and Nuclear Materials Safeguards Procedures - SNM-53

Gentlemen:

Enclosed is the first portion of our Fundamental Material Controls and Nuclear Safeguards Procedures. The details of the process we wish to undertake are still being worked out and specific equipment is still being selected.

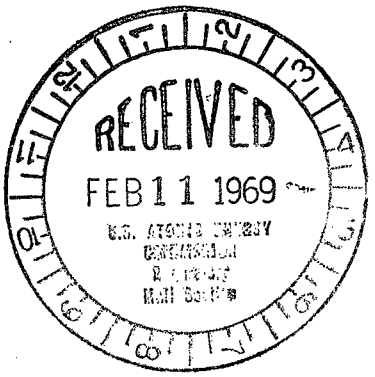
We expect to have the remainder of the procedures complete for submission to you by February 21.

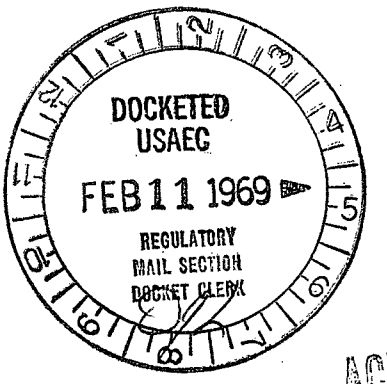
Sincerely yours,

Peter J. Knapp
Licensing and Accountability Representative

PJK:ls

Enclosure





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ACKNOWLEDGED

DOCKET NO. 70-58

FUNDAMENTAL CONTROLS AND NUCLEAR MATERIALS SAFEGUARDS PROCEDURES

A. FACILITY ORGANIZATION

1. a. The Nuclear Materials Management group reports to the General Manager. Its responsibilities include the following:

1) Coordination of Health Physics, criticality safety, licensing and accountability functions.

2) Establishment of accountability criteria

3) Control and inventory of all special nuclear material

4) Liaison with Government agencies concerned with permits, licensing and accountability

5) Evaluation of contractual requirements and costs connected with Health Physics Criticality Safety Licensing and Accountability

b. The Nuclear Materials Management function will be carried out by the Supervisor of nuclear materials management assisted by an accountant-custodian.

Responsibility for control of special nuclear material will be transferred to the Supervisor in charge of the operations involving the use of the material during such use. Upon completion of work involving the use of nuclear material, it will be returned to the vault.

Shipping and Receiving

Administrative control of shipping and receiving is vested in the Receiving Department. Upon receipt, a representative of Nuclear Materials Management will make a piece count, check labeling, gross weight containers, check against packing list and receiving documents and have the material transferred to the vault.

Sampling and Analysis

Sampling and analysis of the received material will be carried out by the Quality Control Department.

SNM Record Keeping

Records will be maintained by Nuclear Materials Management.

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DOCKET NO. 70-58

4 April 1969

Refer to: 00885-04-04-69
PJK:1210:032

Regulatory File Cy.

U. S. Atomic Energy Commission
Division of Materials Licensing
Source and Special Nuclear Materials Branch
Washington, D. C. 20545

Attention: Mr. Don Harmon

Subject: Request for Amendments to License SNM-53

Gentlemen:

We are in the process of preparing the Consolidated License Application referred to in your letter of February 27 and intend to submit it by June 30, 1969.

However, we have recently encountered the need to undertake the fabrication procedure described in the attachment to this letter. Therefore, Isotopes hereby requests an amendment to License SNM-53 to permit the use of 2500 grams of 95% enriched ceramic grade UO_2 in the fabrication of test fuel pins in accord with the attached procedures.

Criticality control will be exercised as follows:

1) Material will be located only in one of the three material balance areas specified in the attached procedures.

2) Material Balance Area I is the Vault designated as Vault B in information previously submitted and on the basis of which SNM-53 was issued. Material will be stored in this vault as specified in that information.

3) Material Balance Areas 2 and 3 are physically separated from each other and from Vault B by more than 13 feet.

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4) The flow of material will be controlled so that no more than 350 grams of U-235 will be present in either Material balance area 2 or Material balance area 3 at any one time. The responsibility of control will rest with a Material Balance Area Custodian.

All appropriate radiation safety procedures presently incorporated in the license will be followed.

Present plans call for work to begin April 16. We would appreciate any action you can take to expedite this application.

If you have any questions regarding this application please contact R. J. Brisson, the plant Health Physicist.

In view of 10 CFR 70.22(b) and the fact that we presently do not forsee the need to work with quantities in excess of 5000 grams of Special Nuclear Material, we request that the presently existing limit on the amount of material Isotopes can possess under SNM-53 be reduced to 5000 grams.

Sincerely yours,

James B. Walker for

Peter J. Knapp
Licensing & Accountability
Representative

PJK/plm

Attachment

PROCEDURE FOR THE FABRICATION OF TEST FUEL PINS

General:

UO_2 ceramic grade powder is to be pressed into busings in a modified pellet machine. The bushings are then sintered in a furnace. The bushings are then miked and loaded into stainless steel tubes which are welded shut.

Specific:

Process Step 1 (Receipt) - Upon receipt the Nuclear Materials Management Representative Clerk and the Health Physicist are notified. After Health Physics and criticality clearance the containers of powder are counted and the count is compared with the shipping documents. The Nuclear Materials Management Representative immediately transfers the containers to the vault (Material Balance Area 1) where the containers and container tops are clearly marked with identification numbers. Each sealed container is gross weighed and stored in a critically safe position. The representative records all information and posts one copy of the data in the vault and posts the data in the Materials Management ledger.

