

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-317/85-12
50-318/85-10

Docket Nos. 50-317
50-318

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

Licensee: Baltimore Gas and Electric Company
P.O. Box 1475
Baltimore, MD 21203

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

Inspection At: Lusby, Maryland

Inspection Conducted: May 21 - 24, 1985

Inspectors: [Signature]
A. Weadock, Radiation Specialist

6/26/85
date

[Signature]
P. Clemons, Radiation Specialist

6/26/85
date

Approved by: [Signature]
M. Shanbaky, Chief
PWR Radiation Protection Section

6/28/85
date

Inspection Summary: Inspection on May 21 - 24, 1985 (Report Nos. 50-317/85-12 and 50-318/85-10)

Areas Inspected: Routine, unannounced safety inspection of the Radiation Protection Program during an outage including: external dosimetry, training of outage personnel, respiratory protection, exposure control, and quality assurance relating to radiation protection activities. The inspection involved 50 hours onsite by two regionally based inspectors.

Results: No violations were identified during the course of this inspection.

8507080007 850702
PDR ADOCK 05000317
Q PDR

DETAILS

1.0 Persons Contacted

- *Mr. L.B. Russell, Plant Superintendent
- *Mr. N.L. Millis, General Supervisor - Radiation Safety
- *Mr. L.J. Smialek, Senior Plant Health Physicist
- *Mr. J.T. Carlson, Supervisor - Radiation Control Unit
- Mr. T.E. Goff, Supervisor - Dosimetry Unit
- *Mr. R.L. Wenderlich, Supervisor - Operations QA Auditing Unit
- Mr. S.G. Hutson, Supervisor - Radiation Control and ALARA Unit
- Mr. J. Lenhart, Supervisor - Materials Processing Unit
- Mr. G.P. Phair, Supervisor - Radiation Control Operations
- Mr. P.G. Rizzo, Supervisor - Technical Training

Other licensee or contractor personnel were also interviewed or contacted.

*Attended the exit interview on May 24, 1985.

2.0 Purpose

The purpose of this routine safety inspection was to review the performance of the licensee's radiation protection program during the 1985 refueling outage with respect to the following elements:

- external dosimetry program;
- training of outage personnel;
- respiratory protection program;
- exposure control;
- quality assurance relating to radiation protection activities.

3.0 External Dosimetry Program

The licensee's external dosimetry program was reviewed with respect to the criteria contained in 10 CFR 20, "Standards For Protection Against Radiation."

The licensee's implementation of the external dosimetry program was evaluated by the following methods:

- Interviews of the Dosimetry Supervisor and staff;
- Review of dosimetry records for selected personnel.

Within the scope of the above review, no violations were identified.

The licensee processes their own TLD badges and received NVLAP certification of their processing program in 1984. Quality control measures include the following:

- participation in an irradiation intercomparison with NBS;
- processing and readout of a "check badge", irradiated to a known exposure, on the TLD reader prior to processing personnel badges;
- periodic processing of spiked "QA badges", with subsequent supervisory evaluation of results.

Routine TLD's are processed on a monthly basis and special job-required TLD's on a daily or shift basis. The inspector compared job specific exposure records to dosimetry requirements for selected "Special Work Permits" (SWP's) and verified multiple whole body and/or extremity TLD's were issued as required.

The inspector concluded the licensee is effectively implementing an external exposure monitoring program that includes appropriate quality control checks.

4.0 Training of Outage Personnel

The licensee's program for providing general employee and respiratory protection training for outage personnel was reviewed against criteria contained in 10 CFR 19.12 "Instructions to workers", and 10 CFR 20.103 "Exposure of individuals to concentrations of radioactive materials in air in restricted areas". The licensee's performance in this area was evaluated by the following methods:

- interviews of training department supervision and staff;
- review of general employee training records for selected radiation workers;
- review of respirator training and fit-test records for radiation workers performing work activities requiring respiratory protection.

Within the scope of the above review, no violations were noted.

The licensee has recently included a practical factors segment with the radiation worker training which requires the worker to don anti-contamination clothing in accordance with a special work permit, check into a simulated controlled area, and properly remove anti-contamination clothing at the step-off pad.

5.0 Respiratory Protection Program

The licensee's respiratory protection program was reviewed with respect to the criteria contained in 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive materials in air in restricted areas".

The implementation of the licensee's respiratory protection program during the outage was evaluated by:

- interviews of the personnel responsible for various aspects of the program;
- examination of respirator user records, fit tests, SWPs, air sample data and airborne exposure tracking records;
- review of the following procedures:

RSP2-301, "Respiratory Protection Device Maintenance";

RSP2-305, "Selection, Issuance and Wearing of Respiratory Protection Devices used at CCNPP";

RSP3-301, "Internal Radioactive Contamination Assessment Criteria and Requirements".

Within the scope of the above review, no violations were identified. Procedures for implementing the respiratory protection program were found to be adequate and were being complied with by the licensee.

At the time of this inspection the licensee was in the process of relocating respirator cleaning, testing, and maintenance functions to a new area in the Materials Processing Facility, consequently respirator inspection and maintenance records were not immediately accessible for review. The establishment and performance of these functions in the new facility, along with the associated inspection and maintenance records will be reviewed in a subsequent inspection (50-317/85-12-01 and 50-318/85-10-01).

6.0 Exposure Control

6.1 Posting and Labeling

The licensee's program for area posting and control was reviewed against the criteria in 10 CFR 20.203, "Caution signs, labels, signals and controls."

The licensee's performance relative to these criteria was determined from a tour of the Controlled Areas and from discussions with the staff members.

The inspector toured licensee controlled areas and made independent dose rate measurements on May 21 - 22, 1985. The following areas of concern

were identified during the tour.

