

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY MIAMISBURG, OHIO

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U. S. GOVERNMENT CONTRACT NO. AT-35-1-GEN-53
September 26, 1966

AREA CODE 513
866-8311

MOUND LABORATORY MONSANTO
CENTRAL FILE NO. 66-9-453

Mr. N. H. MacKay
U. S. Atomic Energy Commission
Albuquerque Operations Office
P. O. Box 5400
Albuquerque, New Mexico 87115

Attention Mr. T. J. Schmierer

Dear Mr. MacKay:

Allotment A-43011-02-01 Loss (MUF Loss)

The information requested in your August 31, 1966, memorandum, subject as above, ANS:TJS (U-278), is presented below.

1. April, 1966

| | Element | Isotope |
|-------------------------------|---------|---------|
| Beginning Inventory | 2,901.1 | 2,319.2 |
| Total Receipts | -0- | -0- |
| Total Removals | -0- | -0- |
| AL, NOL, WO | -0- | -0- |
| Decay Loss | 1.5 | 1.5 |
| Book Balance, EOM | 2,899.6 | 2,317.7 |
| Ending Inventory | 2,899.5 | 2,317.7 |
| Material Unaccounted For, MUF | 0.1 | -0- |

May, 1966

| | | |
|-------------------------------|---------|---------|
| Beginning Inventory | 2,899.5 | 2,317.7 |
| Total Receipts | -0- | -0- |
| Total Removals | -0- | -0- |
| AL, NOL, WO | -0- | -0- |
| Decay Loss | 1.5 | 1.5 |
| Book Balance, EOM | 2,898.0 | 2,316.2 |
| Ending Inventory | 2,898.0 | 2,316.1 |
| Material Unaccounted For, MUF | -0- | 0.1 |

| | |
|---------------------------------|------------------------------------|
| MOUND DECLASSIFICATION REVIEW | |
| 1ST REVIEW DATE: <u>8/27/67</u> | DETERMINATION (CIRCLE NUMBER(S)) |
| AUTHORITY: <u>DAOC</u> | 1. CLASSIFICATION RETAINED |
| NAME: <u>MacKay</u> | 2. CLASSIFICATION CHANGED TO |
| 2ND REVIEW DATE: <u>5/1/68</u> | 3. CONTAINS NO DOE CLASSIFIED INFO |
| AUTHORITY: <u>MacKay</u> | 4. COORDINATE WITH: |
| NAME: <u>MacKay</u> | 5. CLASSIFICATION CANCELLED |
| | 6. CLASSIFIED INFO BRACKETED |
| | 7. OTHER (SPECIFY): |

GROUP 1

Excluded from automatic
downgrading and
declassification

~~SECRET~~

~~RESTRICTED DATA~~

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

June, 1966

| | | |
|-------------------------------|----------------|----------------|
| Beginning Inventory | 2,898.0 | 2,316.1 |
| Total Receipts | 2,094.0 | 1,672.0 |
| Total Removals | 234.9 | 188.0 |
| AL, NOL, WO | -0- | -0- |
| Decay Loss | 2.5 | 2.5 |
| Book Balance, EOM | <u>4,754.6</u> | <u>3,797.6</u> |
| Ending Inventory | <u>4,754.6</u> | <u>3,797.6</u> |
| Material Unaccounted For, MUF | <u>-0-</u> | <u>-0-</u> |

July, 1966

| | | |
|-------------------------------|----------------|----------------|
| Beginning Inventory | 4,754.6 | 3,797.6 |
| Total Receipts | 3,942.8 | 3,142.9 |
| Total Removals | 778.0 | 622.5 |
| AL, NOL, WO | -0- | -0- |
| Decay Loss | 4.2 | 4.2 |
| Book Balance, EOM | <u>7,915.2</u> | <u>6,313.8</u> |
| Ending Inventory | <u>6,422.3</u> | <u>5,126.9</u> |
| Material Unaccounted For, MUF | <u>1,492.9</u> | <u>1,186.9</u> |

2. A listing of the April 1, 1966, inventory and the SS weight are as follows:

April beginning inventory

| | |
|----------------|----------------|
| <u>Element</u> | <u>Isotope</u> |
| 2901.1 | 2319.2 |

by calorimetry values of ground material prepared in December, 1965.

Ending inventory

| | |
|--------|--------|
| 2899.5 | 2317.7 |
|--------|--------|

of which 2169.5 grams isotope is a calorimetry value with 148.2 grams estimated.

May beginning inventory

| | |
|--------|--------|
| 2899.5 | 2317.7 |
|--------|--------|

by calorimetry values of material made in December, 1965 estimation. During these two months, this material was brought into the system in SM-60 and processed and the remaining material removed as scrap for which values had not been obtained.

June beginning inventory

2898.0 2316.1

material brought into the room which have been prepared in December, 1965, using calorimetry measurements plus estimated values for May ending inventory.

Total receipts

2094.0 1672.0

calorimetry values into the room.

Total removals

234.9 188.0

These values were obtained by the gamma scan and calorimetry giving the end of the month of

4754.6 3797.6

of which 2230 grams was assayed by weight value and calorimetry and the remaining estimated from lack of gamma scan measurements and material which could not be accounted for.

July beginning inventory

4754.6 3797.6

measurements as described in June.

Total receipts

3942.8 3142.9

by calorimetry values.

Total removals

778.0 622.5

by gamma scan and calorimetry.

Ending inventory

6422.3

5126.9

Of this value 2500 grams by calorimetry and 2626.7 grams by weight, leaving the MUF value

1492.9

1186.9

as an MUF for which there is no measurement.

3. The reason that the MUF has been accumulated since April, 1966, and the books could not be balanced until July 31, 1966, is that the gamma values for the trash recovered from the hoods were not obtained until the month of July, 1966, and during May and June, we did not feel that it was appropriate to assign values to these categories until total values were obtained.

Material which goes into the hoods and is brought out of the hoods is assayed either by calorimetry or gamma scan as a method of assay. During the months of April, May, and part of June, the process was being developed and a large MUF arose during this period which probably will be found when the material is recovered.

4. MUF's are still arising in this area because of the methods of operation. Methods of product improvement, closer audit of the process, and a better bookkeeping system will decide the quantity of the MUF. A better bookkeeping system and process audit will point out the areas where the largest MUF's occur and steps can be taken to correct these as they arise. Equipment hold up is the largest contributor to the MUF. This equipment consists of large press, a grinder, screen systems and furnaces which cannot be removed easily from the box line.

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Mr. N. H. MacKay

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September 26, 1966

5. The approximate date which all residues in the July 31, 1966, inventory will be measured is before April, 1967. Equipment hold ups will be measured when the pieces of equipment are removed and sent to recovery which could be anywhere in the next two years. These pieces of equipment consist of a hydraulic press, several high temperature furnaces, a grinder, and a screen shaker system. Box residues cannot be totally measured until the hood lines are dismantled which might be well after the new SM-Building is in operation.

Please advise if you have any further questions regarding these losses.

Very truly yours,

M. N. Wolfe

M. N. Wolfe
SS Representative

MNW/bkg

- Distribution:
1. N. H. MacKay
 2. W. B. Creamer, attn. E. A. Walker
 3. W. B. Creamer, attn. E. A. Walker
 4. D. L. Scott
 5. L. B. Gnagey
 6. F. D. Lonadier
 7. M. N. Wolfe
 8. Central Files

~~SECRET~~