

ENCLOSURE

NOTICE OF VIOLATION  
AND  
PROPOSED IMPOSITION OF CIVIL PENALTY

Baltimore Gas & Electric Company  
Calvert Cliffs

Docket Nos. 50-317; 50-318  
License Nos. DPR-53; DPR-69  
EA 98-280

During an NRC inspection conducted during the period April 20-24, May 11-14, and May 19-20, 1998, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

Technical Specification 6.4, Procedures, (Amendment No. 216) requires in Section 6.4.1 that written procedures shall be established, implemented and maintained covering, among other matters the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, dated February 1978. Regulatory Guide 1.33, Revision 2, recommends in Section e. of Appendix A that radiation protection procedures be established including procedures for access control, radiation surveys, radiation permit system, and personnel monitoring.

Administrative Procedure RP-1-100, Revision 1, "Radiation Protection," implements requirements for radiation protection. Section 5.2.E of RP-1-100 requires personnel assigned to perform a job in a radiologically controlled area (RCA) to comply with the requirements of the special work permit (SWP) at all times.

Radiation Protection Procedures RSP 1-132, Revision 1, "Job Coverage In Radiological Controlled Areas," RSP 1-129, Revision 2, "Operation of the SAIC Remote Monitoring System," and RSP 1-124, Revision 2, "Operation of the ALNOR System," provide requirements and responsibilities for radiation safety personnel for access control, radiation surveys, and personnel monitoring.

Section 6.1.C. of RSP 1-132 requires that if entry into a high radiation area is to occur, the licensee shall verify, prior to worker entry, that each worker is in compliance with Attachment 1 to the procedure (High Radiation Area Pre-Entry Checklist). Item 7 of the checklist requires that radiation safety personnel are to physically verify that the worker is wearing their dosimetry per the applicable requirements.

Section 6.1.F of RSP 1-132 requires radiation protection personnel to perform SWP requirements and monitor radiological conditions and worker's dose. Licensees are required to control the occupational dose to individuals to an annual limit which is more limiting of specified exposures, including the total dose equivalent, the deep-dose equivalent and exposures to the extremities (10 CFR part 20.1201(a)). The total dose equivalent is the sum of the deep-dose equivalent (for external exposures) and

committed effective dose equivalent (for internal exposures). The deep-dose equivalent applies to external whole-body exposure. Whole body means, the head, trunk arms above the elbow and legs above the knee (10 CFR part 20.1003). Each licensee shall monitor exposures to radiation and radioactive material at levels sufficient to demonstrate compliance with the occupational dose limits (10 CFR Part 20.1501).

Section 6.1.F.4 of RSP 1-132 requires that, if stay times are used for dose control, then the licensee shall monitor dose, dose rates, and stay times per the SWP. Section 6.1.F.5 of RSP 1-132 requires that, if any unexpected alarms or radiological conditions are encountered, the licensee shall stop and instruct personnel to exit the area.

Section 6.2 of RSP 1-129 requires that the PD(E)-4 (mobile transceiving gamma dose and dose rate meter) operating parameters be set per Attachment 3 thereto. Attachment 3 requires, in part, that the dose and dose rate alarms be set at the SWP limits. Section 6.3 of RSP 1-129 requires that the applicable information specified on Attachment 5, thereto is to be recorded on Attachment 5 or a similar form when a PD(E)-4 is issued. The applicable information includes detector serial number, location, dose alarm, and dose rate alarm.

Section 6.4.K of RSP 1-124 requires that the issuance of a RAD-100 dosimeter (ALNOR) be recorded on a form similar to Attachment 4, thereto, or on an approved computer database.

SWP No. 1312, dated March 31, 1998, provided radiological information and requirements for replacement of nuclear instrumentation (NI) detectors. The SWP specified special dosimetry requirements for workers entering the reactor annulus, a locked high radiation area, and required alarming dosimetry for workers wearing special dosimetry. ALNORS were to be used if SAIC secondary dosimetry was not used. A dose limit of 600 mR and a dose rate limit of 8000 mR/hr were specified for work in the reactor annulus. The ALNOR dosimetry was to have its dose alarm at 510 millirem and its dose rate alarm set at 8000 mR/hr. SWP 1312 also required the coverage radiation safety technician (RST) to determine stay times for all workers entering High Radiation Areas and adjust based on conservative direct reading dosimetry readings.

1. Contrary to the above, on April 9, 1998, the requirements of RP-1-100, RSP 1-132, and RSP 1-124 were not implemented for an entry into the reactor annulus to remove insulation and prepare the NI detectors for removal and replacement, as evidenced by the following examples:
  - The RST that entered the reactor annulus to perform surveys wore a RAD-100 dosimeter; however, issuance of the dosimeter was not recorded on a form or an approved computer database, as required by RSP 1-124.
  - Four workers entered the reactor annulus but were not provided and did not wear SAIC alarming dosimetry or ALNOR alarming dosimeters, as required by SWP 1312.