On May 22, 1985, at approximately 4:00 P.M. on the 10' elevation of the Unit 1 containment the inspector noted a worker lying on the floor. Direct questioning of the worker and the Health Physics (HP) technician responsible for controlling work on that elevation revealed the following:

- the worker was acting as a firewatch stationed to control welding being performed in the overhead area;
- the worker was unaware of area radiation dose rates;
- the worker had received no direction from the area HP technician as to where to station himself to minimize exposure.

The inspector measured radiation dose rates in the firewatch area of approximately 10 mr/hr; further surveying revealed an area approximately 15 feet from the firewatch area with dose rates of 3 mr/hr.

At approximately 4:30 P.M. on the same day the inspector observed a worker making electrical connections to a Pressurizer Sampling System Valve on the 10' elevation of the Unit 1 containment. The worker was wearing respiratory protection; no ventilation was observed in the work area. The inspector reviewed the applicable Special Work Permit (SWP) at the HP control point and noted the SWP required ventilation in the valve work area. The inspector discussed the lack of ventilation with the area HP technician and was unable to receive any information explaining the deviation from the requirements outlined in the SWP.

Subsequent discussion of the above with the Radiation Control-Operations Supervisor and the ALARA Supervisor revealed the following:

- the SWP was initially generated to cover all aspects of the valve overhaul, including a possible breach of the sampling system line;
- the work being performed (electrical connections) did not involve breaching the system and the decision was made to drop the ventilation requirement. Respiratory protection was worn based on surface contamination levels in the work area.

The inspector noted that although the relaxation of the ventilation requirement appeared consistent with the change in the scope of work, no formal changes had been made to the SWP and a revised SWP had not been available at the worksite. Consequently, the area HP technician covering the work activity was not aware of the radiological controls required for the work being performed. The licensee stated that "such changes in radiological control requirements were typically made as pen and ink changes to the SWP; however in this instance a change was not made."

On May 22, 1985, at approximately 6:00 P.M. the inspector noted valve

#2-CVC-376 on the 5' elevation of the Auxiliary building leaking approximately $\frac{1}{2}$ gallon per minute to a floor drain. A deficiency tag identifying the leakage problem was hung on the valve and was dated June 19, 1984. The inspector questioned a nearby operator and determined the leakage was deionized makeup water and did not constitute a radiological concern.

The inspector related the above observations to the licensee at the exit meeting and specifically expressed the following concerns:

- 1) lack of HP technician awareness of radiological work activities and required controls, stemming in part from a failure to modify an SWP to reflect changing job conditions;
- 2) HP technician and worker inattention to general ALARA concepts;
- 3) lack of timely resolution of identified deficiencies.

The licensee indicated during the exit interview that the deficiency on valve #2-CVC-376 would be corrected immediately. This will be reviewed in a subsequent inspection (50-317/85-12-02 and 50-318/85-10-02). The adequacy of the licensee's system to:

- 1) document changes to existing SWP's, and;
- 2) insure HP technician awareness of changes in the scope of work activities and radiological controls;

will remain unresolved pending further inspection effort in this area (50-317/85-12-03 and 50-318/85-10-03).

6.2 Exposure Control Program

The licensee's external exposure control was reviewed against criteria contained in 10 CFR 20.202, "Personnel monitoring." The licensee's program for controlling personnel exposure and maintaining exposure ALARA during the 1985 Refueling Outage was evaluated by:

- Interviews of the ALARA and Radiation Control Supervisors and selected members of their staff;
- Review of procedure RSP-106, "Special Work Permit";
- Review of the following ALARA/Special Work Permit packages:
 - #85-1045: Modify Reactor Pressure Vessel Head
 - #85-1507: Relocate Pressurizer Spray Valves
 - #85-1604: Overhead 1-CV-110, 27' Aux. Bldg., U-1 LDHX Room

#85-1408: Entry into S/G #11

Special Work Permits (SWPs) are used by the licensee to specify the radiological controls that will be required for radiological work. SWPs are generated by the licensee's ALARA group and implemented and enforced by the Radiological Control-Operations group. The inspector reviewed the ALARA/SWP packages noted above and found radiological controls to be appropriate for the work to be performed. The inspector also determined that the licensee's procedure for generation of SWPs insures the timely and in-depth involvement of the ALARA group.

Within the scope of this review, no violations were identified.

7.0 Quality Assurance Relating to Radiation Protection Activities

The inspector evaluated the licensee's quality assurance program relating to radiation protection activities by the following methods:

- Interviews of radiological control and quality assurance supervisory personnel;
- Review of procedure QQASP-7, Quality Assurance Audits;
- Review of the following audits:

#8-35-84, Radiation Safety (ALARA, SWP)

#20-19-84, Training (Radiation Safety and Chemistry)

#8-9-84, QAP-8 Radiation Safety (Dosimetry and Respiratory Protection)

#TE-25-84, Radiation Safety Training Efficiency

#8-4-85, QAP-8, Radiation Safety (Dosimetry)

Scope and content of the above audits was found to be comprehensive and thorough. Findings identified in the audits were significant and were being actively tracked by the QA staff; 1984 findings had all been resolved within the applicable commitment dates. The inspector determined through discussion with the QA auditing unit supervisor that the unit does a monthly review of internal efficiency which is based in part on the staff's timely follow-up of previously identified findings.

No violations were identified in this area. The licensee's QA unit appears to be both active and effective in evaluating the licensee's radiation protection activities.

8.0 Exit Interview

The inspector met with the personnel denoted in Section 1 at the conclusion of the inspection on May 24, 1985. The scope and findings of the inspection were discussed at that time. At no time during this inspection effort was written material provided to the licensee by the NRC inspectors.