

The information on this page is considered to be appropriate for public disclosure pursuant to 10 CFR 2.790.

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
MATERIAL TRANSFERRED WITH CONTAINERS

JE-I-67

Region V

Report No. 70-25/79-09
Docket No. 70-25 License No. SNM-21 Safeguards Group 1
Licensee: Energy Systems Group (ESG)
Rockwell International
8900 De Soto Avenue
Canoga Park, California 91304

Facility Name: _____
Inspection at: Canoga Park, California
Inspection Conducted: November 5-16, 1979
Date of Last Inspection Visit: September 20-21, 1979
Type of Inspection: Announced - Material Control and Accounting

Inspectors: G. Hamada 12/20/79
G. Hamada, Statistician/Chemist Date Signed
B. Brock 12/20/79
B. Brock, Chemist Date Signed
Y. Kobori 12/20/79
Y. Kobori, Auditor Date Signed
A. Wieder 12/20/79
A. Wieder, Auditor Date Signed
Approved by: E. R. Norderhaug 12/20/79
E. R. Norderhaug, Chief, Safeguards Branch Date Signed

Inspection Summary:

Areas Inspected: Shipping and Receiving, Storage and Internal Controls, Physical Inventory, Records and Reports and Inventory Verification.

The inspection involved 282 inspector-hours onsite by four 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.

MATERIAL TRANSFERRED WITH CONTAINERS

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DETAILS

A. Key Persons Contacted

- *R. Remley, Manager, Health, Safety and Radiation Services
- *V. Schaubert, Manager, Nuclear Materials Management

The inspectors also talked with and interviewed several licensee employees including members of the material control unit, technical and engineering staff and general personnel.

*Denotes those attending the exit interview in addition to R. G. Jones, Vice President and Controller.

B. Action on Previous Inspection Findings

There were no items of noncompliance noted on the previous inspection. (Report No. 70-25/79-08 (IE-V-339))

C. Functional Areas Inspected

1. Shipping and Receiving (85208B)

No items of noncompliance were noted.

The licensee's Nuclear Material Transaction Reports (NRC-741) for shipments and receipts of special nuclear material during the period June 1, 1979 through November 6, 1979 were examined to assure that:

- a. All special nuclear material received or shipped was accurately accounted for,
- b. Each such transaction was appropriately measured, and
- c. All apparent shipper-receiver differences were reviewed and evaluated.

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

- a. All receipts and shipments were made from the De Soto Vault at the Canoga Park site or the Hot Laboratory material balance area at Santa Susana site.
- b. All receipts of nuclear material at the licensee's site are confirmed within 24 hours by an established system of checks and measurements.

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- c. Incoming material transfer documents (Form NRC-741) are receipted and returned to the shipper within ten days, or where receipt measurements could not be completed and reported within ten days of the receipt of material, the licensee used Form NRC-284, "Nuclear Material Transfer Receipt," and completed and reported his measurements on the original Form NRC-741 within 30 days after receipt of each shipment.
- d. The licensee for all SNM shipped from his site, records all necessary and pertinent information relative to the shipment, and reports this information to his central accounting office at the completion of the shipment. Certain deficiencies observed by the inspector with regard to the completeness of the recorded data on the shipping/receiving report were identified to the licensee.
- e. A material transfer document (Form NRC-741) is prepared and mailed on the day of the shipment, and that the correct quantitative data, determined through measurement and calculation, is utilized on the material transfer form.
- f. The licensee monitors and evaluates all Shipments and Receipts (S/R's), in particular ESG:
 - (1) Assures identification and measurement of SNM received and shipped.
 - (2) Reviews and evaluates all S/R's on an individual container or lot basis, as appropriate, on a shipment basis, and on a cumulative basis for shipments of like type material;
 - (3) Appropriately investigates and takes corrective action to reconcile shipper-receiver differences that were statistically significant at the 95% confidence level. There were no statistically significant S/R's during the inspection period.
 - (4) Records of S/R evaluations, investigations and corrective actions maintained on file at the facility for a minimum of five years.

2. Storage and Internal Controls (85210B)

No items of noncompliance were noted.

The inspection verified that the licensee continues to maintain a system of storage and internal controls for special nuclear material which provides for current knowledge of quantities, identity, and location of all SNM within its facility.

Internal transfer documents used during June 1, 1979 through November 6th were randomly sampled and traced to books of record.

The inspection also included a review of the licensee's controls over the distribution and use of the internal transfer documents and tamper-safing devices.

During the course of the inspection, the inspector determined that:

- a. Current inventory records are maintained for in-process and storage showing the identity, quantity, and location of all items containing SNM, and the source and disposition records of all such items.
- b. Perpetual inventory records are reconciled with physical inventory results on an item or container basis.
- c. Source and disposition records are maintained for a minimum of five (5) years.
- d. Controls are maintained over the distribution and use of internal transfer documents.
- e. The movement of SNM between material balance areas and/or item control areas is controlled and documented and all documents accounted for.
- f. Internal documents are signed by authorized personnel.
- g. Procedures are maintained for tamper-safing containers or vaults containing SNM not in process, which include control of access to the devices and records of the date and time of application of each device to a container or a vault, that the devices are available only to delegated individuals, and there is documented evidence that the devices were applied on a timely basis to ensure the integrity of previous measurements.
- h. Procedures have been established, are being maintained and followed for SNM scrap control, to limit the accumulation and the uncertainty of measurement of these materials on inventory.

