

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

IE Inspection Report No. 70-25/75-06 (IE-V-61)

RIS: LAL & ZAZ  
Docket No. 70-25

Licensee Atomics International  
Rockwell International  
8900 DeSoto Avenue

License No. SNM-21

Canoga Park, California 91304

Priority 1

Facility \_\_\_\_\_

Category 1

Location Canoga Park and Santa Susana, California

Type of Facility Fuel Fabrication and R&D

Type of Inspection Material Control and Accounting  
Routine, Unannounced

Dates of Inspection May 19-23, 1975

Dates of Previous Inspection January 13-17, 1975

Principal Inspector *Y. Kobori*  
Y. Kobori, Auditor

6/20/75  
Date

Accompanying Inspectors *B. L. Brock*  
B. L. Brock, Chemist

6/20/75  
Date

*G. H. Hamada*  
G. H. Hamada, Chemist/Statistician

6/20/75  
Date

Other Accompanying Personnel: None

Reviewed by *V. N. Rizzolo*  
V. N. Rizzolo, Chief, Materials and Plant  
Protection Branch

6/24/75  
Date

REPORT OF INSPECTION OF SAFEGUARDS  
CONTROL OF NUCLEAR MATERIALS

AT

ATOMICS INTERNATIONAL DIVISION  
OF  
ROCKWELL INTERNATIONAL  
CANOGA PARK, CALIFORNIA

A. INTRODUCTION

1. Inspection dates at Atomics International (AI) were May 19 and May 21-23, 1975. The prior inspection report was 7501 (IE-V-44) dated March 21, 1975.
2. The current inspection covered the period January 1 through April 30, 1975.
3. AI's operations include activities which are conducted in privately owned facilities as well as in government owned facilities. Activities include research and development (R&D) under cost-type contracts with the Energy Research and Development Administration (ERDA), commercial processing and fabrication activities under license.

AI is partially licensed and partially exempt from licensing. The facility consists of a headquarters operation in Canoga Park and a field operation in the Santa Susana mountains. At the Santa Susana site, buildings and equipment within a defined area the "triangle," are government owned. All activities with special nuclear material under ERDA contract and subcontract within the defined area are exempt from licensing requirements by the former AEC General Manager's order. These activities including compliance with health, safety and safeguards are under the administrative responsibility of ERDA's San Francisco Operations Office.

Some contract activities take place outside the triangle and are subject to license requirements. Work in the hot laboratory or the plutonium laboratory falls in this category.

Production capability includes metallurgical processing of uranium metal to produce various types of alloyed fuel for conventional reactors and space nuclear reactors. Some processing of plutonium oxide into carbide or nitride fuels is planned.

5. Enforcement Actions

Violations

None

Infractions

- a. Contrary to License Condition 1.1 and 1.2, Amendment MPP-1, and AI's letter commitment of December 20, 1974 (74AT-7691), AI has not completed development of new written procedures or revision of existing procedures to meet the regulatory requirements.
- b. Contrary to License Condition 1.4, Amendment MPP-1, not all material balance area custodians or alternate custodian assignments are supported by written delegations of authority from the Manager, Nuclear Materials Management (NMM).

Deficiency

Contrary to 10 CFR 70.51(e)(4)(i), AI did not calculate, for the material balance interval terminated by the February 27, 1975 inventory, the material unaccounted for (MUF) and its associated limit of error, related to the enriched uranium contained in materials in process, within the 30 calendar days as required.

Related to the above, and contrary to 10 CFR 70.51(e)(4)(ii), AI did not reconcile and adjust its book records of inventory to the results of the February 27, 1975 physical inventory within 30 calendar days as required.

These are considered a single item of noncompliance.

