U.S. NUCLEAR REGULATORY COMMISSION REGION I

Report Nos	. 50-317/87-11 50-318/87-12
Docket Nos	. 50-317 50-318
License No	s. DPR-53 DPR-69
Safeguards	Group <u>IV</u>
Licensee:	Baltimore Gas and Electric Company P.O. Box 1475 Baltimore, Maryland 21203
Facility N	ame: Calvert Cliffs Nuclear Power Plant, Units 1 and 2
Inspection	At: Lusby, Maryland
Inspection	Conducted: April 28 - May 1, 1987
Type of In	spection: Routine, Unannounced Material Control and Accounting
Inspector:	A. Della Ratta, Safeguards Auditor date
Approved by	R. R. Keimig, Chief, Safeguards Section, date
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Inspection Summary: Inspection on April 28 - May 1, 1987 (Report Nos. 50-317/87-11 and 50-318/87-12).

Areas Inspected: Routine, unannounced inspection of nuclear material control and accounting, including: organization and operation; shipping and receiving; storage and internal control; inventory; records and reports; and management of materials control system.

Results: The licensee's procedures for the control of special nuclear material (SNM), in some cases, lacked specificity. Records and reports, in most instances, were complete, maintained, and available, except for the following: the licensee failed to keep records to support that physical inventories of SNM required at twelve month intervals were conducted between April 3, 1981 and March 30, 1985 (except for an inventory conducted on February 20, 1983), as required by 10 CFR 70.51(b)(1) and (3).

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Details

1. Key Persons Contacted

*J. Lemons, Manager, Nuclear Operations Department

*J. Mihalcik, Principal Engineer, Fuel Cycle Management

*M. Bowman, General Supervisor, Technical Services Engineering

*S. Cowne, Senior Engineer, Licensing

*J. Steelman, Senior Engineer, Analytical Support Unit

- *J. Wood, Engineer, Quality Assurance Audits
- R. Beall, Fuel Cycle Management

L. Larragoite, Engineer, Licensing

The inspector interviewed other licensee personnel during the inspection.

*present at the exit interview

2. Nuclear Material Control and Accounting

a. Organization and Operation

The procedures for the control and accounting of special nuclear material (SNM) and written statements of responsibility for SNM were included in the licensee's Special Nuclear Material Accounting Procedure CC1-507D, dated February 14, 1986. As described in the following paragraphs the inspector found that the procedures lacked the specificity required to ensure proper control and accounting of SNM, at all times.

b. Shipping and Receiving

The inspector determined through review that the procedures for shipping and receiving were properly established, maintained, and implemented to assure that all SNM shipped and received was accurately accounted for.

A review was performed of all DOE/NRC Form-741's generated during the period October 1, 1981 - March 31, 1987 to determine proper signature, timely dispatch, and accuracy of data. No discrepancies were noted.

c. Storage and Internal Control

The licensee was maintaining Item Control Areas that included the reactor vessel, spent fuel storage pool, new fuel storage, and other areas that were appropriate for SNM contained in other than fuel.

The inspector found that the licensee was documenting all SNM movement on an internal SNM transfer form. However, the licensee was transferring fuel bundles, fission chambers, neutron sources, and boronometer sources between the Calvert Cliffs Unit 1 reporting identification symbol (RIS: XCL) and the Calvert Cliffs Unit 2 reporting identification symbol (RIS: XBL), without completing and submitting a Nuclear Material Transaction Report (DOE/NRC Form-741). The need to complete and submit a DOE/NRC Form-741 to document all SNM transfers between locations or operations that have been assigned discrete reporting identification symbols (RIS's) apparently was not fully understood by the licensee.

The licensee committed to modify its SNM accounting procedure, CCI-507D, by July 1, 1987 to clarify this matter.

d. Inventory

The inspector reviewed supporting records which reconciled the quantity of SNM possessed as of March 31, 1987. The licensee SNM inventory consisted of:

1. 217 Fuel Assemblies - Reactor Core Unit 1 2. 217 Fuel Assemblies - Reactor Core Unit 2 3. 620 Fuel Assemblies - North Spent Fuel Pool

4. 519 Fuel Assemblies - South Spent Fuel Pool

5. 20 Wide Range Fission Chambers

6. 4 Neutron Startup Sources

7. 2 Boronometer Sources

The inspector performed an inventory verification on April 30, 1987. which consisted of a comparison of the fuel location history card file to the core loading and spent fuel pool storage map. The results of this verification indicated that the North Spent Fuel Pool storage map did not agree with the fuel location history card file for several bundles. When the licensee was advised of this fact, the inspector was informed, and confirmed, that the discrepancies had been identified a few months ago and that the licensee was in the process of correcting them. The licensee committed to accomplish this action by July 1, 1987.