The procedure should include (1) the identification and classification of SNM scrap, and (2) the provision for regular processing and recovery of SNM scrap so that no item of such scrap generated in the licensee's plant measured with an uncertainty of greater than $\pm 10\%$ remains on inventory longer than six months when such scrap contains plutonium, U-233, or uranium enriched to 20% or greater in the isotope U-235; or 12 months when such scrap contains uranium enriched to less than 20% in U-235, or plutonium containing 80% or more Pu-238 weight percent.

- i. Procedures are established and provide for a control system to document the movement of material between MBA's and/or ICA's and to distribute and account for the documents used.
- j. Provision is made for the auditing of internal transfers against MBA and/or ICA logs.
- k. A complete and accurate record is maintained of the location, identification, and SNM content of all SNM received and stored.
- l. The licensee has established a five-year retention time for records of material balance evaluations, including summaries of material in-process, additions to material in-process, unopened receipts, material maintained under tamper-safing and sealed sources.

No items of noncompliance or deviations were identified.

3. Physical Inventory (85212B)

No items of noncompliance were noted.

The licensee's program for accounting for SNM and conducting of physical inventories was evaluated to assure that the licensee's program is capable of detecting losses or diversion of SNM in accordance with his approved FNMC and the regulations.

In the course of this evaluation, the inspector determined that:

- a. The licensee has established and followed adequately written inventory procedures in accordance with approved physical inventory plans; that the procedures specify the usual inventory frequency and describe conditions which would require a special physical inventory.

- b. The licensee has conducted physical inventories at required frequencies specified in Commission regulations and/or license conditions.
- c. The book inventory has been reconciled with and adjusted to the results of the physical inventory within 30 days of the start of the physical inventory.
- d. The licensee measures the element and isotopic content of all SNM on inventory which had not been measured previously by the licensee and whose content of element and fissile isotope has not been assured by tamper-safing during the material balance period.
- e. Licensee criteria are established and followed for accepting previously made measurements and for requiring new measurements for inventory purposes.
- f. Licensee procedures are established and followed to assure that each item is listed at inventory time with no duplications and that perpetual inventory records are up-dated and that book records are reconciled with and adjusted to the results of the physical inventory.
- g. The licensee verifies the integrity of the tamper-safing device in place and the container itself during the inventory, and checks the seal identification to the container number.

No items of noncompliance or deviations were identified.

4. Records and Reports (85216B)

No items of noncompliance were noted.

Records, reports and other documentation applicable to the period of June 1, 1979 to November 6, 1979 were reviewed to determine that; (1) the licensee 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 license conditions, and (2) the quantities of SNM in the licensee's possession are not being used for unauthorized purposes.

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

- a. Material control and accounting procedures describe the records system established to enable the licensee to account for the SNM in his possession and specify the required reports.
- b. Has confined his possession and use of SNM to the location and purposes authorized by his license.
- c. Central plant control records are supported by transaction reports or journal entries, properly authorized, including detailed supporting documentation.
- d. Has maintained subsidiary accounting records for each MBA and internal control area and all entries are supported by adequate documentation.
- e. Has restricted all transfers of SNM to authorized recipients as specified in 10 CFR 70.42.
- f. Has filed Material Status Reports (Form NRC-742) as required by 10 CFR 70.53 which accurately reflect the licensee's activity, and which have been signed by a corporate officer.
- g. Material Transaction Reports have been filed in accordance with 10 CFR 70.54 and the special instructions for completing Nuclear Material Transfer Form NRC-741.
- h. Has reconciled its subsidiary records (MBA and/or ICA) to control records (Central Plant Control Records) at the end of each accounting period.
- i. Procedures for the reconciliation of control and subsidiary records to the results of the required physical inventories taken pursuant to 10 CFR 70.51 have been implemented.
- j. Has properly identified and documented all inventory differences (ID) and measured discards (MD). All ID's have been reported to NRC Region V as required. All MD's were reported to the DOE/NRC Nuclear Materials Management and Safeguards System (NMMSS), Oak Ridge, although 2 minor MD transactions were overlooked in the licensee's reports to Region V.
- k. Has established and is maintaining a five-year retention program for records of material balance evaluations including summaries of material in-process, additions to material in-process, unopened receipts, associated LE for ID, material maintained under tamper-safing, and sealed sources.

- l. SNM inventory reports are prepared and submitted as required and that they accurately reflect the licensee's activity for the reporting period, with a minor exception for the period ended September 6, 1979. Receipts and shipments for that period involving the De Soto operation were discovered to be overstated by amounts relating to "project-to-project" transfers.
- m. Book inventory has been reconciled with and adjusted to the results of the physical inventory within 30 days of the start of the physical inventory.

5. Inventory Verification

Inventory Verification Plan

In developing the inventory verification plan, certain criteria and goals, as well as constraints, needed to be considered. It was intended that this effort would take no more than two weeks to complete. Since the only NDA (nondestructive assay) equipment possessed by Region 5 is the SAM 2 (stabilized assay meter), this device would be used to the extent practicable for attribute testing. While the goal quantity of 5 kg. U-235 was the desired target, it was recognized that this quantity might need to be changed as circumstances dictated. In addition, it was expected that the licensee's NDA equipment, in particular the fuel plate assay system and the waste barrel scan system, would also be used for attribute testing. Also, if circumstances permitted, some samples would be obtained.

Rationale and Details

Inventory verification in its simplest form is piece count verification; i.e., each item, be it a fuel plate, can of powder or a container of raw stock, is verified by accounting for its presence through its seal number or some other unique identification. A higher level of verification involves weight verification for those items amenable to such a procedure. The next level would involve verification of the uranium content of the item and ultimately the verification of the U-235 content. Within each level, the sensitivity and precision of the measurement can vary.