D. LICENSEE ACTION ON PREVIOUSLY IDENTIFIED ENFORCEMENT ITEMS

1. Previously reported that the licensee had not appropriately implemented the requirements of the license conditions under Section 1.0, "Facility Organization," Amendment MPP-1, relative to the following:
  - a. The development of nuclear material control procedures and necessary revision of certain existing procedures to reflect current regulatory requirements had not been completed.

This remains an unresolved item. The licensee is delinquent with respect to his commitment of December 20, 1974 for compliance in February 1975. This item has been upgraded to a new noncompliance infraction in this current report.

2. Previously reported that the licensee had not appropriately implemented the requirements of the license conditions under Section 3.0, "Measurements and Statistics," in respect to the following:

- a. An ongoing measurement control program had not been maintained.

(1) The gamma counting system for nondestructive assay of barreled waste materials for determination of contained SNM had not been calibrated against standards over the range of operations.

This item has been complied with.

- b. Estimates of random and systematic errors had not been determined for use in the determination of limits of error of material unaccounted for (LEMUF) for each material balance period.

While the question of the availability of written procedures still remains unresolved (see Section C-5), this item has been complied with in practice.

Random and systematic errors have been identified and are being accounted for in the determination of limits of error of material unaccounted for.

- c. Data generated under the measurement control program was not utilized to monitor and control measurement performance.

This item has been complied with.

Graphs have been constructed to provide a visual basis for assessing trends in the calibration data. Corrective actions are taken based on the magnitude of the deviations from the norm.

- d. Assurance had not been obtained from the contractor (off-site analytical laboratory) who performed material control and accounting measurements that such measurements were

made in conformance with applicable measurement control requirements of this section.

This item has been complied with.

Teledyne Isotopes, a contractor laboratory that provides mass spectrometric analysis service to AI, has provided data and procedures which show that it is in compliance with applicable requirements under Section 3.0, "Measurement and Statistics."

E. UNUSUAL OCCURRENCES

None

F. OTHER SIGNIFICANT FINDINGS

Current Findings

None

Status of Previously Reported Unresolved Items

None

G. MANAGEMENT INTERVIEW

The results of the inspection were discussed with Dr. M. E. Remley, Manager, Health, Safety & Radiation Services Department; and V. J. Schaubert, Manager, Nuclear Materials Management, at the conclusion of the inspection on May 23, 1975.

H. DETAILS

1. Persons Contacted

M. E. Remley, Manager, Health, Safety & Radiation Services  
V. J. Schaubert, Manager, Nuclear Materials Management  
D. C. Allen, Nuclear Materials Management Representative  
C. L. Nealy, Manager, Analytical Chemistry  
J. D. Moore, Operational Safety and Waste Management  
W. Jones, Custodian, EBR-II  
J. F. Lang, Custodian, Plutonium Laboratory  
V. A. Swanson, Custodian, L-77 and L-88  
E. Walsh, Custodian, Vault  
D. Espanoza, Nuclear Material Control Technician  
J. Dong, Statistician, Nuclear Materials Management  
S. J. Wode, Programmer  
D. Clark, Chemist, Plutonium Laboratory

2. Material Unaccounted for (MUF) and Measured Discards (MD)

The material balance summary for the period January 1, 1975 through April 30, 1975 was as follows:

<u>Enriched Uranium (&lt;20%)</u> <u>(1/1/75-4/30/75)</u>	<u>U gm</u>	<u>U-235 gm</u>
Beginning Inventory	7434	1419
Receipts	24	1
Shipments	-	-
MD	-	-
Ending Inventory	7458	1420
MUF	*	*
LEMUF	NA	NA

<u>Enriched Uranium (&gt;20%)</u> <u>(1/1/75-2/27/75)</u>	<u>U gm</u>	<u>U-235 gm</u>
Beginning Inventory	397,948	286,129
Receipts	248,046	165,193
Shipments	495	331
MD	-	-
Ending Inventory	645,288	450,703
MUF	211	288
LEMUF	535	406

