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U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-25/86-04 (IE-V-767)

Docket No. 70-25

License No. SNM-21

Safeguards Group II

Licensee: Rocketdyne Division
Rockwell International Corporation
6633 Canoga Avenue
Canoga Park, California 91304

Facility Name: Rocketdyne Division
Rockwell International Corporation

Inspected at: Santa Susana and De Soto Facilities

Inspection Conducted: August 24-29 and September 4, 1986

Dates of Last Material Control and Accounting Inspection: March 21-23, 1984

Type of Inspection: Routine and Reactive Unannounced Material Control and Accounting

Inspector: G. B. Nelson 9-16-86
G. B. Nelson, Chemist Date Signed

Approved by: M. D. Schuster 9/17/86
M. D. Schuster, Chief, Safeguards Section Date Signed

Summary:

Inspection on August 25-29 and September 4, 1986 (70-25/86-04)

Areas Inspected: Facility organization and management controls, facility operations and internal controls, measurement systems, measurement control and statistics, physical inventory and records and reports. During the inspection, Inspection Procedures 85203, 85205, 85207, 85209, 85211, and 85215 were covered.

Results: Within the areas inspected, no violations or deviations were identified.

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DETAILS

1. Persons Contacted:

- *L. J. Auge, Chief Engineer, Atomic International
- *M. E. Remley, Director, Nuclear Safety and Licensing
- *V. J. Schaubert, Manager, Nuclear Material Management
- D. C. Allen, Staff Assistant, Nuclear Material Control
- S. J. Wode, Management Systems Specialist
- D. N. Glass, Manager, A.I. Quality Engineering Assurance Management
- D. C. Espey, Director, Q.A. Advanced Programs
- F. E. Begley, Sr. Engineer, Health, Safety, and Environment
- J. D. Moore, Specialist, Health, Safety, and Environment
- R. J. Tuttle, Manager, Radiation and Nuclear Safety
- F. C. Schrag, Lead Engineer, Rockwell International Hot Laboratories
- D. J. Harrison, Technical Staff, Nuclear Operations

*Denotes those in attendance at the exit interview.

2. Licensee Actions on Previous Inspection Findings

(Closed) Item 84-02-02, the NRC inspector reviewed the Management Review of Material Control and Accounting for March 30, 1984 (Audit No. 4A0). The audit was not available during the MCSA inspection in March 21-23, 1984. The audit found no instances of noncompliance with NRC requirements.

(Closed) Item 84-02-03, the latest organizational charts for Atomic International (AI) of Rocketdyne Division were inspected. The nuclear material management functions are independent of nuclear operations at Rockwell International Hot Laboratories (RIHL).

(Open) Item 84-02-03, the estimators of the random and systematic error components for weighing EBR-II Blanket Fuel were unavailable. The shipper of the fuel was Argonne National Laboratory-West, Idaho Falls, Idaho, and the receiver was Rockwell International's Radioactive Material Disposal Facility (RMDF) a DOE license-exempt irradiated fuel storage facility. The blanket fuel consisted of 299 subassemblies, each containing nine blanket rods and 140 loose rods. A fuel rod contained five slugs of depleted U metal containing some inbred plutonium. Transfers from RMDF to RIHL using DOE/NRC 741 Forms were made at shipper values for a batch. The batch was six to nine subassemblies. When the irradiated fuel was declad, 5 slugs were weighed and recorded on the shipping canister loading record. Six subassemblies (570 slugs) were package in 41 tubes and placed in the shipping canister and transferred back to RMDF using the sum of the slugs weights on the 741 Form. During physical inventory EBR-II blanket fuel is in subassemblies, fuel rods or shipping canisters. Inventory difference (ID) was attributed to rounding errors. The shipper weights for assemblies and rods as stated on the Form 741 were rounded up to kilograms where as RIHL's weights for loaded shipping canisters were in grams. There are no limit of errors for the IDs due to roundings.

3. MC-30703 B Management Meetings, Entrance and Exit Interviews

An entrance interview was conducted with the manager, nuclear materials management and the scope and duration of the MC&A inspection was addressed.

Those in attendance at the exit interview were informed of the inspection findings and that within the scope of the inspection, no violations or deviations were identified.

4. MC-85203 B Facility Organization and Management Controls

No violations were identified.

Rocketdyne Division's recent tables of organization were inspected. Nuclear Material Management functions and reporting requirements are independent of engineering and nuclear operations.

The annual management reviews of the nuclear material control system and the measurement control program were inspected for the periods March 1984 through March and July 1986. Rocketdyne's SNM control systems were in compliance with NRC requirements for the periods audited.

