DEC 8 1965

Enclosure

Mr. William Alper, Manager
Contracts Department
Martin-Marietta Corporation
Internal Mail No. X839
Baltimore, Maryland 21215

Subject: NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS REVIEW
SURVEY NO. NY-229

Dear Mr. Alper:

We have completed our annual review of your practices and procedures for the control of SS materials. The AEC reviewers have concluded that Martin-Marietta does meet AEC requirements as found in Chapter 7402 of the AEC Manual.

They have noted that you have less than 1 kilogram of highly enriched uranium foils that show evidence of oxidation. In fact your own personnel advised against the opening of the storage desiccator due to the possibility of airborne contamination of the storage area. I conclude that the usefulness of these foils for further R&D is very limited and that these foils should be returned to AEC production channels as soon as possible. Therefore, you should prepare scrap declaration forms OR 658A, B, and C for these foils and send them to me so I can arrange for disposal through the Oak Ridge Office.

I appreciate the assistance and cooperation you and your staff have given to the NYO survey team.

Very truly yours,

Leonard Wasser, Chief
Development Contracts Branch II

A1229

ENCLOSURE 4

NY-229

/S. R. Sapirie, Manager, CR

NOV 2 3 1966

Wesley M. Johnson, Manager, NY

SURVEY OF LEASED SS MATERIAL AT MARTIN-MARIETTA COMPANY, LICENSE NO. SNM-53 (SURVEY NO. NY-229)

We have completed our review of the SS material records and controls maintained at the above facility in accordance with the principles outlined in Immediate Action Directive 7400-04. The field review was performed from October 24 through 26, 1966, in conjunction with a review of AEC contract material. The period covered was March 1, 1966 through October 31, 1966.

It was found that the Martin-Marietta Company's records and Material Status Reports through June 30, 1966 and the enclosed Interim Material Status Reports prepared by us for the four (4) month period ended 10/31/66 do reliably reflect the transactions for the period under review and their inventory position as of October 31, 1966. Included in the inventory was a partial shipment of 18 MH-1A type elements to Fort Belvoir, Virginia. The survey team was given a copy of a letter from Fort Belvoir acknowledging receipt of these elements. There was no form AEC 388 transfer document issued for this partial shipment. Martin-Marietta Company will issue a form AEC 388 for the entire shipment when the balance 18 fuel elements are shipped.

Enclosure:
Material Status Report SNM-53
Enriched U
Plutonium

cc: D. E. George, NMM, HQ. w/o enc.

NOV 2 9 1966

Wesley M. Johnson, Manager
THRU: W. H. Pennington, DM

J. Allentuck, Director, ET

MARTIN-MARIETTA COMPANY, NUCLEAR MATERIALS MANAGEMENT SURVEY NY-229

EN:HB

We have completed our annual review of Martin-Marietta Company, facility MML, as prescribed by the AEC Manual. Martin does not have active contract work for NYO. Their only inventory items consist of PM R&D fuel and less than 1 kilogram of highly enriched uranium foil held under Contract AT(30-1)-2706. This contract is in preliminary closeout.

We have concluded that they have met AEC standards for material control; that their physical inventory position as of October 31, 1966 is accurately stated; and that their Material Balance Reports to this office did accurately reflect the transactions for the period under review.

Our only problem with this contractor is in regard to disposition of the surplus fuel which is no longer required for NY Contract work. The storage agreement under which this material is held expired September 30, 1966. The Contract Administrator, Mr. L. Wasser, sent Martin preliminary instructions and forms for the return of the recovered SS material to AEC Production Channels. His letter, dated October 12, 1966, had not been answered and a follow-up letter was sent 11/21/66. We understand that Martin is preparing a proposal to the AEC whereby the fuel elements would be used. It seems to us that they do not wish to begin the disposition procedures until their proposal has been evaluated by HQ.

We have urged the contract administrator to expedite return of the uranium foils which can be returned directly to Oak Ridge. These foils have been in use at Martin for approximately eight years and give evidence of advanced oxidation. We question the usefulness of these foils for R&D work and believe their use might constitute a health hazard, through airborne contamination in handling.

A copy of our report is attached.

Enclosure:
Report No. NY-229

cc: D. E. George, NMM, HQ., w/enc.
L. Wasser, DCC:11, w/enc.

SURVEY OF NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS CONTROL - MARTIN-MARIETTA CORPORATION, FACILITY MBL, PERIOD MARCH 1, 1966 THROUGH OCTOBER 31, 1966

I. General Description of Operations

The Martin-Marietta Corporation has long been active in the design, fabrication, installation and early operation of small nuclear power plants to meet defense requirements, other than naval. Because the technology of these plants has been demonstrated, the Army Reactor Program has been reduced to a level which mainly provides support for the operating field plants. The Army Reactor program now represents a limited level of effort mainly in terrestial low power reactor programs.

For the review period, Martin-Marietta had SS material on hand for Contract AT(30-1)-2706, PM Research & Development. This contract is essentially inactive and the fabricated fuel elements were in storage. During the review period they also held material under the following contracts.

AT(30-1)-3566	Fabrication of SNAP 7E generator
AT(30-1)-3169	SNAP 10 Test Work

These SNAP contracts were essentially complete and did not have material on inventory during the field work of this review.

