

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

Region V

Report No. 70-25/80-05
Docket No. 70-25 License No. SNM-21 Safeguards Group 1
Licensee: Energy Systems Group
Rockwell International
8900 De Soto Avenue
Canoga Park, California 91304

Facility Name: Energy Systems Group
Inspection at: De Soto Facility
Inspection Conducted: March 3-7, 1980
Date of Last Material Control and Accounting Inspection Visit: February 12-15, 1980
Type of Inspection: Material Control and Accounting

Inspectors: G. Hamada April 2, 1980
G. Hamada, Statistician/Chemist / Date Signed
Y. Kobori April 2, 1980
Y. Kobori, Auditor / Date Signed

Date Signed

Approved by: E. R. Norderhaug April 2, 1980
E. R. Norderhaug, Chief, Safeguards Branch / Date Signed

Inspection Summary:

Areas Inspected: Measurement Controls, Shipping and Receiving, Storage and Internal Control, Physical Inventory, ID and Associated LEID, Records and Reports, and Management of Materials Control System.

The inspection involved 68 inspector-hours onsite by two NRC inspectors and was begun during the regular hours.

Results: The licensee was found to be in compliance with NRC requirements in the areas examined during the inspection.

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REPORT DETAILS

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1. Key Persons Contacted

- *M. Remley, Manager, Health, Safety and Radiation Services
- J. Kim, Measurements Control Coordinator, Statistician
- J. Moore, Operational Safety and Waste Management
- C. Nealy, Manager, Analytical Chemistry
- *V. Schaubert, Manager, Nuclear Materials Management
- S. Wode, Management Systems Specialist

*Denotes those present at the exit interview.

2. Licensee Action on Previous Inspection Findings

There were no items of noncompliance noted on the previous inspection.
(Report 80-0)

3. Exit Interview

Inspection findings were discussed with licensee personnel identified in Paragraph 1.

4. Unresolved Items

None

5. Independent Inspection Effort

The small but persistent inventory difference (ID) in the ATR fuel fabrication process remains unresolved. The recently conducted test for analytical measurement bias proved negative, indicating that analytical measurement was not the primary source of the discrepancy. Although the evidence, in general, indicates that systematic sampling effects are not significant, there are other considerations which indicate that small systematic sampling effects could occur. The material, UA1x powder, is not perfectly homogeneous. The sampling error is large relative to the analytical error.

It is probable that no single factor is responsible for the ID; rather, it appears that a combination of several small effects could be the cause of the ID. The strategy for investigating those areas which might be contributing to the ID problem include the following:

- (1) UA1x powder sampling and analysis - A different sampling method (third method) is being considered using a scoop instead of a thief sampler. Also, a larger subsample than currently being taken will be used for analysis.

- (2) Up till now the exhaust duct system has been surveyed periodically only to demonstrate that the SNM content in the ducts remained negligibly small. The current plan is to perform a more rigorous measurement of the duct system in an attempt to better quantify the total SNM in the ducts.
- (3) Most solid waste categories are subject to large measurement uncertainties and are also susceptible to systematic errors. The diversity of waste materials and the diverse distribution patterns of SNM in such materials make accurate calibrations difficult to achieve. Recognizing these pitfalls, a plan is being considered to reverify the validity of the current calibration curve through spiking experiments. The spiking experiment will involve several waste barrels spiked with various levels of SNM for measurement with the existing waste barrel measurement system using the existing calibration curve. The results of this experiment will determine whether or not other actions need to be considered.

No items of noncompliance were identified.

6. MC 85206B - Measurement Controls

A particle size experiment was recently conducted to determine if earlier results indicating particle size effects were still true, and whether the distribution and magnitude of these effects remained relatively the same. A batch of acceptable UA1x powder was screened into 7 fractions and each fraction analyzed separately. The results appear to show a particle size effect with the coarsest and finest fractions indicating uranium concentrations significantly lower than the middle fractions. This is somewhat different from earlier results which indicated that the "fines" fraction contained the highest concentration of uranium. On the other hand, all results have indicated a lower concentration of uranium in the "coarse" fraction. Despite the variation in the "fines" data, it seems clear that powder may not be entirely homogeneous with respect to the uranium content. The effect of this inhomogeneity is under continuing investigation.