<u>(2/28/75-4/30/75)</u>		
Beginning Inventory	645,288	450,703
Receipts	-	-
Shipments	9,179	6,129
MD	-	-
Ending Inventory	636,109	444,574
MUF	ND	ND
LEMUF	ND	ND

\*denotes less than a reportable unit  
 ND - not determined as of inspection date

<u>Plutonium</u>	<u>Pu gm</u>	<u>Pu-239 &amp; 241 gm</u>
<u>(1/1/75-2/27/75)</u>		
Beginning Inventory	857	760
Receipts	-	-
Shipments	-	-
MD	-	-
Ending Inventory	857	760
MUF	*	*
LEMUF	NA	NA
<u>(2/28/75-4/30/75)</u>		
Beginning Inventory	857	760
Receipts	-	-
Shipments	-	-
MD	-	-
Ending Inventory	857	760
MUF	ND	ND
LEMUF	ND	ND

\*denotes less than a reportable unit  
ND - not determined as of inspection date

The licensee's MUF for uranium enriched to less than 20% U-235 did not contribute significantly to the U or U-235 MUF for the total plant. The LEMUF is less than the de minimus limit of 10 CFR 70.51 (e)(5) (only four of the six months of the material balance period have passed). No action is required.

For uranium enriched to greater than 20% U-235, the LEMUF for element and isotope during the first material balance period met the requirements of 10 CFR 70.51(e)(5); the MUF was less than LEMUF. The MUF and LEMUF for the second material balance period were not determined as of the inspection date. No action was required under these conditions; however, the late computations resulted in a deficiency citation (see C.1.).

For plutonium, the in-process inventory for the first material balance period was small because of the startup stage of the operation. The MUF for the period was a 0.06 gram gain (element) and the LEMUF was not calculated at the time of the inspection. For the second material balance period, however, the licensee determined after the inspection, the MUF to be 4.5 grams Pu. The LEMUF was not determined pending the completion of sample analyses.

3. Discussion of Findings Relative to Conformance with Current License Conditions in Amendment MPP-1 and 10 CFR Part 70

a. Amended MPP License Conditions

1.0 Facility Organization

1.1 and 1.2

These license conditions require in part that the Manager, Nuclear Materials Management shall develop, revise, implement, and enforce the nuclear material control procedures and maintain a manual containing all current NMM control procedures.

The development of new nuclear material control procedures and revision of existing procedures to meet current regulatory requirements is still incomplete. The licensee is delinquent with respect to his commitment to issue the required new procedures in February 1975. Adequate procedures on the subjects, for example, of measurements and statistics are not yet available. None of the existing procedures from earlier years have been revised or updated to meet current requirements.

Since the prior inspection, three procedures (Plutonium receipt; tamper safing-seal use; security for support laboratories) have been prepared and approved by Management.

In recent months, AI has directed its efforts to development of a Fundamental Material Control (FMC) manual. All presently written procedures are in rough draft form, subject to further revision and with no indication of interim approval by any level of management.

The preamble to the proposed FMC manual indicates that the manual is intended to identify the administrative plan for nuclear materials management and would provide format and control of inter-organizational documentation and organizational interface requirements. It would also provide for a management system which would assure adequate methods for compliance



with regulatory requirements and establish a management audit and review system. A sub-tier procedure or instruction is intended to provide the detailed direction.

1.3

No review was made of this license condition

1.4

This license condition requires that all delegations of safeguards responsibilities by the Manager, NMM, shall be in writing.

The licensee has again lapsed into noncompliance for failure to keep its written delegations of authority for safeguards responsibilities current with safeguards assignments. AI periodically distributes internally an MBA listing which identifies each MBA, its custodian and alternate custodian. A comparison of the April 1, 1975 MBA listing with the delegations file revealed inconsistencies between the two sources on certain alternate custodian assignments and a single case of a custodian assignment. Two of the listed alternate custodians were already signing documentation without a delegation of authority. In the case of two other individuals, they had been relieved of custodian assignments with particular MBA's but the delegations had not been withdrawn.

