#### U.S. NUCLEAR REGULATORY COMMISSION REGION I

50-317/90-31

Report Nos. 50-318/90-31

50-317

50-318 Docket No.

DPR-53

License No. DPR-69

Licensee: Baltimore Gas and Electric Company

Post Office Box 1475

Baltimore, Maryland 21203

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

Inspection At: Calvert Cliffs Site and BG&E Electric Test Department

Laboratory

Inspection Conducted: October 29 - November 2, 1990

Inspectors:

11/28/90 J. Furia, Senior Radiation Specialist, Facilities Radiological Protection Section (FRPS), Facilities Radiological Safety and Safeguards Branch (FRSSB), Division of Radiation Safety, and Safeguards (DRSS)

Jang, Senior Radiation Spechalist, Effluents Radiation Protection Section (ERPS), FRSSB, DRSS

Approved by:

Bores Chief, ERPS, FRSSB, DRSS

11-08-90 date

11-8-90

date

Inspection Summary: Inspection on October 29 - November 2, 1990 (Combined Inspection Report Nos. 50-317/90-31; 50-318/90-31)

Areas Inspected: Routine, unannounced inspection of the Radiological Environmental Monitoring, transportation and solid radioactive waste programs including: management controls, audits, quality assurance, and implementation of the above programs.

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

#### DETAILS

#### 1. Personnel Contacted

#### 1.1 Licensee Personnel

L. Bartel, Sr. Radiochemist, Chemical Engineering & Test Laboratory

J. Brown, Training Instructor

\* S. Cowne, Senior Engineer, Quality Assurance Auditing

\* P. Crinigan, General Supervisor, Chemistry

\* M. Gavrilas, Environmental Scientist

S. Hutson, Health Physicist

\* P. Katz, Superintendent, Technical Support \* J. Lenhart, Supervisor, Materials Processing

\* M. Milbrandt, Compliance Engineer

\* G. Phair, Assistant General Supervisor, Radiation Control & Support

E. Reichert, Principal Engineer, Chemical Engineering & Test Laboratory

R. Sheran, Auxiliary Operator

\* J. Szymkowiak, Chemical Analyst, Chemistry Service

\* J. Thorp, General Supervisor, Nuclear Overations Support

\* B. Watson, Plant Health Physicist

#### 1.2 NRC Personnel

- T. Kim, Resident Inspector
- \* A. Howe, Resident Inspector
- \* Denotes those present at the exit interview on November 2, 1990.

#### 2. Purpose

The purpose of this routine inspection was to review the licensee's programs for the following.

- Preparation, packaging and transportation of radioactive materials
- Conducting the Radiological Environmental Monitoring Program (REMP)
- Conducting the Meteorelogical Monitoring Program

# 3. Previously Identified Items

(Closed) 50-317/88-29-01;50-318/88-29-01 and 50-317/89-24-02;50-318/89-25-02 (Repeat Violation) Failure to correlate scaling factors with current plant samples. The licensee revised Procedure CP-228, and has taken, analyzed and provided to the Materials Processing staff scaling factors for Dry Active Waste (DAW) on a semiannual basis, and for speniresin on an annual basis. This item is closed.

(Closed) 50-317/88-29-03;50-318/88-29-03 and 50-317/89-24-01;50-318/89-25-01 (Repeat Violation) Failure to properly quantify isotopes on waste manifest. The licensee has revised Procedure RSP 2-204 for waste shipments and written a new Procedure RSP 2-207 for waste classification. In addition, the licensee now utilizes the RADMAN computer code, which greatly reduces the chances for calculational errors on manifests. This item is closed.

#### 4. Transportation and Radwaste

Processing, packaging and transportation of radwaste and other radioactive materials were the responsibility of the Radiation Safety Section, whose General Supervisor reports to the Superintendent for Technical Support. Within the Radiation Safety Section, the Supervisor, Materials Processing was responsible for the operation of the Materials Processing Facility (MPF), and thus tasked with preparing radioactive materials for shipment.