For the current inventory verification effort the following procedures were followed.

- (1) As a minimum, each item in each of the major material balance areas (MBA) was verified as an item through its tamper-safing

seal number, serial number or other unique identification number. This was accomplished by having an NRC inspector accompany each of the inventory teams assigned to these areas and closely observe and verify each item by identification number. The MBA's covered included the storage vault and raw stock processing MBA (MBA-1), the powder preparation and processing MBA (MBA-12), the compact processing MBA (MBA-40), the plate rolling and assembly MBA (MBA-13), and the chemistry laboratory (MBA-20).

The inventories for both the Metallurgy Laboratory (MBA-10) and OA Laboratory (MBA-8) were not verified because of the small quantities of SNM involved. The combined quantity of U-235 for both MBAs totaled less than 320 gms.

No verification was performed at the Santa Susana site. It might be noted, however, that the only material of any consequence consisted of 31 gms. U-235 and 16 gms. Pu contained in standards in MBA-66, and one spent fuel test element in the hot cell (MBA-54).

- (2) Because of the nature of the material in MBA-12, where a single container of powder can contain 5 kg. or more of U-235, every item was reweighed as a check against its assigned weight and also measured with the SAM-2. In addition, selected samples of powder were obtained for analysis by NBL. Since the use of the SAM-2 involves measurement of the relatively soft 186 Kev gamma rays resulting from U-235 decay, the measurement of dense material like Uranium-Aluminum alloy (UAL) powder in the quantities normally present amounts to measuring only a thin layer of the powder immediately adjacent to the detector. For example, the count rate for a can containing 890 gms U-235 equivalent of powder was about the same as for a can containing 5600 gms U-235 equivalent. Nevertheless, SAM-2 measurements add to the verification effort in several ways. The SAM-2 does provide an indication that U-235 is present in the container being measured. Also, it provides a good indication that the enrichment remains the same from container to container. For the same material type, relatively small changes in enrichment can be readily detected by the SAM-2. Therefore, when one container is sampled and characterized for element and isotope through chemistry and mass spectrometry, a valid enrichment verification can be performed with the SAM-2.
- (3) The material of highest strategic value was the 93 percent enriched uranium metal buttons. The U-235 content of these

buttons totaled slightly in excess of 100 kgs and represented five different batches of the metal. All 17 containers (cans) of this material were verified for net weight. This involved cutting open each can and transferring the contents to new preweighed cans. Three containers were randomly selected for sampling. These samples have been sent to NBL for element, isotope and impurity analyses.

- (4) The category of material comprising the greatest number of individual items were the fuel plates in various stages of production. The individual fuel plate population, not including the element assemblies, numbered 2,472. Except for a few plates with approximately 7.7 gms. U-235 per plate, the great majority of the plates ranged from about 20 gms. U-235 to approximately 76 gms U-235 with an average of 51 gms. U-235 per plate. A random sample of 93 plates were selected using a goal quantity of 4 kgs U-235. The 93 plates were measured with an NDA system which the licensee uses for fuel plate overcheck prior to plate forming and assembly. This NDA system, including standards, was developed by the licensee's client, EG&G, as a QA test which must be met before the plates can be accepted for further processing. While this NDA system is not entirely equivalent to an NRC system with NRC standards, it does provide a level of independence above that of a fully licensee developed and operated system. This NDA system as currently used is designed to accept flat finished plates for measurement. The flat plates are subsequently formed to a specified curvature (along their short axis) and assembled into elements. Among the 93 plates randomly chosen for measurement were a significant number of formed (curved) plates as well as a lesser number of oversized plates representing those plates not yet trimmed to size. Because of counting geometry differences, the count rates of these "off-size" plates would not be the same as the count rates of these same plates in the flat, cut-to-size geometry. Nevertheless, despite these geometry factors, the count rate in every case was within about 5 percent of the acceptability criterion (high or low standard). For the formed plates, measurements were made initially under two different geometries. Each plate was counted once with the concave facing down and again with the concave up. As expected, both geometries gave count rates slightly higher than the high standard with the concave down geometry giving a higher count of the two. On the other hand, the oversize plates (untrimmed) counted somewhat lower than the low standard as expected. This expectation was based on the fact that the active UAL_x meat section

of the plate was somewhat off center relative to the detector and the standard.

- (5) MBA-1 is essentially a large storage vault. Although an auxiliary "weigh room" area where U-metal raw stock is sampled and batched is a part of MBA-1, very little SNM is contained in this location. The bulk of the SNM is stored in the vault. The more significant materials included U-metal raw stock, fuel elements and plates (mostly formed plates), containers of UAL powder, and scrap (mostly scrap plates). Other items containing smaller quantities of SNM included materials such as furnace scrap, compact line scrap, etc., archive samples, solidified chemical waste, standards, etc. The verification of U-metal, powder and plates were discussed earlier. For finished fuel elements (nineteen plates per element for ATR), the only recourse was to verify by serial number. Three 55 gallon metal drums, two containing solidified chemical waste and one (6-M drum) containing scrap plates were scanned with the licensee's barrel scanner. All three gave a strong signal in the 186 Kev region. Twenty five other items in the vault were selected for measurement with the SAM-2. These were selected on the basis of SNM content with emphasis on those items with higher loadings of SNM.
- (6) MBA-41 is the waste yard. For the current period, 416 solid waste drums were on inventory. Eleven drums contained greater than 50 gms. U-235 and 51 drums were carried at trace or zero SNM. The remaining 354 drums contained an average of 9.2 gms. U-235 each. Using a goal quantity of 600 gms., 17 drums were randomly selected from the population of 354 for remeasurement with the licensee's barrel NDA system. All 11 drums containing greater than 50 gms. U-235 were also included for remeasurement. The remeasurement agreed with the original measurements to within about 2.7 percent on the average. This reproducibility is noteworthy when it is recognized that some of the earlier measurements date back to September of 1977.

