

NOTICE OF VIOLATION

Boston Edison Company
Pilgrim Nuclear Power Station

Docket No. 50-293
License No. DPR-35
EA 84-112

On August 24, 1984, an NRC special safety inspection was conducted to review the circumstances associated with an unplanned occupational radiation exposure of about 1.1 rem to the hand of a contractor worker during the disassembly of a control rod drive (CRD) in the CRD Repair Room. The radiation exposure was identified by the licensee on August 18, 1984. Although the unplanned occupational radiation exposure was not in excess of the regulatory limit, a substantial potential for such an exposure did exist.

The radiation exposure occurred when the worker handled a highly radioactive chip of material deposited in the spud end of the CRD Flush Tank tool tray. Prior to the incident, health physics technicians had performed surveys in the area of the tool tray and found the area to be exhibiting abnormally high radiation dose rates (500 mrem/hour to 1000 mrem/hour). This information was transmitted to the on-coming health physics technician. Also, the health physics technician should have been aware that highly radioactive chips had previously been found lodged inside other CRDs. However, disassembly of the spud end of a CRD was allowed to be performed without on-going radiation surveys. When the highly radioactive chip was identified after the disassembly of the spud end, the health physics technician did not adequately communicate the radiological hazards of the chip to a worker. As a result, the worker picked up the chip with his hand, held it for several seconds, and then threw it down. The chip was later determined to have a contact radiation dose rate of about 1100 rem/hour.

During subsequent review of the CRD room, the licensee found that (a) 12 other previously unidentified, highly radioactive chips were present in the CRD Repair Room, demonstrating inadequacies in control of general area radiation levels and in radiation surveys, and (b) the procedure used by the workers for disassembly of the CRDs had not been reviewed and approved and had been in use for approximately two months, demonstrating inadequate licensee supervision of on-going contractor activities.

Further, it is not apparent that use of the approved procedure would have prevented this occurrence. The approved procedure did not provide adequate precautionary statements regarding (1) the survey of components prior to handling, (2) the periodic checking of self-reading personnel dosimetry for inadvertent exposure, (3) criteria for disposal and/or ultrasonic cleaning of CRD outer filters, (4) hold points for removal, disassembly, cleaning, inspection, storage and isolation of CRD parts, and (5) dose rate criteria for CRD parts and tools. Such precautions should have been included in the approved procedure to satisfy procedure development guidance specified in the technical specifications and appropriate ANSI Standards.

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In addition, the documented ALARA reviews for the Radiation Work Permit (RWP) associated with the CRD disassembly, and the RWP itself, did not provide guidance relative to allowable general area radiation dose rates in the room, did not provide guidance for allowable radiation dose rates on tools and equipment in the room, and did not provide guidance relative to allowable radioactive contamination of the room. As a result, the general area dose rates in the CRD Repair Room were as high as 400 mrem/hour, although 20 mrem/hour was used for ALARA pre-planning. Further, contamination levels were as high as 650 mrad/hour (removable) and radiation dose rates on tools used by workers for CRD disassembly routinely exhibited contact radiation dose rates as high as 1000 mrem/hour. Although these radiation and contamination levels made identification of chips difficult, work was routinely allowed to be performed in the CRD Repair Room under these conditions.

As a result of these deficiencies, a substantial potential existed for an occupational exposure in excess of the limits specified in 10 CFR Part 20.

In accordance with 10 CFR 2.201 and the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, 49 FR 8583 (March 8, 1984), the violations are set forth below:

- A. 10 CFR 20.201(b) requires that each licensee make or cause to be made such surveys as (1) may be necessary for the licensee to comply with the regulations in this part, and (2) are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. 10 CFR 20.201(a) defines a radiation survey as an evaluation of the radiation hazards incident to the production, use, release, disposal or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above,

1. On August 18, 1984, radiation surveys, necessary and reasonable to ensure compliance with the dosimetry supply provisions of 10 CFR 20.202 and the occupational exposure radiation limits of 10 CFR 20.101, were not made during disassembly of the spud end of a Control Rod Drive (CRD). Specifically, although the area of the tool tray at the spud end was exhibiting abnormally high radiation dose rates between 500 mrem/hour to 1000 mrem/hour and previous experience indicated that highly radioactive chips could become lodged in a CRD, radiation surveys were not performed during initial disassembly of the spud end.
2. Radiation surveys, necessary and reasonable under the circumstances to ensure compliance with the occupational exposure limits of 10 CFR 20.101 and the dosimetry supply provisions of 10 CFR 20.202 were not made in the CRD Repair Room in that on August 18, 1984, and for an undetermined amount of time prior to this date, 12 highly radioactive chips present in the room were not identified, and

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their associated radiological hazards were not evaluated. The 12 chips, located in various areas of the room, exhibited contact radiation dose rates of between about 600 rem/hour to 1200 rem/hour.

- B. 10 CFR 19.12 requires in part that individuals working in or frequenting any portion of a restricted area be kept informed of the storage and use of radioactive materials or of radiation and be instructed in precautions or procedures to minimize exposure.

Contrary to the above, on August 18, 1984, a worker disassembling the spud end of a control rod drive was not adequately instructed by the health physics technician in precautions or procedures to minimize his exposure in that the health physics technician located a highly radioactive chip in a room where work was being performed but did not warn the workers of its presence. As a result, the worker picked up a radioactive chip, measuring about 1100 rem/hour on contact, held it in his hand for several seconds, and then threw it down and thereby received an unplanned extremity exposure of about 1.1 rem.

- C. Technical Specification 6.8.1, requires that written procedures be established, implemented and maintained that meet or exceed the requirements and recommendations of Appendix "A" of USNRC Regulatory Guide 1.33 and be reviewed by the Operations Review Committee (ORC) and approved by the ORC Chairman prior to implementation. Appendix "A" of Regulatory Guide 1.33 (1972) recommends that procedures for replacement and repair of Control Rod Drives be established.

Contrary to the above, from about June 24, 1984 through August 18, 1984, Control Rod Drives were disassembled in the CRD Repair Room and the procedures used during the disassembly had not been reviewed by the ORC and had not been approved by the ORC Chairman.

Collectively, these violations have been categorized in the aggregate as a Severity Level III problem (Supplement IV).

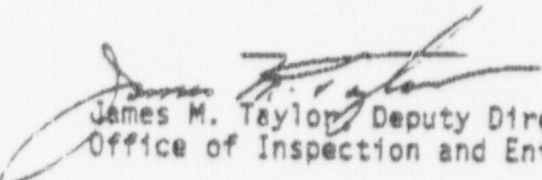
Pursuant to the provisions of 10 CFR 2.201, Boston Edison Company is hereby required to submit to this office, with a copy to the Regional Administrator, Region I, within 30 days of the date of this Notice, a written statement or explanation, including for each alleged violation: (1) admission or denial of the alleged violation; (2) the reasons for the violation, if admitted; (3) the

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corrective steps which have been taken and the results achieved; (4) the corrective steps which will be taken to avoid further violations; (5) the date when full compliance will be achieved. 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.

FOR THE NUCLEAR REGULATORY COMMISSION


James M. Taylor, Deputy Director
Office of Inspection and Enforcement

Dated at Bethesda, Maryland
this 29th day of November 1984