2.0 Facility Operation

2.1

Three additional material balance areas were established by the Manager, NMM in anticipation of fabrication operations involving Advanced Test Reactor (ATR) fuel assemblies.

2.2 and 2.3

Sufficient numbers of MBA's have been established to meet present regulatory requirements.

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## 2.4

All operations within an MBA are the responsibility of a single employee. However, three individuals are presently serving as custodians in a total of seven MBA's where operations between MBA's are closely related.

## 2.5

The licensee's MBA structure facilitates material control and accounting by the three separate "plants" as required by the license condition.

## 3.0 Measurements and Statistical Controls

The licensee was determined to be in compliance with the following license conditions, 3.1, 3.2.2, 3.2.3, 3.3, 3.4, 3.5, 3.7 and 3.8.

License condition 3.2.1 requires that all measurement systems be calibrated against standards over the range of operation. During a prior inspection, the licensee was found not to be in full compliance with this condition. The licensee corrected this deficiency by fabricating additional standards which extended the range of the calibration to cover the range of operation. Subsequent to this, a single waste drum was found to contain SNM beyond the range of calibration. In an effort to conform with 3.2.1, the contents of the drum were split into approximately equal portions by mass and each fraction recounted. Because of the non-homogeneous nature of the waste material, the SNM content of the dominant fraction was still in excess of the calibration range. Since another splitting of the larger fraction would not necessarily assure that the SNM content of both fractions would be brought to the desired range, the licensee indicated that they would attack this problem by further extending the calibration to cover this particular situation. This item is unresolved as of this inspection, and will be given due consideration at the next inspection.

## 4.0 Shipping and Receiving

The licensee adequately evaluates shipper-receiver differences as required in license condition 4.1. Additionally, the licensee's sampling of a receipt was observed and was found to be carried out in compliance with the material control and accounting plan.

5.0 Storage and Internal Transfers

5.1

The licensee has maintained a documented system of control over SNM stored and processed within his MBA's. Perpetual inventory records are maintained for SNM in vault storage. In-process SNM identification and location are maintained in production records. Inventory records are reconciled to the results of physical inventories.

5.2

All transfers of SNM between MBA's were determined to be properly documented as required by the license condition and internal procedures.

The licensee's system of control for the distribution and accounting of all transfer documents was determined adequate, but it was suggested that the internal material transfer (MT) document control log (for used MT's) be posted more currently. A small number of MT's which originally could not be located by the inspector were satisfactorily accounted for.

5.3

MT's were reviewed by random sampling plan. Signatures on all examined MT's were checked against the list of authorized MBA custodians and the "delegation of authority." Supplementing the data presented in 1.4 above, the random sample of 56 MT's from an estimated population of 387 MT's revealed that in seven instances MT's had been issued or received by assigned alternate custodians who had not yet received duly authorized delegations of authority. A receiving signature was found missing on a single MT. Subsequent tracing to other documentation revealed the transaction to be valid and properly recorded.

6.0 Inventory

6.1 and 6.2

The licensee's physical inventory practices could not be evaluated because the inspection occurred between physical inventories. It was noted, however, that new seals were in use and that NDA measurements of

waste drums were now being made in a timely manner and with improved equipment calibration.

6.3

No exemptions or exceptions to 10 CFR 70 were granted to the licensee.

6.4

No review was made of this license condition requiring verification of the completeness of the physical inventory.

6.5

The Manager, NMM reviews the MUF and LEMUF calculations and does not participate in the original calculations.

7.0 Records and Reports

7.1

- (a) The licensee's central nuclear material accounting record system remains unchanged from the system in use at the prior inspection and continues to satisfy regulatory requirements. Improvements to the system are planned, but the licensee is presently unable to forecast a completion date.

All transactions reviewed were found to be supported by documentation.