Although waste is not the most attractive material for potential theft or diversion, it was felt that some degree of effort needed to be directed in this area for several reasons. First of all, the SNM was 93 percent enriched material with a total U-235 content of greater than 4 kgs. Second, the waste barrels experience a relatively long residence time on site. Third, the waste drum population was not verified by piece count as was virtually all of the other material types. And finally, while waste itself may not be an attractive target, the waste pathway provides a possible means of removing diverted material from the site.

Conclusion

Within the framework of the criteria used in performing the inventory verification, it can be stated with 95% confidence that the inventory at the De Soto Avenue facility of ESG is free of gross defects totaling more than 5 formula kilograms.

The criteria used can be summarized as follows:

- (1) A 100% piece count verification on all items was performed with the exception of MBAs 8 and 10, where the combined holdings were less than 320 gms. U-235, and MBA 41, the waste yard.
- (2) All powder containers were 100% verified for gross weight by reweighing. All powder containers were measured with the SAM-2. A selected number of containers were sampled for analysis by NBL for uranium and U-235.
- (3) All U-metal (raw stock) containers were reverified for net weight. Three randomly selected containers (by batch) were sampled for analysis by NBL for uranium, U-235 and impurities.
- (4) Twenty five selected items of various types of scrap from the storage vault (MBA-1) were measured with the SAM-2. Three 55 gallon drums, one containing scrap plates and two containing solidified chemical waste, were measured with the licensee's barrel scan system.
- (5) Using a goal quantity of 4 kgs. U-235 for the fuel plate stratum, 93 fuel plates with an average U-235 content of 51 gms. were assayed with the licensee's plate assay system. The total population was 2,472 fuel plates.
- (6) Using a goal quantity of 0.6 kgs. U-235, 17 barrels of waste containing less than 50 gms. U-235 were randomly selected for remeasurement with the licensee's barrel scan system. All eleven barrels containing greater than 50 gms. U-235 were also included for remeasurement.

D. Exit Interview

The inspection findings were discussed with licensee personnel identified in Section A of this report.

FACILITY NAME ENERGY SYSTEMS GROUP INSPECTOR(S) ... REVIEWER ...

LICENSEE/VENDOR

TRANSACTION TYPE: OVER

DOCKET NUMBER: 2 07000525

OR LICENSE NO. (BY PRODUCT): 2

REPORT NO. (A) 15 (B) 7909 (C) 18

DATES (NO INVEST/INSP FROM) 19 110579 24

(D) 25 111679 30

REGION CONDUCTING ACTIVITY: 5 #349

INSPECTION PERFORMED BY: REGIONAL OFFICE STAFF RESIDENT INSPECTOR PERFORMANCE APPRAISAL TEAM

TYPE OF ACTIVITY CONDUCTED (CHECK ONE BOX ONLY)

01 <input type="checkbox"/> SAFETY	05 <input type="checkbox"/> MANAGEMENT AUDIT	09 <input checked="" type="checkbox"/> MATL ACCT.	13 <input type="checkbox"/> IMPORT	14 <input type="checkbox"/> INQUIRY
02 <input type="checkbox"/> INCIDENT	06 <input type="checkbox"/> MANAGEMENT VISIT	10 <input type="checkbox"/> PLANT SEC.		15 <input type="checkbox"/> INVESTIGATION
03 <input type="checkbox"/> ENFORCEMENT	07 <input type="checkbox"/> SPECIAL	11 <input type="checkbox"/> INVENT. VERIF.		(IF INVEST, ALSO CHECK BLOCK S)
04 <input type="checkbox"/>	08 <input type="checkbox"/> VENDOR	12 <input type="checkbox"/> SHIPMENT/EXPORT		

INSPECTION OR INVESTIGATION WARNING: ANNOUNCED UNANNOUNCED

INSPECTION SHIFT: DAY SHIFT OFF-SHIFT WEEKEND/HOLIDAY

INSPECTION/INVESTIGATION NOTIFICATION (CHECK ONE BOX ONLY)

591 REGIONAL OFFICE LETTER REFERRED TO HOS FOR ACTION REGION LETTER & HOS FOR ACTION

INSPECTION/INVESTIGATION FINDINGS (CHECK ONE BOX ONLY)

CLEAR NONCOMPLIANCE DEVIATION NONCOMPLIANCE & DEVIATION

ENFORCEMENT CONFERENCE HELD: 39

NUMBER OF NONCOMPLIANCE ITEMS IN LETTER TO LICENSEE: 00 (40 41)

NUMBER OF DEVIATION ITEMS IN LETTER TO LICENSEE: 00 (42 43)

NOTE: CHANGE MUST BE SUBMITTED ON 786 WHENEVER PREVIOUSLY CITED ITEM OF NONCOMPLIANCE IS OFFICIALLY DELETED FROM THE RECORD.

