

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-317/92-01
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Docket Nos. 50-317
50-318

License Nos. DPR-53
DPR-69


Licensee: Baltimore Gas and Electric Company
Post Office Box 1475
Baltimore, Maryland 21203

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

Inspection At: Lusby, Maryland

Inspection Conducted: January 6-10, 1992

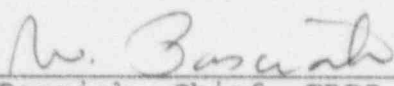
Inspectors:



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

1/14/92
date

Approved by:



W. Pasciak, Chief, FRPS, FRSSB, DRSS

1-16-92
date

Areas Inspected: Announced inspection of the radiation protection program including: management organization, ALARA, radiation control during normal operations, internal and external dosimetry, Quality Assurance/Quality Control, training, 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

- D. Adams, Supervisor, Dosimetry
- A. Anuje, Supervisor, Quality Assurance - Audits
- J. Carlson, Supervisor, Technical Training
- * R. Franke, Compliance Engineer
- * S. Hutson, Supervisor, Radiological Control - Operations
- * M. Junge, Senior Engineer, Quality Assurance
- * P. Katz, Superintendent - Technical Support
- F. Kinman, Senior Technician - Radiological Records
- M. Kratz, Senior Technician - TLD Laboratory
- * G. Phair, Assistant General Supervisor, Radiological Control and Support
- * D. Showalter, Senior Radiological-Chemistry Instructor
- L. Van Heusen, Senior Technician - Whole Body Counter
- * B. Watson, General Supervisor - Radiation Safety
- J. Wood, Senior Engineer - Quality Audits
- P. Wright, Supervisor, Radiological Control - ALARA

1.2 NRC Personnel

- * A. Howe, Resident Inspector
- C. Lyon, Resident Inspector

* Denotes those present at the exit interview on January 10, 1992.

2. Purpose

The purpose of this inspection was to review the licensee's programs for radiation safety during normal operations, including radcon operations, ALARA, internal and external dosimetry, Quality Assurance/Quality Control and training.

3. Radiation Safety

Management of the radiation safety program at Calvert Cliffs remained the same since the last inspection. The General Supervisor - Radiation Safety, reported through the Technical Support Manager to the Plant Manager. All supervisory positions within the Radiation Safety Department were filled.

3.1 Programmatic Goals

For 1991, the licensee had established an ALARA goal of not more than 260 Person-Rem for both units, and subsequently revised that goal to 145 Person-Rem. This goal was met, with the total dose being 131.2 Person-Rem.

Personnel Contamination Incidents (PCIs) for 1991 continued to show a marked reduction from previous years. Year end total PCIs were 234, which was significantly below the established goal of 300 for 1991. Early in 1991 there was a high rate of PCIs. The licensee effectively placed emphasis on this area resulting in a substantial reduction in the rate of PCIs. The actions included having weekly meetings between the Superintendent of Technical Support and the Radiation Safety Supervisors to review all PCIs and to address the root causes of them.

Total contaminated plant areas at the end of 1991 stood at approximately 9500 square feet. This was below the licensee's goal for the year, and could be directly attributed to the continuing plant restoration project.

Total volume of radwaste buried in 1991 was approximately 6000 cubic feet. The significance of this number was less important than the continued efforts of the plant staff to reduce the volume of radwaste generated, and to dispose of all unnecessary material from the site prior to the January 1, 1993 closure of the three existing burial sites.

For 1992, goals of not more than 230 Person-Rem total site dose; 220 PCIs; and 8500 square feet of contaminated floor space were established. All three goals represent significant challenges to the licensee, especially in the area of PCIs, in that during the late winter and spring of 1992, Unit 1 will be shut down for a refueling outage, which will also entail significant steam generator work.

3.2 ALARA

The licensee continued to implement an effective ALARA program for 1991, and established a challenging ALARA goal for 1992. As previously discussed, for 1991, the licensee finished the year at 131.2 Person-Rem, which was well below its original goal of 260 Person-Rem, and also below its revised ALARA goal of 145 Person-Rem.

For 1992, the ALARA goal of 230 Person-Rem was established based on a goal of 4 Person-Rem per month during normal operations, and 194 Person-Rem for the Unit 1 refueling outage. During the refueling outage, extensive work is to be conducted on the steam generators, and possibly two Reactor Coolant pump motors are to be replaced. Additionally, the refueling activity itself is to be conducted by a contractor

during this outage, which had not been previously attempted by the licensee. The scope of work for this outage was "frozen" at the end of September, 1991, with all additional work requests having to be approved by the plant manager. Many of the ALARA and Special Work Permit (SWP) packages were prepared for this outage at the time of this inspection, while others required only minimal adjustments to be ready. During the outage, it was the goal of the Supervisor - ALARA to have members of his staff spend large blocks of time in the containment observing work in progress. This was intended to provide better ALARA support of ongoing work, and to aid in the preparation of post-job reviews.