II. Scope of Survey

The review was made according to principles outlined in AEC Manual Chapter 7402-063 for material held under AEC contracts and IAD 7400-4 for material held under AEC lease. The review was performed by S. J. Braiden and H. Bartz during the period 10/24 through 10/26/66. NY Regional Compliance was extended an invitation to participate in this survey review, but because of other commitments, was unable to send a representative.

III. Opinion

It is our opinion that Martin-Marietta Corporation, facility MBL, did meet AEC standards for SS material control. Their inventory for October 31, 1966 was verified and found to agree with their records. The Material Balance Reports sent to the Commission did properly reflect the transactions for the period under review.

SS Nuclear Materials Inventory - October 31, 1966

	Grams Element	Grams Isotope
A. Facility MBL		
(1) Enriched Uranium - Over 75%		
NY-40501-03-02	98,696	91,980
B. AEC Lease - ZML - License No SNM 53		
Plutonium	159.94	148.78
Enriched Uranium	3,377,718.85	151,222.68

This material has a value of approximately $2,531,000.

IV. Recommendations

A. Prior Recommendations

None

B. Prior Suggestions

1. The formal summary record system already established at three material balance areas should be initiated at all other material balance areas.

2. This formal summary records system should be expanded to include all types of SS nuclear materials.

Action Taken:

The records were expanded to include all types of SS materials. Due to the limited activity at this facility, there was no opportunity or need to implement the record system at other material balance areas.

C. New Recommendations

None

D. New Suggestions

None

V. Discussion

A. Inventory Verification

The facility inventory held under Contract AT(30-1)-2706 consisted of fabricated fuel rods in storage and less then 1 kg of uranium foil. These fuel elements had been fabricated over a period of years beginning prior to 1958 when NYO first was assigned responsibility for this facility. Individual fuel element loadings had been established during this period and were further verified by review of fabricating data on the prior survey, NY-195. Inventory verification consisted of a visual inspection of all storage containers which were opened by MBL personnel at the request of the survey team. A 100% piece count was made of PM type fuel tubes (all types). A piece count and serial number identification was made on all fuel elements (including PM tube types) on a sample basis using MIL-STD 105D with an AQL of 1.5 and a table of random numbers. All items were readily located and these inventories were accepted.

The uranium foil was stored in a laboratory desiccator under inert gas atmosphere. These foils were partially oxidized. No facilities were available in the storage area for handling the oxidized foils or to replace the inert gas. This inventory was accepted without verification.

The leased material inventory consisted of low enrichment MH-1A fabricated fuel elements which were packaged and sealed for shipment to Fort Belvoir. The survey team accepted this inventory based on record data supplied by MBL and customer data supplied from Fort Belvoir. In addition to this material, Martin-Marietta had several kg enriched uranium for in house research and development. These inventories were verified by reviewing record data and making selected weighings for approximately 30% of the items. Several discrepancies were found in data on labels. These items were traced to book records and the book records were found to agree with physical inventory. It was concluded that these errors were due to carelessness on the part of technicians for these projects. All errors were corrected prior to departure of survey team members.

The survey team had been advised that Contract AT(30-1)-2706 for PM R&D was in closeout and that the fuel elements would probably be recovered through the Oak Ridge Commercial Recovery program. The foils could be returned directly to OR. Therefore, two fuel elements of the PM tube type and two fuel elements of the foil type were selected by the reviewers for complete dissolution and determination of uranium and U-235 by the New Brunswick Laboratory. These elements were selected and packaged in the presence of the team members and personally delivered to NBL. While the results of these assays would serve to confirm physical inventory data, this loading determination and assay by NBL is based on prior experience with AEC recovery contractors and in anticipation of possible future S/R differences. In other words, the primary AEC concern in obtaining loading data on these fuel elements is to forestall future disagreements on uranium content in recovery operation. The physical inventory for survey purposes has been accepted.

B. Losses and Loss Mechanism and MUF

No major work was in process during the review period. The only losses reported consisted of 4 grams of SS and 2 grams of U-235. This was due to adjusting Martin-Marietta Co. book records to agree with the physical inventory taken during NY survey 195 and reported in the succeeding MBR.

There was also 15 kilograms of classified depleted uranium sent to Savannah River Operations Office for burial. This write-off was approved by New York Operations Office (NY66-70).

C. Records, Reports and Internal Control

There was very little activity at this facility during the period under review. Most of the AEC contract material was inactive and is kept in a vault located in the critical facility. Martin Company was instructed to return the fuel elements to AEC production channel. However, Martin is preparing a proposal to the AEC whereby this material may be used. This proposal is delaying the return of the SS material to AEC.

Martin Company reports on their material status reports AEC 578 to Oak Ridge Leasing Office and includes in their accounting records 36 MH-1 fuel elements consisting of 3,303,750 grams of enriched uranium. However, of this amount, 18 fuel elements consisting of 1,652,856 grams of element material has been transferred to Fort Belvoir prior to the survey review.

The remaining 18 fuel elements or 1,605,894 grams of element has been packaged and are ready for shipment. There was no AEC transfer form 388 issued for the element sent to Fort Belvoir. A single transfer form AEC 388 will be issued for the entire 36 elements. This procedure is in accordance with Oak Ridge Leasing Office instructions.

It is the opinion of the survey team that records and control [illegible] Martin-Marietta Company are adequate and [illegible] requirements.

A J Braiden
S. J. Braiden, Team Leader

Nov 21 1966
Date

H. Bartz
H. Bartz, Chemical Engineer

November 21, 1966
Date