Process Step 2 - A critically safe quantity of material in unopened containers is signed out by the Nuclear Materials Management Representative and is transferred to the process hood (Material Balance Area 2, (MBA-2). The MBA-2 custodian signs the appropriate form, thus taking responsibility.

Inside the hood, a representative sample of the material is selected, divided and placed in a previously weighed container which is then re-weighed.

The remaining powder material is loaded into the hopper and pressed into bushings. The bushings are set in a covered tray.

Process Step 2 (continued)

The empty containers and tops are weighed and the weights obtained are subtracted from the gross weights determined in process Step 1.

Scrap produced during Process Step 2 and its disposition is as follows:

a) Dust collected on absolute filter in hood exhaust filter which was weighed prior to installation.

b) Scrap powder swept up after operation is replaced in original container which is decontaminated and returned to vault.

c) Rejected bushings replaced in original container return containers to vault.

d) Kimwipes - gloves etc. place in container which is decontaminated and return to vault.

All material taken from MBA-2 must be signed for and returned to MBA-1.

No further material may be brought into MBA-2 until all of the initial batch has been removed from it.

Some material remains in MBA-2 in the form of contamination on hood, equipment and tool surfaces.

Process Step 3 - The bushings in the covered tray are removed from MBA-2 and the covered tray is placed in a furnace (Material Balance Area 3, (MBA-3). The MBA-2 custodian transfers responsibility to the MBA-3 custodian. Both sign the appropriate form.

The bushings are sintered in the furnace.

Scrap produced during Process Step 3 and its disposition is as follows:

a) Dust or fumes from the baking are caught on a previously weighed absolute filter. At the end of the operation the filter is removed and weighed.

b) Contamination and substandard bushings remain in the covered tray.

Process Step 4 - The covered tray is removed from the furnace and is returned from MBA-3 to MBA-2. The appropriate records of transfer of responsibility are made. The cover is removed.

The bushings are taken out and miked.

Acceptable bushings are loaded into a previously weighed stainless steel tube. Previously weighed cap and bit of welding material are placed on the end of the tube and it is welded shut.

The rods are decontaminated, weighed and returned to MBA-1 with the appropriate signatures and transfer of responsibility.

Scrap produced during Process Step 4 and its disposition is as follows:

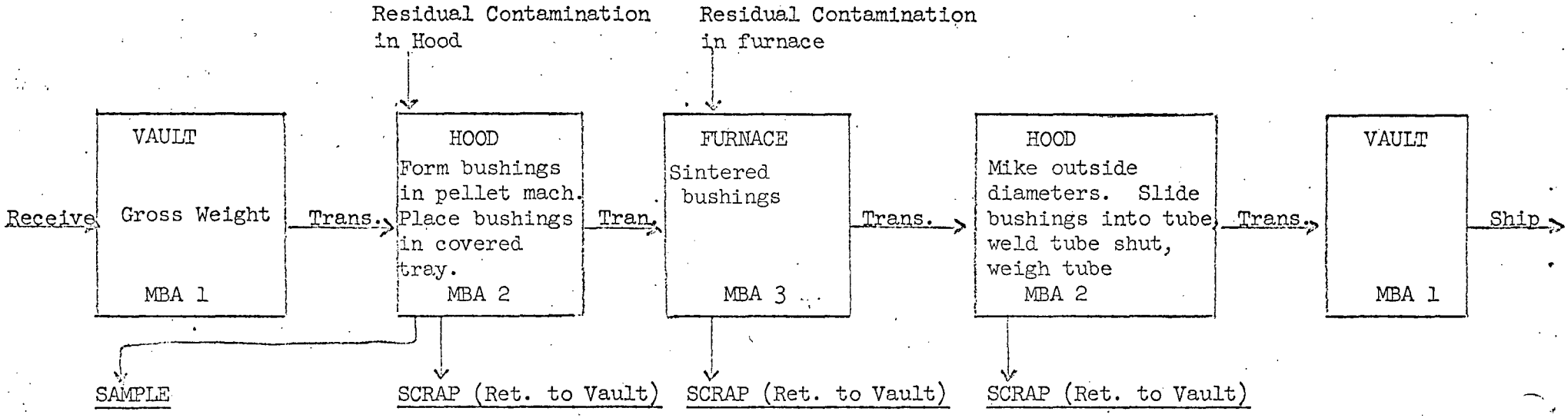
a) Substandard bushings and any residual powder in the tray are placed in the original container with the original top in place. The container is weighed, decontaminated and returned to the vault (MBA-1).

b) Kimwipes, gloves, tools etc. are placed in container which is decontaminated and returned to vault (MBA-1).

c) After end of the operation the hood filter is removed and weighed.

All material taken from MBA-2 must be signed for and returned to MBA-1.

Process Step 5 - The finished rods are packaged and stored in MBA-1 until they are shipped to the customer.



a) Chemical analysis
b) Isotopic analysis

a) Scrap powder
b) Dust on Filter
c) Kimwipes
d) Contaminated Equip.
e) Substandard bushings
f) Containers which originally held powder.

a) Dust on filter
b) Contamination on tray
c) Substandard bushings

a) Dust on filter
b) Contaminated Tools
c) Kimwipes etc.
d) Substandard bushings