- Radiation safety personnel did not adequately verify that the workers were wearing the dosimetry required by the SWP in that the Radiation Safety Technicians (RSTs) failed to identify that the workers entering the annulus were not wearing SAIC alarming dosimetry or ALNOR alarming dosimeters, as required by RSP 1-132. (01013)
2. Contrary to the above, on April 9, 1998, the requirements of RSP 1-129 and RSP 1-132 were not implemented for a subsequent entry into the reactor annulus to attempt to relatch a NI detector well, as evidenced by the following examples:
- Three of the five detector dose alarms on the PD(E)-4 dosimetry used by an I&C technician performing work in the reactor annulus were not set at the SWP dose limit of 600 mR and the dose rate limit of 8000 mR/hr, as required by SWP 1312. The three dose alarms were left at the calibration settings of 25 mR and 2780 mR/hr.
  - A PD(E)-4 was issued to an I&C technician entering the annulus and the applicable information was not recorded on Attachment 5 or a similar form, as required by RSP 1-129.
  - Radiation safety personnel failed to adequately monitor radiological conditions and worker's dose and did not stop the work and instruct personnel to exit the area when unexpected alarms and radiological conditions were encountered, as required by RSP 1-132. Specifically:
    - RP personnel inadequately monitored a worker's dose, in that only one of five SAIC detectors on the technician was monitored in a real time mode and the dose provided by the monitored detector (chest) was not the highest integrated dose to any portion of the whole body. The highest integrated dose was at the thigh.
    - Three of five SAIC detectors continuously alarmed, including the detector indicating the highest whole body dose location, upon the worker's entry into the annulus, and no action was taken in response to the alarms. The three alarms remained in alarm condition for the duration of the entry (approximately nine minutes).
    - RP personnel took no action when one of the non-monitored detectors (left thigh) detected radiation dose rates in excess of the dose rate limit specified on the SWP. (01023)
3. Contrary to the above, on April 9, 1998, the requirement of SWP 1312, to determine stay times for workers entering high radiation areas, was not implemented by the coverage RST, as evidenced by the following examples:

- The stay time determined for the workers entering the annulus to remove insulation and prepare the NI detectors for removal and replacement was incorrect. The coverage RST incorrectly assumed a stay time of 9 minutes which was determined based on the time to accumulate 600 mR in a 4000 mR/hr radiation field. However, as specified in SWP 1312 the stay time should have been determined based on the ALNOR dose alarm set point of 510 mR to preclude workers from exceeding the SWP 600 mR dose limit. The correct stay time was 7.6 minutes.
- The stay time determined for the workers entering the annulus to attempt to relatch a NI detector well was incorrect. The stay time of 10 minutes used by the coverage RST was incorrect. The stay time was determined based on the time to accumulate 600 mR in a 6000 mR/hr radiation field. The correct stay time was 6 minutes. (01033)

These violations are classified in the aggregate as a Severity Level III problem (Supplement IV).

Civil Penalty - \$55,000

Pursuant to the provisions of 10 CFR 2.201, Baltimore Gas and Electric Company (Licensee) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each alleged violation: (1) admission or denial of the alleged violation, (2) the reasons for the violation if admitted, and if denied, the reasons why, (3) the corrective steps that have been taken and the results achieved, (4) the corrective steps that will be taken to avoid further violations, and (5) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an Order or a Demand for Information may be issued as why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

Within the same time as provided for the response required above under 10 CFR 2.201, the Licensee may pay the civil penalty by letter addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a check, draft, money order, or electronic transfer payable to the Treasurer of the United States in the amount of the civil penalty proposed above, or the cumulative amount of the civil penalties if more than one civil penalty is proposed, or may protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission. Should the Licensee fail to answer within the time specified, an order imposing the civil penalty will be issued. Should the Licensee elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation" and may: (1) deny the violation(s) listed in this Notice, in whole or in part, (2) demonstrate extenuating circumstances, (3) show error in this Notice, or (4) show other reasons why the penalty should not be imposed. In addition to

protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the factors addressed in Section VI.B.2 of the Enforcement Policy should be addressed. Any written answer in accordance with 10 CFR 2.205 should be set forth separately from the statement or explanation in reply pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. The attention of the Licensee is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty due which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The response noted above (Reply to Notice of Violation, letter with payment of civil penalty, and Answer to a Notice of Violation) should be addressed to: James Lieberman, Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852-2738, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region I, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated at King of Prussia, Pennsylvania  
this Second day of September 1998