

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.: 50-193/93-01

Docket No.: 50-193

License No.: R-95

Licensee: Rhode Island Atomic Energy Commission
Nuclear Science Center
South Ferry Road
Narragansett, Rhode Island 02882-1197

Facility Name: Rhode Island Atomic Energy Commission

Inspection At: Narragansett, Rhode Island

Inspection Conducted: January 19-22, 1993

Type of Inspection: Announced Material Control and Accounting (MC&A), Physical Security
and Transportation of Irradiated Reactor Fuel

Inspector:

Arthur Della Ratta
A. Della Ratta, Physical Security Inspector
Safeguards Section

2-4-93
Date

Approved By:

R. R. Keimig
R. R. Keimig, Chief, Safeguards Section
Facilities Radiological Safety and Safeguards Branch
Division of Radiation Safety and Safeguards

2-4-93
Date

Areas Inspected: Follow-up on a Previously Identified Violation and Two Unresolved Physical Security Items; Nuclear Material Control and Accounting, Physical Security, and the Transportation of Irradiated Reactor Fuel, including: Organization and Operation; Shipping and Receiving; Storage and Internal Controls; Inventory; Records and Reports; Physical Protection Measures for Special Nuclear Material of Moderate Strategic Significance; and Examination of Conformance to the General Requirements for Shipments of Irradiated Reactor Fuel at the Point of Origin.

Results: The licensee's programs were directed toward the protection of public health and safety and were found to be in compliance with the NRC requirements in the areas inspected. One violation and two unresolved physical security items were closed. No safety concerns or violations of regulatory requirements were identified.

DETAILS

1.0 Key Persons Contacted

- * T. Tehan, Director, Rhode Island Atomic Energy Commission
- * W. Simoneau, Assistant Director for Reactor Operations
 - N. Jacob, Radiation Safety Officer
 - B. Smith, Principal Reactor Operator
 - D. Johnson, Health Physicist
 - J. DiGiacomo, Officer, Narragansett Police Department
 - T. DiBiasio, Campus Police (RI University Science Center)
 - R. Weeks, Operator, ADT Security Systems, Northeast, Inc.

The inspector also interviewed other personnel during the inspection.

- * present at the interview.

2.0 Follow-up on Previously Identified Items

(Closed) VIO 50-193/91-02-01: During the inspection number 50-193/91-02, the inspector determined through a review of the licensee's NRC-approved physical security plan (the Plan) that the licensee had made typographical and editorial changes to 20 pages of the Plan on July 26, 1990, but did not submit these changes to the NRC within two months after the changes were made, as required by License Condition 3.e, Amendment No. 9, dated May 12, 1981 and 10 CFR 50.54(p)(2). To prevent recurrence, the licensee now requires all Reactor Utilization Committee-approved 10 CFR 50.54(p) changes to be submitted to the NRC by an assigned committee member within the allotted two month time period.

During this inspection, the inspector reviewed two 10 CFR 50.54(p) Plan changes, identified as Revision 4 and Revision 5, and determined that an assigned Committee member had submitted the Plan changes to the NRC within the required time period.

(Closed) Unresolved Item 50-193/91-02-02: The licensee committed to have the annual security program review completed and documented by January 31, 1992.

During this inspection, the inspector determined that the licensee's security program review, dated January 22, 1992, had been conducted in accordance with the NRC-approved Plan. The results of the review were reported to the appropriate level of management and the corrective actions taken seemed appropriate.

(Closed) Unresolved Item 50-193/91-02-03: The licensee committed to perform a review by December 31, 1991 of all screening records for individuals with approved unescorted access to the reactor room to determine whether the records contain the required information, i.e. employment records for the last year, academic records for the last year, and personal reference letters from two non-related individuals.

During this inspection, the inspector reviewed the licensee's documented results of its review, dated December 30, 1991, conducted a random audit of certain individual screening records, and determined that the screening records for individuals with approved unescorted access to the reactor control room contained the required information.

3.0 Material Control and Accounting Program

3.1 Organization and Operation

The inspector verified through a review of records that the licensee was maintaining and implementing nuclear material control procedures that are documented in operating procedures, dated March 1984 (Chapter 13, entitled "Special Nuclear Material Control and Accounting Procedures"). Written statements of responsibility and authority were established for those positions with responsibility for Special Nuclear Material (SNM).

3.2 Shipping and Receiving

The inspector determined through a review of records that the licensee maintained procedures to assure that all nuclear material shipped or received was accurately accounted for. The licensee had two receipts of SNM and made one shipment of irradiated reactor fuel during the period of October 1, 1991 through January 22, 1993.

3.3 Storage and Internal Controls

The inspector determined through observations and review of records that the licensee maintained a system of storage and internal controls that included the quantity, identity, and current location of all SNM within the facility. Perpetual inventory records were being maintained for all SNM.

Storage and accountability of SNM were accomplished through item control. All SNM at the facility was stored in designated areas. The designated areas were: the reactor core, the reactor pool, and the security cabinet (safe).