No items of noncompliance were identified.

7. MC 85208B - Shipping and Receiving

Nuclear Materials Transaction Reports (NRC-741) for receipts and shipments of special nuclear material (SNM) during the period November 7, 1979 through February 29, 1980 were examined for assurance that:

- a. All SNM received or shipped was accurately accounted for.
- b. Each such receipt and shipment was appropriately measured.

Physical inventories were conducted at required frequencies specified in Commission regulations. The last three inventories were conducted on November 7, 1979, January 3, 1980 and March 7, 1980.

No items of noncompliance were identified.

10. MC 85214B - ID and Associated LEID

Both the limit of error on the inventory difference (LEID) and the inventory difference (ID) have been within regulatory limits. On the other hand, more often than not the ID has exceeded its associated LEID. Actions described in paragraphs 5 and 6 are a consequence of this anomaly.

No items of noncompliance were identified.

11. MC 85216B - Records and Reports

Records and supporting documentation applicable to the period November 7, 1979 through February 29, 1980 were reviewed to confirm that the Energy Systems Group (ESG) continues to maintain a records and report system which provides accurate information sufficient to locate all SNM in its possession, and to close a material balance as specified by the regulations and the quantities in its possession do not exceed its authorized possession or are being used for unauthorized purposes or operations.

In the course of the review, the inspector determined that:

- a. The record system in place is in accordance with ESG's material control and accounting procedures. However, the manually posted "control" ledger was not yet completely posted to the physical inventory date. It was expected to be posted to date on March 8, 1980. The EDP ledger was posted currently and weekly computer print-outs were available for audit.
- b. Possession and uses of SNM have been confined to authorized amounts and purposes.
- c. Ledger entry transactions are supported by adequate documentation for both the manual and EDP ledgers. The EDP ledgers provide accounting records for MBA's and Item Control Areas (ICA's).
- d. Transfers of SNM have been restricted to authorized recipients as specified in 10 CFR 70.42.
- e. Material Transaction Reports have been filed in accordance with 10 CFR 70.54 and printed instructions for completing the Form NRC-741.



~~MATERIAL TRANSMITTED HEREWITH CONTAINS
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

AUG 12 1980

Docket No. 70-25

Energy Systems Group
Rockwell International
8900 De Soto Avenue
Canoga Park, California 91304

Attention: Mr. R. G. Jones
Vice President and Controller

Gentlemen:

Subject: NRC Inspection of Energy Systems Group

This refers to the safeguards inspection conducted by Messers. B. Brock, Y. Kobori, A. Wieder and Ms. S. Rowinski of this office on June 16-20, 1980 of activities authorized under NRC License No. SNM-21. It also refers to the discussion of our inspection findings with members of the staff at the conclusion of the inspection.

The areas examined during the inspection included your program for controlling and accounting for special nuclear material pursuant to applicable provisions of Part 70, Title 10, Code of Federal Regulations, and specific requirements of NRC License No. SNM-21. Within these areas, the inspection consisted of selective examinations of procedures and records, interviews with plant personnel and observations by the inspector.

No items of noncompliance with NRC requirements were identified within the scope of this inspection.

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Energy Systems Group

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In accordance with Section 2.790(d) of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, documentation of findings of your control and accounting procedures for safeguarding special nuclear materials are exempt from disclosure; therefore, the inspection report will not be placed in the Public Document Room and will receive limited distribution.

Sincerely,



L. R. Norderhaug, Chief
Safeguards Branch

Enclosure:
IE Inspection Report No. 70-25/80-06 (IE-V-393)