#### 4.1 Radwaste

The plant processed primary plant water through ion exchangers and filters, waste water from floor and equipment drains through demineralizers, and collected DAW throughout the plant. Spent resins were dewatered in polyethylene High Integrity Containers (poly-HICs), as were spent filter cartridges. DAW was compacted at the Materials Processing Facility (MPF) and then shipped to SEG (a Westinghouse subsidiary) for sorting and ultimate disposal via incineration or supercompaction. Additionally, during the past year, the licensee made several shipments of irradiated hardware for disposal, and one shipment of spent fuel and hardware to Canada.

As part of this inspection, the inspector reviewed the following procedures utilized in the processing, packaging and shipment of radwaste and radioactive material.

PSP 2-202, Rev 3, "Low Level Solid Radioactive Waste Control"

RSP 2-204, Rev 5, "Packaging, Labeling and Shipment of Radioactive Materials"

RSP 2-206, Rev 6, "Chem-Nuclear CNSI 1-13G Cask Handling"

RSP 2-207, Rev O, "Radioactive Waste Classification"

RSP 2-209, Rev O, "Radioactive Material Characterization"

RSP 2-217, Rev O, "CNSI High Integrity Container Handling and Loading Procedure"

RSP 2-220, Rev 2, "Solid Waste Processing Resin Transfer"

These procedures were determined to be complete and to accurately reflect plant operations in this area.

Scaling factors for hard to detect isotopes were typically determined on an annual basis for resins and filters, and on a semiannual basis for DAW, by the submission of representative composite samples to Teledyne Isotopes, Inc. These results were then analyzed by the licensee and a contractor, Bland Associates, to determine the waste stream specific scaling factors to be used.

The licensee had recently begun taking action to correct deficiencies in the plant radwaste system which led to resin infiltration into the plant waste vent monitoring system and the Waste Monitoring Tank. Resins and water had been detected in the Plant Waste Vent Monitor O-RE-2191 for several years. Recently, 37 55-gallon barrels of sludge were removed from Waste Monitoring Tank 12, and this sludge consisted primarily of resins. The source of this resin appeared to be one or more of the various ion exchangers, demineralizers or the Spent Resin Metering Tank. Based upon the above events, the licensee was investigating methods for cleaning out the plant waste vent system and preventing further intrusion of resins from the various sources in the plant. Preliminary actions taken by the licensee appear adequate to prevent further intrusions of resin into this vent system. The results of long-term actions taken to decontaminate the vent system will be reviewed during a future inspection.

#### 4.2 <u>Transportation</u>

Packaging and shipping of all radioactive materials, including radwaste were the responsibility of the Materials Processing staff within the Radiation Safety Section. As part of this inspection, the following 20 shipping records for materials shipped in 1990 were reviewed.

Shipment	Activity (Ci)	Volume (cu ft)	Type
90-060	3.52E-02	990.0	Laundr,
90-061	3.23E-02	900.0	Laundr/
90-062	3.71E-01	900.0	DAW
90-064	9.26E+04	37.0	Spent Fuel
90-065	3.28E+01	120.3	Resin
90-066	5.41E-03	180.0	Equipment
90-067	7.60E-08	<1.0	Samples
90-068	3.75E-02	900.0	Laundry
90-069	2.87E+00	43.5	Equipment
90-070	3.41E-02	900.0	Laundry
90-071	1.52E+03	14.6	Irradiated Metal
90-072	2.57E-02	630.0	Laundry

Shipment	Activity (Ci)	Volume (cu ft)	Type
90-073	9.48E-07	<1.0	Samples
90-074	1.28E+03	14.6	Irradiated Metal
90-075	3.98E-02	990.0	Laundry
90-076	3.30E-02	810.0	Laundry
90-077	1.09E+00	990.0	DAW
90-078	4.70E-03	90.0	Equipment
90-079	1.60E-04	<1.0	Samples
90-080	1.65E-02	450.0	Laundry & DAW

All records were determined to meet the regulatory requirements as set forth in Titles 10 and 49, Code of Federal Regulations.

#### 4.3 Interim Radwaste Storage

In preparation for possible exclusion from the existing burial sites in 1993, as allowed under the Low-Level Waste Policy Act of 1980 and the Low-Level Waste Policy Amendments Act of 1985, the licensee had built a storage area as part of the MPF, with a storage capacity for packaged DAW of 75,000 cubic feet. The possible storage of spent resins and filters in HICs, which are then placed in On Site Storage Containers (OSSCs), was being examined at the time of this inspection. The licensee had budgeted, beginning in 1992, for the purchase of OSSCs and the construction of a storage area within the owner controlled area of the plant.

