

NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos. 50-317/89-24  
50-318/89-25

Docket Nos. 50-317  
50-318

License Nos. DPR-53                      Priority \_\_\_\_\_                      Category C  
DPR-69

Licensee: Baltimore Gas & Electric Company  
P. O. Box 1475  
Baltimore, Maryland 21203

Facility Name: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Inspection At: Lusby, Maryland

Inspection Conducted: October 10-13, 1989

Inspector: *Joseph Duria*  
J. Furia, Radiation Specialist, ERPS

10/17/89  
date

Approved By: *Jason C. Jang*  
for R. Bores, Chief, Effluents Radiation  
Protection Section, FRSSB

10/19/89  
date

Inspection Summary: Inspection on October 10-13, 1989 (Combined Inspection  
Report Nos. 50-317/89-24; 50-318/89-25)

Areas Inspected: Routine unannounced inspection of the solid radioactive waste systems and transportation programs including: Management controls; audits; quality assurance; and implementation of the above programs.

Results: Within the areas inspected, two apparent repeat violations, one each in the transportation (Section 4.2) and radwaste (Section 4.3) areas were identified.

## DETAILS

### 1.0 Personnel Contacted

#### 1.1 Licensee Personnel

- \* L. Russell, Manager, Calvert Cliffs
- \* P. Furio, Licensing Engineer
  - A. Anuje, Supervisor, Quality Assurance Audits
  - T. Jones, Nuclear Operations
- \* J. Lenhart, Jr., Supervisor, Materials Processing
- \* E. Eshelmen, Chemist
- \* B. Watson, Plant Health Physicist
  - R. Sheran, Auxiliary Operator
  - R. Sangray, Auxiliary Operator Trainee
  - W. Putman, Quality Assurance Engineer
  - J. Brown, Technical Trainer
- \* S. Cowne, Senior Engineer, Quality Assurance
- \* R. Wenderlich, General Supervisor, Nuclear Operations
- \* L. Smialek, Senior Plant Health Physicist
- \* R. Denton, Manager, Quality Assurance Services Department
- \* G. Phaiv, Assistant General Supervisor, Radiation Control & Support
- \* L. Smith, Quality Assurance Engineer
- \* J. Bland, Chemistry Consultant

#### 1.2 NRC Personnel

- \* D. Limroth, Senior Resident Inspector
- \* V. Pritchett, Resident Inspector
  - J. Golla, Resident Inspector

\* Denotes those present at the exit meeting on October 13, 1989.

### 2.0 Purpose

The purpose of this routine inspection was to review the licensee's program to properly prepare, package and ship licensed radioactive materials for transport and disposal.

### 3.0 Previously Identified Items

(Open) Violation (50-317/88-29-01; 50-318/88-29-01) Failure to follow scaling factor verification requirements. The licensee hired a contractor who reviewed the scaling factor historical data and calculated new scaling factors which are now utilized. The licensee has as yet to include samples since 1987 in their analyses, and this has resulted in an apparent violation (Section 4.3). This item remains open.

(Open) Violation (50-317/88-29-03; 50-318/88-29-03) Improper waste classification. The licensee has corrected procedure RSP 2-204 to prevent the improper rounding of isotopic specific activities, and is in the process of qualifying a RADMAN computer code for the classification of shipments. The licensee failed to also ensure accurate review of calculations, which has resulted in an apparent violation (Section 4.2). This item remains open.

(Closed) Violation (50-317/89-01-01; 50-318/89-01-01) Failure to properly label radioactive waste shipment. The licensee has revised its General Orientation Training to ensure all plant personnel are aware of the need to survey all items coming from the radiation controlled areas, in order to identify those items requiring shipment as radioactive materials. This item is closed.

(Closed) Violation (50-317/89-01-02; 50-318/89-01-02) Failure to verify acceptability of transferee's license. The licensee has revised its General Orientation Training to ensure that all plant personnel are aware of the need to survey all items coming from the radiation controlled areas, in order to identify those items requiring shipment as radioactive materials. This item is closed.

#### 4.0 Transportation and Solid Radwaste

In accordance with plant procedures, preparation of wastes was the responsibility of the Supervisor of Materials Processing, who reports to the Health Physics Manager. Resins and filters are placed in High Integrity Containers (HIC) in the radiation controlled area and stored to await transportation. Dry Active Wastes (DAW) are brought to the Materials Processing Facility (MPF), where they are segregated and compacted (where applicable), packaged and stored awaiting transportation.

##### 4.1 Quality Assurance /Quality Control

The Quality Assurance/Quality Control program at Calvert Cliffs included Quality Assurance audits of in plant activities, Procurement Quality Assurance audits of vendors, and Quality Control observation of operations and review of calculations. As part of this inspection, the QA audit data for in plant radwaste activities and the audit report of radwaste service vendors were reviewed. The audit of in plant activities was not completed at the time of the inspection, however the inspector interviewed the lead auditor and reviewed the audit checklist utilized. The scope and technical depth of the audit was excellent. The final report will be reviewed as part of a future inspection. Audit report QAG 60-SEG 89, issued February 27, 1989, was conducted at Scientific Ecology Group, Inc. (SEG), which provides supercompaction services. All identified findings were promptly resolved.