NUMBER OF LICENSEE EVENTS: 00 (44 45)

65 INSPECTION FEE: NON-ROUTINE/VENDOR (No Fee) ROUTINE (No Fee) ROUTINE (Fee) ROUTINE (Fee Reduced)

47 CONTENTS 2.790D INFORMATION: YES

REGIONAL OFFICE LETTER OR REPORT TRANSMITTAL DATE FOR INSPECTION OR INVESTIGATION

591 OR LETTER ISSUED TO LICENSEE: 122179 (49 53)

REPORT SENT TO HOS FOR ACTION: (54 59)

IMMEDIATE ACTION LETTER DATE: (60 65)

SUBJECT OF INVESTIGATION (CHECK ONE BOX ONLY) 66-67

TYPE A	10 CFR 20.403	TYPE B	10 CFR 20.405	MISC.
01 <input type="checkbox"/> INTERNAL OVEREXPOSURE	06 <input type="checkbox"/>	11 <input type="checkbox"/> INT. OVEREXPOSURE	15 <input type="checkbox"/> CRITICALITY	21 <input type="checkbox"/> EQUIP. FAILURE
02 <input type="checkbox"/> EXTERNAL OVEREXPOSURE	07 <input type="checkbox"/>	12 <input type="checkbox"/> EXT. OVEREXPOSURE	16 <input type="checkbox"/> LOSS/THEFT	22 <input type="checkbox"/> ALLEGATION/ COMPLAINT
03 <input type="checkbox"/> RELEASE TO UNREST. AREA	08 <input type="checkbox"/>	13 <input type="checkbox"/> EXCESS RAD. LEVELS	17 <input type="checkbox"/> MUF	23 <input type="checkbox"/> PUBLIC INTEREST
04 <input type="checkbox"/> LOSS OF FACILITY	09 <input type="checkbox"/>	14 <input type="checkbox"/> EXCESS CONC. LEVELS	18 <input type="checkbox"/> TRANSPORTATION	24 <input type="checkbox"/> SABOTAGE
05 <input type="checkbox"/> PROPERTY DAMAGE	10 <input type="checkbox"/>		19 <input type="checkbox"/> CONTAM/LEAKING SOURCE	25 <input type="checkbox"/> ABNORMAL OCCUR.
			20 <input type="checkbox"/> ENVIRONMENTAL EVENT	26 <input type="checkbox"/> OTHER

HEADQUARTERS ENTRIES

HOS ACTION ON INSP/INVEST REFERRED BY REGION: (68 69)

DATE HOS ENFORCEMENT LETTER, NOTICE, ORDER ISSUED: (70 75)

DATE CIVIL PENALTY ISSUED: (76)

DATE FILE ENTERED INTO COMPUTER FILE INQ/YS: (80)

NOTE: BLOCKS K TO N MUST BE VERIFIED BY IF: HOS WHENEVER ENTRIES ARE MADE IN BLOCKS T, U AND V

AITS REFERENCE



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

FEB 28 1980

Docket No. 70-25, (50-375)

~~MATERIAL TRANSMITTED HEREIN CONTAINS~~

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 inspection conducted by Messrs. G. Hamada and A. Wieder of this office on February 12-15, 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 personnel and observations by the inspectors.

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

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.

~~MATERIAL TRANSMITTED HEREIN CONTAINS~~

8003120754

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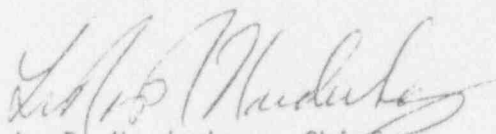
Energy Systems Group

-2-

FEB 26 1980

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely,



L. R. Norderhaug, Chief
Safeguards Branch

Enclosure:

IE Inspection Report

No. 70-25/80-02 & 50-375/80-01

(IE-V-370)

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The information on this page is considered to be appropriate for public disclosure pursuant to 10 CFR 2.790.

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

Region V

Report No. 70-25/80-02 80-02
50-375/80-01 (IE-V-370)

Docket No. 70-25 & 50-375 License No. SNM-21 Safeguards Group 1

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

Facility Name: _____

Inspection at: Canoga Park and Santa Susana Facilities

Inspection Conducted: February 12-15, 1980

Date of Last Material Control and Accounting Inspection Visit: November 5-16, 1979

Type of Inspection: Unannounced - Material Control and Accounting

Inspectors: *L. R. Norderhaug* 2/27/80
G. Hamada, Statistician/Chemist Date Signed
A. Wieder 2/27/80
A. Wieder, Auditor Date Signed

Approved by: *L. R. Norderhaug* _____ Date Signed
L. R. Norderhaug, Chief, Safeguards Branch 2/27/80
Date Signed

Inspection Summary:

Areas Inspected: Measurement Controls, ID and Associated Limit of Error, Records and Reports, and Material Control and Accounting for the L-85 Reactor.

The inspection involved 46 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

THIS DOCUMENT IS NOT TO BE
REPRODUCED WITHOUT SPECIFIC
APPROVAL OF I&V

1. Key Persons Contacted

- *M. Remley, Manager, Health, Safety and Radiation Services
- J. Kim, Measurements Control Coordinator, Statistician
- 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 79-09)

3. Exit Interview

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

4. Unresolved Items

No unresolved items remain outstanding for this facility.