- (b) The licensee reconciles internal MBA records and central accounting records on a bi-monthly basis to coincide with the frequency for physical inventories. The licensee was delinquent in completing his reconciliation for the physical inventory of February 27, 1975 until April 26, 1975. (The final subsidiary ledger printout reflecting the adjustments and the results of the physical inventory was prepared on April 26, 1975).

7.2

No review was made of this license condition.

7.3

Licensee reports to Region V office of measured discards and MUF have been satisfactory.

7.4

The licensee utilizes the Form AEC-284 appropriately in acknowledging receipts of nuclear materials.

8.0 Management of Materials Control Systems

8.1

The licensee did conduct an independent annual management review of the nuclear material control procedures and the management of the overall system of special nuclear material control. Additionally, correction of weaknesses identified in the prior management review were checked.

8.2

No review was made of this license condition.

8.3

There was no loss of a discrete item or container of SNM reportable under this license condition.

b. Title 10, Code of Federal Regulations

Part 70

(1) 70.41 "Authorized Use of SNM"

Atomics International has confined its possession and uses of SNM to locations and purposes authorized by its license and as required by paragraph 70.41.

(2) 70.42 "Transfer of Special Nuclear Material"

All transfers of SNM have been to authorized receivers in accordance with paragraph 70.42.

All transfers of one gram U-235 or greater were made to license exempt ERDA facilities.

(3) 70.51 "Material Balance, Inventory and Records Requirements"

(a) 70.51 (b)

This paragraph requires that a licensee shall keep records showing the receipt, inventory, disposal, acquisition, import, export and transfer of all SNM, etc.

The licensee has maintained records satisfying this requirement.

(b) 70.51 (c)

This paragraph requires that the licensee shall establish, maintain and follow written material control and accounting procedures which are sufficient to enable the licensee to account for the SNM in his possession.

As noted above in paragraph H.,3.,a.,1.0, the development of new nuclear material control procedures and revision of existing procedures to meet current regulatory requirements is incomplete. The licensee was found in noncompliance with license conditions 1.1-1.2.

(c) 70.51 (e)(1)(i)

The licensee's tamper safing practices were adequate and he was now using and controlling his new supply of tamper safing seals. His tamper safing procedure however could be improved by addressing tamper safing seal inspection.

(d) 70.51 (3)(1)(ii) and (iii)

This paragraph requires that a licensee shall maintain records of SNM added to or removed from process and inventories for quantities of SNM in process.

The licensee has established records satisfying all of these requirements. In addition, the licensee maintains records of unopened receipts and ultimate products.

(e) 70.51 (e)(4)(i)

This paragraph requires that a licensee calculate for each required inventory interval terminated by a physical inventory, the MUF and LEMUF related to the enriched uranium contained in materials in process, within 30 days. It also requires that the inventory be reconciled and the book record be adjusted to the results of the physical inventory within 30 days.

Contrary to those requirements the licensee was delinquent in completing the required actions as related to its February 27, 1975 physical inventory. Representation of the inventory based on measured values and adjustment of books to physical were not completed until April 26, 1975, or in excess of 30 days.

(f) 70.51 (f)(3)(i)

This paragraph requires that the licensee establish inventory procedures for SNM in process that provide for measurement of all quantities not previously measured by the licensee for element and fissile isotope.

No items of noncompliance were identified during this inspection.

(4) 70.53 "Material Status Reports"

(a) 70.53 (a)

There were no material status reports required during the inspection period.

(b) 70.53 (b) 1 and 2

Special reporting requirements related to excessive MUF or LEMUF were not applicable to the licensee during this inspection period. The licensees MUF and LEMUF for enriched uranium were within prescribed limits.

(5) 70.54 "Nuclear Material Transfer Report"

This paragraph establishes criteria applicable to uses of the Form AEC-741 for receipts and shipments of SNM.

The licensee was in compliance with requirements for the inspection period.