### 4.4 Quality Assurance

The licensee's program for the assurance of quality in the radwaste and transportation areas involved the evaluating principal vendors supporting this area, plant audits of this area, and quality control review of all shipments of radwaste and principle radwaste evolutions.

Vendor evaluations were conducted by the licensee's Vendor Quality Assurance group. The evaluation of CNSI, which supplies liners and shipping casks to the licensee, was conducted by representatives of the Wolf Creek Nuclear Generating Station, on behalf on the Nuclear Procurement Issues Council (NUPIC), of which the licensee was a member. All pertinent records related to this audit were maintained by the licensee.

Audits of the plant radwaste and transportation program were conducted on an biennial basis. Audit 89-20, dated November 7, 1989, was the most recent audit in this area. All findings as a result of this audit were addressed and resolved. The inspector had no further questions in this area.

Quality Control (QC) observed most radwaste shipments and major

evolutions, and documented these observations in the shipment records maintained by the Materials Processing group. The inspector had no further questions in this area.

## 4.5 Training

Training of Materials Processing personnel to meet the requirements of NRC IE Bulletin 79-19 was conducted on a continuing basis as part of continuing training for Health Physics Technicians. In addition, the licensee had a vendor, WMG, Inc., come on site and present three training programs on radwaste and transportation. Supervisory personnel were also in attendance at this course. The inspector had no further questions in this area.

## 5. Radiological Environmental Monitoring Program (REMP)

#### 5.1 Program Changes

The inspector reviewed the licensee's organization for the management of the REMP. There were no significant changes in the licensee's REMP since the previous inspection conducted in September 1989.

#### 5.2 Direct Observations

The inspector examined various environmental sampling stations. These stations included air particulate and iodine samplers, thermoluminescent dosimeter (TLD) stations, a milk sampling station, and the broad leaf vegetation gardens. All air sampling equipment was operational and TLDs were placed at the specified locations. The licensee was not able to obtain milk samples from the farm because the farmer would not cooperate with the licensee. The licensee, therefore, collected and analyzed grass samples around the farm. The broad leaf vegetation samples were available at the garden as specified by the Offsite Dose Calculation Manual (ODCM). The inspector noted that the licensee had its own vegetable gardens to ensure sufficient sample collection at the required frequencies.

# 5.3 Review of Annual Report

The inspector reviewed the Annual Radiological Environmental Report for 1989. This report provided a comprehensive summary of the results of the REMP around the Calvert Cliffs site and met the Technical Specification requirements. No violations were identified.

# 5.4 Review of Other Reports

The inspector reviewed the following reports relate to the REMP.

- Calvert Cliffs Nuclear Power Plant Routine Operation REMP Perspective, May 1989
- REMP around Calvert Cliffs Nuclear Power Plant, August 1990
- Compilation and Graphical Display of Age-Adjusted Cancer Mortality Rates for Maryland Counties, August 1990

The above reports were prepared by the Environmental Scientist who has responsibility for the REMP, and were published by the Environmental Programs, Baltimore Gas and Electric Company. These reports were an excellent reflection of the licensee's utilization of the REMP on a broad scope and in use of their technical expertise to go well beyond the regulatory requirements in their assessments.

## 5.5 Implementation of the REMP

The inspector reviewed the licensee's REMP to determine whether the program described in the Technical Specifications was effectively implemented. The areas reviewed included maintenance and calibration records of air samplers, sampling frequency, sampling techniques for environmental media, and the REMP-plan. All reviewed areas exceeded the licensee's Technical Specification requirements. It was noteworthy that the licensee installed a new air sampling station during 1990. The inspector examined this equipment and noted that the new equipment had a capability to draw a larger air volume resulting in more representative samples. The inspector also noted that the new air sampling equipment ran very quietly. The new equipment was mounted on thick rubber pads to absorb the motor vibration to minimize any malfunction due to the vibration, a fairly common problem. The inspector stated that the new equipment appeared to be well suited for the REMP. Based on the above review, the inspector concluded that the licensee implemented an excellent REMP. No violations were identified.