5. MC 85206B - Measurement Controls

During the inspection of September 20-21, 1979, a well blended batch of Uranium-Aluminum alloy (UALx) powder was split into sixty four fractions with half of these (32 samples) going to New Brunswick Laboratory (NBL) for uranium assay and the remaining fractions for analysis by ESG. The purpose of this experiment was to test for analytical bias in the measurement of UALx powder. All of the analyses have been completed and the data statistically evaluated. There is no statistical significance between the overall average values for percent Uranium between NBL and ESG. This shows the absence of a relative bias between NBL and ESG. On the other hand there is evidence of a sampling effect; i.e., there is statistical significance between samples obtained by different sampling methods. On the basis of these findings additional tests have been scheduled. One involves performing sieve analysis of the powder and analyzing each fraction separately. Another involves repeating the analysis of split fractions to test for sampling method effects.

No items of noncompliance were identified.

~~CONFIDENTIAL~~

6. 585214B - ID and Associated LEID

While the ID has remained within the regulatory LE limit and the 300 gm. de minimus level, it continues to exceed its associated LE. The actions being taken described in paragraph 5, above, are a consequence of this anomaly.

No items of noncompliance were identified.

7. 585216B - Records and Reports

Material balance area (MBA) and item control area (ICA) records were reviewed.

No items of noncompliance were identified.

8. MC 585102B - Material Control and Accounting (Reactor)

The L-85 Reactor (Docket No. 50-375, Reactor license R-118) was inspected for compliance with material control and accounting requirements. The quantities of unirradiated fuel (or makeup fuel) agreed exactly with previously documented values. The total U-235 content of the makeup fuel was less than 30 gms. The burnup for 1979 amounted to 29 milligrams U-235.

The licensee's special nuclear material accounting records, reports and other documentation through February 14, 1980 were reviewed for compliance with the records and reports requirements of the regulations.

The L-85 reactor is scheduled to be decommissioned in the near future.

No items of noncompliance were identified.

~~SECRET~~

FORM NRC 766
FEBRUARY 1978
(MC 0535)

UNITED STATES NUCLEAR REGULATORY COMMISSION
INSPECTION & ENFORCEMENT - STATISTICAL DATA

1E-370

FACILITY NAME ENERGY SYSTEMS GROUP		INSPECTOR(S) G. HANSEN		PRINCIPAL INSPECTOR GPH	
LICENSEE/VENDOR		REVIEWER			
AE TRANS-ACTION TYPE 1 (CHECK ONE) <input type="checkbox"/> Delete <input checked="" type="checkbox"/> Insert <input type="checkbox"/> Modify	DOCKET NUMBER 2 9 07000025	REPORT NO. (B) 15 18 800	DATES INQ/INVEST/INSP FROM (C) 11 24 021380 M M D D Y Y TO (D) 25 30 021580 M M D D Y Y		REGION CONDUCTING ACTIVITY (E) 31 5
	OR LICENSE NO. (BY PRODUCT) 2 14				
INSPECTION PERFORMED BY: 3 1 <input checked="" type="checkbox"/> REGIONAL OFFICE STAFF 2 <input type="checkbox"/> RESIDENT INSPECTOR 3 <input type="checkbox"/> PERFORMANCE APPRAISAL TEAM					
TYPE OF ACTIVITY CONDUCTED (CHECK ONE BOX ONLY) 33-34					
G 02 <input type="checkbox"/> SAFETY 03 <input type="checkbox"/> INCIDENT 04 <input type="checkbox"/> ENFORCEMENT		INSPECTION 05 <input type="checkbox"/> MANAGEMENT AUDIT 06 <input type="checkbox"/> MANAGEMENT VISIT 07 <input type="checkbox"/> SPECIAL 08 <input type="checkbox"/> VENDOR		OTHER 13 <input type="checkbox"/> IMPORT 14 <input type="checkbox"/> INQUIRY 15 <input type="checkbox"/> INVESTIGATION (IF INVEST. ALSO CHECK BLOCK S)	