Quality Control activities for the radwaste program were determined to be good in the area of observation of operations, and to be poor in the area of calculation verification, as documented in the apparent violation (Section 4.2).

The inspector had no further questions in this area.

#### 4.2 Transportation

As part of this inspection, the inspector reviewed the records of the 11 radioactive material shipments listed below.

<u>Shipment #</u>	<u>Date</u>	<u>Activity (Ci)</u>	<u>Type</u>
89-06	2/13/89	1.00E-7	lubricating chips
89-08	2/15/89	2.38E-8	liquid samples
89-10	2/17/89	1.13E-6	liquid samples
89-16	3/08/89	3.69E+2	filters
89-18	3/14/89	3.28	resin
89-19	3/14/89	2.55E-7	charcoal sample
89-20	3/21/89	1.75	DAW
89-21	3/20/89	6.00E-4	respirator filters
89-22	3/22/89	4.00E-6	oil
89-40	6/21/89	6.97	resin
89-65	9/27/89	2.20E+1	resin

On October 5, 1989, the licensee issued a corrected manifest for shipments 89-40 and 89-65, due to calculation errors for most isotopes in the shipments. This correction was initiated when the licensee was notified by Chem Nuclear Systems, Inc. (CNSI) that shipment 89-65 had calculation errors. The licensee had prepared the shipping calculations based upon a previous shipment of a similar waste stream, shipment 89-40. Although the licensee identified the error in shipment 89-40, it did so based upon the CNSI notification. Further, during a previous inspection conducted in October, 1988, (50-317/88-29; 50-318/88-29) the licensee was cited for calculation errors in two shipments from 1988. The licensee's corrective action was to add a work sheet to procedure RSP 2-204, Rev 3, "Packaging, Labeling and Shipment of Radioactive Materials". The corrective action was inadequate in that it did not address the issue of the failure of plant personnel assigned to review the shipping documents prior to shipment (the Supervisor, Materials Processing and the Quality Control representative), to discover these calculation errors. Failure to properly quantify isotopes on a waste manifest is an apparent violation of 10 CFR 20.311 (50-317/89-24-01; 50-318/89-25-01). This is a repeat violation.

#### 4.3 Radwaste

In accordance with plant procedures, Calvert Cliffs processes liquids through ion exchangers and demineralizers, and then dewaterers utilizing an in plant dewatering system. Spent filters were stored on site in a shielded HIC, which when filled was solidified by CNSI. DAW was sorted into compactable and non-compactable material, with compactables placed in B-25 containers and compacted on site and then shipped to SEG for supercompaction.

Scaling factors for plant wastes were most recently evaluated by a contractor and provided to the licensee on March 24, 1989. This analysis was based upon samples of spent resins collected up to February, 1987, and DAW collected up to February 1985. DAW samples taken in 1986 and 1987 were not used, due to the licensee's conclusion that the sample isotopic activities were outlying data. Samples of the spent resin and DAW waste streams taken in 1988 were discarded without analysis. Samples were finally taken in June, 1989, but the results of the analysis of these samples was not yet available and incorporated into the plant scaling factors at the time of this inspection. Despite the lack of correlation of scaling factors with current plant samples, the licensee had continued to make shipments of these materials. Three shipments of spent resins and six shipments of DAW have been made in 1989. This is an apparent violation of 10 CFR 61.55 which allows the use of scaling factors for determining isotopic content and quantities provided that this method can be correlated with actual measurements (50-317/89-24-02; 50-318/89-25-02). This is a repeat violation.

#### 4.4 Training

Training in the areas of transportation and radwaste was divided into two programs, one for the Supervisory staff and another for the MPF workers. Training records indicate that supervisory personnel are given training utilizing vendor presented courses biennially. MPF workers involved in the packaging of radwaste are given periodic training and retraining based upon plant procedures. These training programs were found to meet the requirements of NRC IE Bulletin 79-19.

#### 4.5 Interim Radwaste Storage

In preparation for the possible loss of low level waste site access in January, 1993, the licensee had constructed the MPF to have a 75,000 cubic foot storage capacity for DAW. In addition, the

licensee was in the process of addressing the storage of spent resins and filters at the time of this inspection. Plans called for the purchase of storage shields which would hold liners containing the spent resins and filters. The location of the shields within the licensee's property at Calvert Cliffs had not been decided at the time of this inspection.

#### 5.0 Exit Interview

The inspector met with the licensee representatives (denoted in Section 1) at the conclusion of the inspection on October 13, 1989. The inspector summarized the purpose, scope, and findings of the inspection. At no time during the inspection did the inspector provide any written information to the licensee.