3.4 Inventory

The inspector reviewed supporting records that showed physical inventories were conducted at least annually as required by 10 CFR 70.51(d). The licensee's last physical inventory was performed on October 7, 1992.

On January 20, 1993, the inspector conducted a physical inventory of the SNM at the facility. The following inventory results were reconciled to the October 7, 1992 physical inventory listing:

8 Fission Counters

- 1 in the reactor core
- 1 in the spent fuel pool (reactor pool)
- 2 in the security cabinet (safe)
- 4 in use in the beam port (located in the reactor room)

2 Plutonium Beryllium (PuBe) Sources

- 2 in the spent fuel pool (reactor pool)

49 Fuel Assemblies

- 30 in the core
- 19 in the spent fuel pool (reactor pool)

3.5 Records and Reports

The inspector reviewed the licensee's records, reports and source data. All Material Balance Reports (DOE/NRC Form-742), submitted by the licensee for the period October 1, 1991 through September 30, 1992, were reviewed for compliance with 10 CFR 70.53. Total uranium and uranium-235 depletion records were also reviewed. With the exception of minor typographical errors, no discrepancies were identified.

The inspector reviewed records of semi-annual leak tests on the two PuBe sources for completeness and timeliness.

Exhibit I of this report summarizes the licensee's nuclear material for the period October 1, 1991 - January 22, 1993.

There were no deficiencies identified in the licensee's Material Control and Accounting Program.

4.0 General Physical Security Requirements for SNM of Moderate Strategic Significance

The licensee's program for the physical protection of SNM of moderate strategic significance was reviewed by the inspector for conformance with the NRC-approved Plan. The inspector examined physical barriers, access controls, procedures and key control, and observed a licensee test of alarm system features. The inspector found that

the licensee's program and its implementation met the general performance requirements and objectives of the governing relations. There were no deficiencies identified in the licensee's physical protection program.

5.0 Transportation of Irradiated Reactor Fuel

5.1 Background

The NRC was notified by the licensee in a January 8, 1993, letter that on January 19, 1993, a shipment of irradiated fuel would be made from the Rhode Island Atomic Emergency Commission, Narragansett, Rhode Island to the U.S. Department of Energy, Savannah River Plant, Aiken, South Carolina. The route for the shipment was approved by NRC's Office of Nuclear Materials Safety and Safeguards on January 11, 1993.

5.2 General Requirements

During this inspection, on January 19, 1993, the inspector reviewed and discussed with the licensee the records maintained for the shipment and determined that the licensee followed established procedures and NRC regulatory requirements for radiation surveys and physical protection of irradiated reactor fuel elements. The results of the review and discussions determined:

- that there were two driver/escorts with the transport vehicle;
- that the three tamper seals on the shipping cask (Seal Nos. KIAEC-211, 212, and 00213) were intact;
- that the transport vehicle was equipped with the required communication equipment;
- that the licensee's radiation survey reports for the cask and transport vehicle were complete with all readings within the regulatory limits;
- that the shipping papers were complete and in order. (Shipping papers reviewed included the Bill of Lading, and the DOE/NRC Form-741, Nuclear Material Transaction Report No. ZTF-DZA-6, dated 01/19/93);
- that the transport vehicle and the trailer were equipped with "Radioactive" placards on both sides, front and rear of the trailer; and
- that there were two Radioactive Yellow III labels affixed to the shipment cask, as required.

There were no deficiencies identified in the licensee's shipment of irradiated reactor fuel.

6.0 Exit Meeting

The inspector met with the licensee representatives denoted in Paragraph 1.0 on January 22, 1993 and summarized the scope and findings of this inspection.

EXHIBIT I

RHODE ISLAND NUCLEAR SCIENCE CENTER

Docket No. 50-193 License No. R-95

Material Balance Period: October 1, 1991 - January 22, 1993

Reporting Identification Symbol: ZTF Reporting Unit: grams

	<u>Enriched Uranium</u>		<u>Plutonium</u>	
	<u>Element</u>	<u>Isotope</u>	<u>Element</u>	<u>Isotope</u>
Beginning Inventory: (October 1, 1991)	7,816	7,087	32	30
Additions:				
Receipts:	<u>804</u>	<u>748</u>	<u>0</u>	<u>0</u>
Material to Account For:	<u>8,620</u>	<u>7,835</u>	<u>32</u>	<u>30</u>
Removals:				
Shipments:	2,509	2,258	0	0
Fission and				
Transmutation:	66	79	0	0
Inventory Difference:	<u>(1)</u>	<u>(1)</u>	<u>0</u>	<u>0</u>
Total Removals:	2,574	2,336	0	0
Ending Inventory:				
(January 22, 1993)	<u>6,046</u>	<u>5,499</u>	<u>32¹</u>	<u>30</u>
Material Accounted For:	<u>8,620</u>	<u>7,835</u>	<u>32</u>	<u>30</u>

1. = 2 PuBe Sources - NUMEC #160A65 and 160A66