H INSPECTION OR INVESTIGATION WARNING 35		1 <input type="checkbox"/> ANNOUNCED		2 <input checked="" type="checkbox"/> UNANNOUNCED	
I INSPECTION SHIFT 36		1 <input checked="" type="checkbox"/> DAY SHIFT		2 <input type="checkbox"/> OFF-SHIFT 3 <input type="checkbox"/> WEEKEND/HOLIDAY	
J INSPECTION/INVESTIGATION NOTIFICATION (CHECK ONE BOX ONLY) 37					
1 <input type="checkbox"/> 591		2 <input checked="" type="checkbox"/> REGIONAL OFFICE LETTER		3 <input type="checkbox"/> REFERRED TO HOS FOR ACTION 4 <input type="checkbox"/> REGION LETTER & HOS FOR ACTION	
K INSPECTION/INVESTIGATION FINDINGS (CHECK ONE BOX ONLY) 38					
1 <input checked="" type="checkbox"/> CLEAR		2 <input type="checkbox"/> NONCOMPLIANCE		3 <input type="checkbox"/> DEVIATION 4 <input type="checkbox"/> NONCOMPLIANCE & DEVIATION	
L ENFORCEMENT CONFERENCE HELD: 1 <input type="checkbox"/> 39					
M NUMBER OF NONCOMPLIANCE ITEMS IN LETTER TO LICENSEE		40 41 00		NOTE: CHANGE MUST BE SUBMITTED ON 766 WHENEVER PREVIOUSLY CITED ITEM OF NONCOMPLIANCE IS OFFICIALLY DELETED FROM THE RECORD.	
N NUMBER OF DEVIATION ITEMS IN LETTER TO LICENSEE		42 43 00			
O NUMBER OF LICENSEE EVENTS		44 45 00			
P 46 INSPECTION FEE 1 <input type="checkbox"/> NON-ROUTINE/VENDOR (No Fee) 2 <input type="checkbox"/> ROUTINE (No Fee) 3 <input type="checkbox"/> ROUTINE (Fee) 4 <input type="checkbox"/> ROUTINE (Fee Reduced)					
Q 47 CONTENTS 2.790D INFORMATION <input type="checkbox"/> YES					
R REGIONAL OFFICE LETTER OR REPORT TRANSMITTAL DATE FOR INSPECTION OR INVESTIGATION					
591 OR LETTER ISSUED TO LICENSEE 48 53 022880 M M D D Y Y		REPORT SENT TO HOS FOR ACTION 54 59		IMMEDIATE ACTION LETTER 60 DATE 65	
S SUBJECT OF INVESTIGATION (CHECK ONE BOX ONLY) 66-67					
TYPE A 10 CFR 20.403		TYPE B 10 CFR 20.405		MISC.	
01 <input type="checkbox"/> INTERNAL OVEREXPOSURE 06 <input type="checkbox"/>		11 <input type="checkbox"/> INT. OVEREXPOSURE		15 <input type="checkbox"/> CRITICALITY	
02 <input type="checkbox"/> EXTERNAL OVEREXPOSURE 07 <input type="checkbox"/>		12 <input type="checkbox"/> EXT. OVEREXPOSURE		16 <input type="checkbox"/> LOSS/THEFT	
03 <input type="checkbox"/> RELEASE TO UNREST. AREA 08 <input type="checkbox"/>		13 <input type="checkbox"/> EXCESS RAD. LEVELS		17 <input type="checkbox"/> MUF	
04 <input type="checkbox"/> LOSS OF FACILITY 09 <input type="checkbox"/>		14 <input type="checkbox"/> EXCESS CONC. LEVELS		18 <input type="checkbox"/> TRANSPORTATION	
05 <input type="checkbox"/> PROPERTY DAMAGE 10 <input type="checkbox"/>				19 <input type="checkbox"/> CONTAM/LEAKING SOURCE	
				20 <input type="checkbox"/> ENVIRONMENTAL EVENT	
				21 <input type="checkbox"/> EQUIP. FAILURE	
				22 <input type="checkbox"/> ALLEGATION/ COMPLAINT	
				23 <input type="checkbox"/> PUBLIC INTEREST	
				24 <input type="checkbox"/> SABOTAGE	
				25 <input type="checkbox"/> ABNORMAL OCCUR.	
				26 <input type="checkbox"/> OTHER	
T HEADQUARTERS ENTRIES					
HOS ACTION ON INSP/INVEST REFERRED BY REGION (See Reference List for Code)		68 69		NOTE: BLOCKS K TO N MUST BE VERIFIED BY IE. HOS WHENEVER ENTRIES ARE MADE IN BLOCKS T, U AND V	
DATE HOS ENFORCEMENT LETTER, NOTICE, ORDER ISSUED:		70 75			
CIVIL PENALTY ISSUED: 1 <input type="checkbox"/>		76			
DATE 766 ENTERED INTO COMPUTER FILE		77 80			
W DATE 766 ENTERED INTO COMPUTER FILE				AITS REFERENCE	