5. MC-85205 B Facility Operation and Internal Controls

Rockwell International Hot Laboratories (RIHL) at the Santa Susana Facility were engaged in the decladding of Fermi-1 irradiated fuel. The fuel consists of 214 assemblies (containing 140 rods each). Seven assemblies have been disassembled and the rods declad. The remaining 207 Fermi-1 irradiated assemblies are stored at the DOE's Savannah River Laboratory (SRL) Aiken, SC. The fuel is U 10 Wt % Mo with a nominal enrichment of 25.5 Wt % U-235 and is clad with 0.005 inch Zr. The rods were fabricated by a coextruding process, therefore, the decladding is performed by centerless grindings. The first grinding reduces the diameter from .158 to .150 inches the second grinding reduces the diameter from .150 to .140 inches. The diameter reduction insures all Zr is removed and some of the UMo alloy is also removed; this requirement was part of the contract with the DOE.

The assemblies are processed in four batches of 35 rods each. The assembly data from SRL shows only grams U, Wt % U-235, grams U-235 and Wt % Pu. The net weight of the UZr alloy in the assembly is not known. The net weight of the declad UMo alloy times 0.90 (nominal 10 Wt % Mo) will give net declad U weight. These weights were subtracted from the DOE declared U net weight to give U in the waste Zr fines from the grindings. The DOE declared Wt % U-235 and % Pu (from core physics calculations) will allow the calculations of grams U-235 and Pu in the declad rods and Zr fines. By this method, there will be no inventory differences (IDs). The only measurements to be made are the weighings of the declad rods using the top-loader scale. The inspector reviewed the data for the decladding of assembly 171 and the conclusion is the operation is performed as described in "Special Nuclear Material Control Program for Fermi Fuel Decladding" (AI-74-44, Supplement 6, September 1985).

6. MC-85207 Measurement Systems

No violations were identified.

Discussions of the top-loader scale in hot cell 3 are to be found in paragraph 7.

7. MC-85209 Measurement Control and Statistics

No violations were identified.

The accountability measurements for Fermi-1 irradiated fuel are the net weights of batches (35) declad rods (pins) in tared transfer tubes. According to the "SNM Control Plan for Fermi Fuel Decladding" (AI-74-44, Supplement 6, September 1985) the licensee has committed to:

- o In paragraph 2 of 5.11 "The weighing random error will be determined experimentally by multiple weighing of standards."
- o Also in G.6 (Verifications) "The limit of error based on weighing data for the inventory difference (LEID) computation will be performed..."

The inspector recommended that in addition to the random error component estimation, the short- and long-term systematic error components be estimated from the standard weight data over time. Reference was made to Section 3.3.3 of "Statistical Methods in Nuclear Material Control," J. L. Jaech (TID-26298). An engineer, D. J. Harrison of Nuclear Operations in RIHL, is interested in these statistical calculations. It may be that the decladding of Fermi fuel mathematically would have no IDs, then the question of calculating LEID is moot.

8. MC-85211 B Physical Inventory

No violations were identified.

Bimonthly physical inventory listings for RIHL (MBA 54) were audited for the periods ending April 2, 1984 through August 1, 1986. The periods reflected the decladding operations for EBR-II blanket fuel and the seven Fermi-1 assemblies. The physical inventory of NDA standards in MBA-AD (health physics laboratory) was verified to the latest inventory listing.

9. MC-85215 Records and Reports

No violations were identified.

The inspector audited the DOE/NRC 741 Forms (Nuclear Material Transaction Reports) for the transfer of EBR-II blanket fuel and Fermi-1 assemblies to and from RIHL from April 1984 through August 1986. The material balance reports (DOE/NRC-742) and physical inventory listings (DOE/NRC-742 C) were audited for periods ending September 30, 1984 through March 31, 1986. The data in the forms reflect the activities at RIHL.

6/2/87

Docket No. 70-25

Rocketdyne Division
Rockwell International Corporation
6633 Canoga Avenue
Canoga Park, California 91304

Attention: Mr. John S. McDonald
Division Director,
Atomics International,
Rocketdyne Division

Gentlemen:

Subject: NRC Safeguards Inspection

This letter refers to a routine and reactive safeguards inspection of your activities authorized under NRC License No. SNM-21 conducted by Mr. G. B. Nelson of this office on May 11 through 14, 1987. It also refers to the discussions of our inspection findings held by the inspector with you and members of your technical staff on May 14, 1987.

The inspection included examination of activities related to your program for the control and accounting of special nuclear material in accordance with applicable requirements of Title 10, Code of Federal Regulations, Part 70, "Domestic Licensing of Special Nuclear Material," and pertinent license conditions as described in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and records, interviews with facility personnel, and observations by the inspector.

Within the scope of the inspection, no violations were observed.

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

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JUN 2 1987

Rocketdyne Division

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

Sincerely,

Original Signed
James L. Montgomery, Chief
Nuclear Materials Safety and
Safeguards Branch

Enclosure:
Inspection Report No. 70-25/87-02 (IE-V-800)

cc w/enclosure:
Dr. M. E. Remley, Director
Nuclear Safety and Licensing
D. A. Huff, SGML, NMSS
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Region V

REQUEST COPY	REQUEST COPY	REQUEST COPY
YES / NO	YES / NO	YES / NO
		SEND TO PDR
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GBN
GNelson/norma MSchuster
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JM
JMontgomery
6/2/87

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