3.3 Internal and External Dosimetry

The licensee's programs for internal and external dosimetry were the responsibility of the Supervisor - Dosimetry who reported directly to the General Supervisor - Radiation Safety. Within the Dosimetry Department there were three senior technicians tasked with responsibilities in dosimetry records, operation of the external dosimetry laboratory, and operation of the whole body counting systems respectively.

As part of this inspection, a review of selected personnel dosimetry records for current workers was conducted. Although the licensee continues to maintain an extensive data base with little or no current computerization of records, all files were found to be complete, and to contain the documentation required by the NRC and the licensee's procedures.

For the internal dosimetry program, the licensee utilizes both a chest and abdomen scanner and a counting bed, the bed counter and associated software having been purchased from Helgeson, with whom the licensee maintained both a service and technical support contract. Daily source and background checks were performed on the chest and abdomen counter, while the bed counter checks were performed on a weekly basis. The results of all these quality Control checks were maintained both as a hard copy and graphed. Records for the past six months were examined, and all anomalies were appropriately investigated and resolved prior to use of the appropriate counter. The licensee's contract with Helgeson included the submission of bed counter data to Helgeson for analysis of hard to identify peaks and the analysis of counter results.

The external dosimetry program utilizes both direct reading dosimeters and thermoluminescent dosimeters (TLD) for the determination of occupational dose. Entrance to the licensee's Radiologically Controlled Areas (RCA) requires the wearing of both dosimetric devices, with the results of the direct reading dosimeter used to track exposure on a daily basis, and the TLD results utilized to determine record dose on a monthly basis. For December, 1991, the licensee processed more than 2300 personnel TLDs, plus control, test and environmental TLDs. In October, 1991, the licensee added a Panasonic UD-710A TLD reader to augment the one reader previously being utilized. Quality Control tests were performed on each reader on both a batch, shift and weekly basis, with the results of the weekly checks recorded on control charts. Thirteen check badges were included in each batch of 300 TLDs being read, with these test results attached to the final results from the analysis of the 300 batch badges.

At the time of this inspection, the licensee was in the process of being re-accredited in Categories I-VIII by the National Voluntary Laboratory Accreditation Program (NVLAP). Final results of this re-accreditation process will be examined during a future inspection.

The Dosimetry Department was also involved with the respiratory protection program, in that fit testing of respirator users, issuance of respirator user cards, and records associated with respirator user qualifications were maintained or performed by Dosimetry. As part of this inspection, direct observation of two respirator fit tests were made by the inspector. These tests were conducted in accordance with both the licensee's procedures and standard industry practice.

For 1992, the licensee was in the process of preparing specifications for a dosimetry and radiation protection computer software system. Purchase and implementation of an effective system was expected by the licensee to greatly enhance its record keeping, and to make dosimetry data more readily available to other users both in radiation safety and throughout the plant.

3.4 Quality Assurance

The licensee's programs for Quality Assurance in the radiation safety area included audits, surveillances and self-assessments. Biennial audits of the Radiation Safety Program and annual audits of the Technical

Training Program were conducted by the licensee's Quality Assurance - Audits Department in accordance with plant technical specifications. Surveillances were conducted as requested by the General Supervisor - Radiation Safety. Additionally, the Radiation Safety Department had a contractor on-site full time to perform self-assessments of various areas of the radiation safety program.

Responsiveness of the Radiation Safety Department appeared to be generally good. Of the seven findings identified in the most recent Radiation Safety audit (Audit 91-03), five have been closed by the Quality Assurance Department, and responses to the two remaining findings have been submitted to Quality Assurance. None of the findings from the Technical Training audit (Audit 91-09) required a response from Radiation Safety, although one audit recommendation was made regarding the Dosimetry Clerk Training manual was made, and a new manual was recently issued.

3.5 Training

The training program for radiation safety technicians was modified by the licensee for 1992, reducing the total time spent by the technicians in training from 180 hours per year to 150 hours per year, and allowing for the presentation of five training cycles rather than the previous four, which reduces the number of technicians in training at any one time. For 1992 only, one of the five training cycles was dropped so as to allow all technicians to be available for the Unit 1 refueling outage.

During 1991, a total of 12 Radiation Safety Technicians qualified as Shift Technicians, and six additional personnel qualified as Dosimetry Technicians. For 1992, the licensee added Initial Training review sessions for new technicians who were taking examinations in fundamentals of radiation science and protection. As part of this inspection, one of these review sessions was observed by the inspector, and determined to be well conducted by a highly competent training instructor.

5. Exit Interview

The inspector met with the licensee representatives denoted in Section 1 at the conclusion of the inspection on January 10, 1992. The inspector summarized the purpose, scope and findings of the inspection.