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FORM NRC 766
FEBRUARY 1978
(MC 0535)

UNITED STATES NUCLEAR REGULATORY COMMISSION
INSPECTION & ENFORCEMENT - STATISTICAL DATA

1E-270

FACILITY NAME <u>ENERGY SYSTEMS GROUP</u>		INSPECTOR(S) <u>G. HAMMILL</u>		PRINCIPAL INSPECTOR <u>G.M.</u>	
LICENSEE/VENDOR		REVIEWER			
AE TRANS-ACTION TYPE 1 ICHECK ONE) <input type="checkbox"/> Create <input type="checkbox"/> Insert <input type="checkbox"/> Modify	DOCKET NUMBER (A) 2 <u>05100375</u> OR LICENSE NO. (BY PRODUCT) 2 14		REPORT NO. (B) 15 <u>8001</u> 18		DATES INQ/INVEST/INSP FROM 19 <u>021380</u> M M D D Y Y TO 25 <u>021580</u> M M D D Y Y
					REGION CONDUCTING ACTIVITY (E) 31 <u>5</u>
INSPECTION PERFORMED BY: 32		1 <input checked="" type="checkbox"/> REGIONAL OFFICE STAFF 2 <input type="checkbox"/> RESIDENT INSPECTOR			
		3 <input type="checkbox"/> PERFORMANCE APPRAISAL TEAM			
TYPE OF ACTIVITY CONDUCTED (CHECK ONE BOX ONLY) 33-34					
G 02 <input type="checkbox"/> SAFETY 03 <input type="checkbox"/> INCIDENT 04 <input type="checkbox"/> ENFORCEMENT		05 <input type="checkbox"/> MANAGEMENT AUDIT 06 <input type="checkbox"/> MANAGEMENT VISIT 07 <input type="checkbox"/> SPECIAL 08 <input type="checkbox"/> VENDOR		09 <input checked="" type="checkbox"/> MATL ACCT. 10 <input type="checkbox"/> PLANT SEC. 11 <input type="checkbox"/> INVENT. VERIF. 12 <input type="checkbox"/> SHIPMENT/EXPORT	
				13 <input type="checkbox"/> IMPORT 14 <input type="checkbox"/> INQUIRY 15 <input type="checkbox"/> INVESTIGATION (IF INVEST. ALSO CHECK BLOCK 5)	
H INSPECTION OR INVESTIGATION WARNING: 1 <input type="checkbox"/> ANNOUNCED 2 <input checked="" type="checkbox"/> UNANNOUNCED					
I INSPECTION SHIFT: 1 <input checked="" type="checkbox"/> DAY SHIFT 2 <input type="checkbox"/> OFF-SHIFT 3 <input type="checkbox"/> WEEKEND/HOLIDAY					
J INSPECTION/INVESTIGATION NOTIFICATION (CHECK ONE BOX ONLY) 37					
1 <input type="checkbox"/> 591 2 <input checked="" type="checkbox"/> REGIONAL OFFICE LETTER 3 <input type="checkbox"/> REFERRED TO HQS FOR ACTION 4 <input type="checkbox"/> REGION LETTER & HQS FOR ACTION					
K INSPECTION/INVESTIGATION FINDINGS (CHECK ONE BOX ONLY) 38					
1 <input checked="" type="checkbox"/> CLEAR 2 <input type="checkbox"/> NONCOMPLIANCE 3 <input type="checkbox"/> DEVIATION 4 <input type="checkbox"/> NONCOMPLIANCE & DEVIATION					
L ENFORCEMENT CONFERENCE HELD: 1 <input type="checkbox"/> 39					
M NUMBER OF NONCOMPLIANCE ITEMS IN LETTER TO LICENSEE:		40 41 <u>00</u>		NOTE: CHANGE MUST BE SUBMITTED ON 766 WHENEVER PREVIOUSLY CITED ITEM OF NONCOMPLIANCE IS OFFICIALLY DELETED FROM THE RECORD.	
N NUMBER OF DEVIATION ITEMS IN LETTER TO LICENSEE:		42 43 <u>00</u>			
O NUMBER OF LICENSEE EVENTS		44 45 <u>00</u>			
P 46 INSPECTION FEE 1 <input type="checkbox"/> NON-ROUTINE/VENDOR (No Fee) 2 <input type="checkbox"/> ROUTINE (No Fee) 3 <input type="checkbox"/> ROUTINE (Fee) 4 <input type="checkbox"/> ROUTINE (Fee Reduced)					
Q 47 CONTENTS 2,760D INFORMATION <input type="checkbox"/> 'S' YES					
R REGIONAL OFFICE LETTER OR REPORT TRANSMITTAL DATE FOR INSPECTION OR INVESTIGATION					
591 OR LETTER ISSUED TO LICENSEE 48 <u>022880</u> M M D D Y Y		REPORT SENT TO HQS FOR ACTION 54 59		IMMEDIATE ACTION LETTER 60 DATE 85	
S SUBJECT OF INVESTIGATION (CHECK ONE BOX ONLY) 66-67					
TYPE A 10 CFR 20.403		TYPE B 10 CFR 20.405		MISC.	
01 <input type="checkbox"/> INTERNAL OVEREXPOSURE 02 <input type="checkbox"/> EXTERNAL OVEREXPOSURE 03 <input type="checkbox"/> RELEASE TO UNREST. AREA 04 <input type="checkbox"/> LOSS OF FACILITY 05 <input type="checkbox"/> PROPERTY DAMAGE		06 <input type="checkbox"/> 07 <input type="checkbox"/> 08 <input type="checkbox"/> 09 <input type="checkbox"/> 10 <input type="checkbox"/>		11 <input type="checkbox"/> INT. OVEREXPOSURE 12 <input type="checkbox"/> EXT. OVEREXPOSURE 13 <input type="checkbox"/> EXCESS RAD. LEVELS 14 <input type="checkbox"/> EXCESS CONC. LEVELS 15 <input type="checkbox"/> CRITICALITY 16 <input type="checkbox"/> LOSS/THEFT 17 <input type="checkbox"/> MUF 18 <input type="checkbox"/> TRANSPORTATION 19 <input type="checkbox"/> CONTAM/LEAKING SOURCE 20 <input type="checkbox"/> ENVIRONMENTAL EVENT	
				21 <input type="checkbox"/> EQUIP. FAILURE 22 <input type="checkbox"/> ALLEGATION/COMPLAINT 23 <input type="checkbox"/> PUBLIC INTEREST 24 <input type="checkbox"/> SABOTAGE 25 <input type="checkbox"/> ABNORMAL OCC JR. 26 <input type="checkbox"/> OTHER	
T HEADQUARTERS ENTRIES HQS ACTION ON INSP/INVEST REFERRED BY REGION: (See Reference List for Code) 68 69					
U DATE HQS ENFORCEMENT LETTER, NOTICE, ORDER ISSUED		70 <u> </u> M M D D Y Y		75	
V CIVIL PENALTY ISSUED: 1 <input type="checkbox"/> 76		77 <u> </u> M M Y Y		80	
W DATE 766 ENTERED INTO COMPUTER FILE (MO/YR):		M M Y Y		NOTE: BLOCKS K TO N MUST BE VERIFIED BY IE HQS WHENEVER ENTRIES ARE MADE IN BLOCKS T, U AND V	
				AITS REFERENCE	



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 REGION V
 1990 N. CALIFORNIA BOULEVARD
 SUITE 202, WALNUT CREEK PLAZA
 WALNUT CREEK, CALIFORNIA 94596

MATERIAL TRANSMITTED UNDER A CONTAINMENT [REDACTED]

Docket No. 70-25

APR 3 1980

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 inspection conducted by Messrs. G. Hamada and Y. Kobori of this office on March 3-7, 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 personnel and observations by the inspectors.

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

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.

MATERIAL TRANSMITTED UNDER A CONTAINMENT [REDACTED]

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