U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-184/92-02

Docket No. 50-184

License No. TR-5

Licensee: U.S. Department of Commerce
National Institute of Standards and Technology
Washington, DC 20234

Facility Name: National Institute of Standards and Technology

Inspection At: Gaithersburg, Maryland

Inspection Conducted: December 8 and 9, 1992

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

Inspectors: Arthur Della Ratta — 12-21-92
A. Della Ratta, Physical Security Inspector — Date

G. C. Smith — 12/21/92
G. C. Smith, Senior Physical Security Inspector — Date

Approved By: Edward B. Knox for — 12/24/92
R. R. Keimig, Chief, Safeguards Section — Date
Facilities Radiological Safety and Safeguards Branch

Areas Inspected: Nuclear Material Control and Accounting, and Physical Security, including: Organization and Operation; Shipping and Receiving; Storage and Internal Controls; Inventory; Records and Reports; and Fixed Site Physical Protection Measures for Special Nuclear Material of Moderate Strategic Significance.

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. No safety concerns or violations of regulatory requirements were identified.

Details

1.0 Key Persons Contacted

1.1 Licensee Personnel

* T. Raby, Chief, Reactor Operations
* J. Torrence, Deputy Chief, Reactor Operations
W. Rabbitt, Chief, Facilities Service Division/Security Officer
T. Shackelford, Captain, Physical Security

1.2 U.S. Nuclear Regulatory Commission (NRC) Personnel

* D. M. Carlson, Security Specialist, Office of Nuclear Reactor Regulation

* denotes those present at the exit interview

2.0 Material Control and Accounting

2.1 Organization and Operation

The inspectors verified that the licensee maintained written procedures for nuclear material control and accounting and that written statements of responsibility and authority were established for those positions with responsibility for special nuclear material (SNM).

2.2 Shipping and Receiving

The inspectors determined that the licensee maintained procedures to assure that all SNM shipped or received was accurately accounted for.

The inspectors reviewed all DOE/NRC Form-741's generated during the period October 1, 1989 through September 30, 1992 to assure that each was properly signed and dispatched in a timely manner, and that the data was accurate.

2.3 Storage and Internal Control

The inspectors determined through observations and review of records that the licensee was maintaining a system of storage and internal controls which provided knowledge of the quantity, identity, and current location of all SNM within the facility.

Storage areas were properly maintained and included the reactor core, fuel pool, and new fuel storage vault.

2.4 Inventory

The inspectors performed an inventory verification on December 9, 1992, which consisted of a piece count of all the irradiated fuel elements, irradiated sectioned elements, and new fuel elements, and compared the fuel location history card file with the core loading and fuel pool map.

The results of the inspectors' independent inventory verification are indicated below. These results agreed with the licensee's inventory.

Location	Fuel Elements
Fuel Pool:	
Whole	8
Sectioned	120[1/]
New Fuel Storage	4
Reactor	30
Total	162

[1/]These 120 elements were sectioned into 240 pieces containing SNM.

2.5 Records and Reports

The inspectors 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, 1989 to September 30, 1992 were reviewed for compliance with 10 CFR 70.53. Total uranium and uranium-235 depletion records were also reviewed.

Attached to this report as Exhibit I is a summary of the licensee's SNM activity for the period October 1, 1989 through September 30, 1992.

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

3.0 Fixed Site Physical Protection Measures for Special Nuclear Material of Moderate Strategic Significance

The licensee's program for the physical protection of special nuclear material of moderate strategic significance was reviewed by the inspectors for conformance to the NRC-approved physical security plan. The inspectors examined physical barriers, access controls, procedures, and key control, and observed a licensee test of alarm system features. The inspectors found that the licensee's program and its implementation met

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

4.0 Exit Meeting

The inspectors met with the licensee representatives denoted in paragraph 1.0 at the conclusion of the inspection on December 9, 1992 and summarized the scope and findings of the inspection.

EXHIBIT I

National Institute of Standards and Technology

Docket No. 50-184 License No. TR-5

Material Balance for Period: October 1, 1989 - September 30, 1992

Reporting Identification Symbol: YVA Reporting Unit: Grams

	Enriched Uranium	
	Element	Isotope
Beginning Inventory: (October 1, 1989)	18,278	13,794
Receipts:	18,019	16,797
Material to Account For:	36,297	30,591
Removals:		
Shipments :	--0--	--0--
Fission and Transportation :	10,727	12,597
Ending Inventory: (September 30, 1992)	25,570	17,994
Material Accounted For:	36,297	30,591