# 5.6 Quality Control Program for the REMP Analytical Measurements

The quality control of analytical measurements was conducted by a contractor laboratory, BG&E Electric Test Department Laboratory. This laboratory participated in the EPA cross-check program and also conducted internal quality control programs such as split and blind sample analyses. The inspector reviewed quality control data for source checks and backgrounds for gamma spectrometry systems, liquid scintillation counter, and low background gas flow proportional counter, including QA control charts. Based on the above review, the inspector determined that the licensee conducted an excellent QC program for analytical measurements. No violations were identified.

#### 6. Meteorological Monitoring Program

The inspector reviewed the licensee's meteorological monitoring program to determine whether the instrumentation and equipment were operable, calibrated and maintained. The inspector also reviewed the most recent calibration results for wind speed, wind direction, and the delta temperature at the 60-meter and 10-meter elevation levels. All results reviewed were within the licensee's acceptance criteria. Comparisons of parameters between the monitoring station (trailer) at the tower and the control room were conducted and the results were in agreement. The inspector noted that the licensee planned to install a permanent station at the tower in the near future. The inspector stated that the replacement of the trailer would be beneficial to the program because the equipment room temperature could be more easily controlled. The inspector stated that the new facility or progress status for the facility will be reviewed during a subsequent inspection. No violations were identified.

#### 7. Exit Interview

The inspectors met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on November 2, 1990. The inspectors summarized the purpose, scope and findings of the inspection.

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Region I Form 6 (January 1987) Report Hours: Enter report hours for each SALP area addressed in the inspection report.

Docket # - Insert 5 digit hyphenated, e.g. 50-219, or the 6 digit non-hyphenated, e.g., 702011, docket number in the spaces provided.

Item Number - The first 5 spaces include a hyphen and are the same as the report number. e.g., 76-19. This portion of the item number is the same for all items identified in a given report and is only filled in once per page although MPC will enter this portion in all items on the page. The last two digits are assigned when documenting the item within a given report and start with 01 and continue sequentially until all items requiring followup have been identified.

Type - Enter the 3 letter code SLI through SLV to indicate noncompliance severity level. DEV - DEViation, UNR - UnResolved, CDR - Construction Deficiency Reports, Lil - Other Licensee Identified Items (Note: matters identified by the licensee should be entered only if there is safety or safety-guards significance requiring followup action). Inspector followup items are coded IFI and are used when an item to be followed-up does not fall in one of the coding categories above. NV4 and NV5 - No violation issued and Severity Level 4 or 5.

SALP Area: Enter the SALP area of the outstanding item.

Ol Area Code - Enter the 3 letter code that best characterizes the functional Area into which the item would fall.

CEP - Construction Environment Protection

COA - Construction Quality Assurance

CAS - Concrete and Structures FDP - Fire Detection/Prevention

FND . FounDations

151 - InService Inspection

151 - InService Testing, Pumps & Valves

NOT - NonDestructive Testing

RVI - Reactor Vessel and Internals

SNB - Snubbers

SME - Special Mechanical/Electrical Problem

WLD - WelDing

FFH - Fuel Fabrication and Handling FNS - Fuel Facility Nuclear Safety

PMS - Preparation of Materials for Shipment (used for fuel/reprocessing only)

MAC - Material Accountability/Control

OEP - Operations Environmental Protection

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LRT - Leak Rate Testing

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OTH - OTHer speciality, not coded elsewhere

Resp - Enter the specific code which identifies the section with responsibility to perform inspection follow-up.

A. Materials Assurance Section

B. Quality Assurance Section C. Test Programs Section

D. Operational Programs Section

E. Materials and Processes Section

F. Plant Systems Section

6. Division of Reactor Projects

H. Effluents Rad. Protection Section

1. Facilities Rad. Protection Section

J. Emergency Preparedness Section

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Action Due Date - Enter the date by which NRC followup should be completed. (Typically 3 months)

Update/Closeout Report # - The first 5 positions correspond to the report number, e.g., 86-01. The position following the second hyphen is filled with a "C" if the item was reinspected and closed or was opened and closed within the same inspection. An "O" is inserted if the item was reinspected and remains Outstanding.

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Region I Form 6 (Side 2) (January 1987)

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