On April 29, 1987, the inspector found that the licensee could not provide evidence, i.e., records showing the inventory of SNM, including location, to support the fact that physical inventories were conducted every twelve months between April 3, 1981 and March 30, 1985, as required by 10 CFR 70.51(d), except for a physical investory completed on February 20, 1983. That inventory was supported by inventory records that included the physical location of the SNM. Such records

are required by 10 CFR 70.51(b)(1) and (3). Failure to comply with 10 CFR 70.51(b)(1) and (3) is an apparent violation of NRC requirements (50-317/87-11-03 and 50-318/87-12-03).

e. Records and Reports

The inspector reviewed the licensee's records and source data and all Material Balance Reports (DOE/NRC Form -742) submitted during the period October 1, 1981 - March 31, 1987. Total uranium and U-235 fission, transmutation and plutonium production and decay records were also reviewed. No discrepancies were noted.

Exhibits I, II and III of this report summarize the licensee's nuclear material activities for the period October 1, 1981 - March 31, 1987.

f. Management of Materials Control System

The inspector found that the licensee's management system for the revision, implementation, and enforcement of nuclear material control and accounting procedures was generally weak. This was indicated by: not maintaining records to support the conduct and results of annual physical inventories; not fully understanding the requirement for completion and submittal of a Nuclear Material Transaction Report (DOE/NRC Form-741) whenever SNM was transferred between discrete reporting identification symbols (RISs); and the inconsistencies in the location area of fuel bundles in the North Spent Fuel Pool when compared to the location area shown on the fuel location history card file. The licensee stated that its procedures would be revised to correct these deficiencies by July 1, 1987.

3. Exit Interview

The inspector met with the licensee representatives indicated in paragraph 1 at the completion of the inspection on May 1, 1987, and summarized the scope and findings of the inspection.

No written material was provided to the licensee by the inspector during the inspection.

Exhibit I

Baltimore Gas and Electric Company

Calvert Cliffs Unit 1

DOCKET NO. 50-317 LICENSE NO. DPR-53

Material Balance for Period:October 1, 1981 - March 31, 1987Reporting Identification Symbol:XCLReporting Unit: grams

	Enriched Uranium		Plutonium	
	Element	Isotope	Element	Isotope
Beginning Inventory: (October 1, 1981)	194,867,515	2,407.024	1,903,492	1,236,083
Additions: Production: Receipts:	100,523,338	3,860,904	2,284,575	1,220,742
Material to Account For:	295,390,853	6,267,928	4,188,731	2,457,264
Removals: Degradation To Other Materials: Shipments: Fission and	685,319 13,006	4,319 142	13,320	7,462
Transmutation: Decay: Inventory Difference: Total Removals:	4,490,529 0 (1) 5,138,853	2,379,689 (1) 2,384,149	151,994 5 165,319	150,689 (3) 158,148
Ending Inventory: (March 31, 1987) <u>1</u> /	290,202,000	3,883,779 2/	4,023,412	2,299,116
Material Accounted for:	295,390,853	6,267,928	4,188,731	2,457,264

1/ Includes 20 High Enriched Uranium Fission Chambers (58 grams Element and 55 grams Isotope)

2/ Includes 2 Plutonium Boronmeter Sources (33 grams Element and 29 grams Isotope)

Exhibit II

Baltimore Gas and Electric Company

Calvert Cliffs Unit 2

DOCKET NO. 50-318 LICENSE NO. DPR-69

Material Balance for Period: October 1, 1981 - March 31, 1987 Reporting Identification Symbol: XBL Reporting Unit: grams

	Enriched Uranium		Plutonium	
	Element	Isotope	Element	Isotope
Beginning Inventory: (October 1, 1981)	183,657,014	2,638.287	1,533,028	1,028,269
Additions: Production: Receipts:	113,601,261	4,127,543	2,612,119	1,394,641
Material to Account For:	297,258,275	7,065,830	4,145,147	2,422,910
Removals: Shipments: Fission and Transmutation: Decay: Inventory Difference:	387,930 5,205,110	15,469 2,701,252 (1)	129,307	128,642
IOTAI KEMOVAIS:	5,593,040	2,/16,/20	129,307	128,642
Ending Inventory: (March 31, 1987)	291,665,235	4,349,110	4,015,840	2,294,268
Naterial Accounted for:	297,258,275	7,065,830	4,145,147	2,422,910

Exhibit III

Baltimore Gas and Electric Company

Calvert Cliffs Unit 1

DOCKET NO. 50-317 LICENSE NO. DPR-53

Reporting Identification Sym	bol: XCL Report	Reporting Unit: grams	
	Plutonium - 238		
	Elemant	Isotope	
Beginning Inventory: (October 1, 1981)	4.60	3.80	
Additions:	-0	-0	
Material To Account For:	4.60	3.80	
Removals:	-0	- J	
Ending Inventory: (March 31, 1987)	4.60	3.80	
Material Accounted for:	4.60	3.80	