

Indian Point 3  
Nuclear Power Plant  
P.O. Box 215  
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August 15, 1986  
IP3-WAJ-044Z  
IP3-MPC-057B

Docket No. 50-286  
License No. DPR-64

Dr. Thomas E. Murley  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, PA 19406

SUBJECT: INSPECTION NO. 50-286/86-11  
AND NOTICE OF VIOLATION DATED JULY 18, 1986


Dear Dr. Murley:

This letter provides the Authority's response to your Inspection Report No. 50-286/86-11 and the associated Notice of Violation dated July 18, 1986.

Attachment I to this letter addresses the concerns cited in the Notice of Violation.

Should you or your staff have any questions regarding this matter, please contact Mr. Michael P. Cass of my staff.

Sincerely,

  
William A. Josiger  
Resident Manager  
Indian Point Unit 3  
Nuclear Power Plant

Attachments

WAJ:MPC:lg

cc: IP3 Resident Inspector's Office

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Attachment I

Violation

Technical Specification 6.12.1.C requires that when activities are conducted in a high radiation area, either (1) the individuals shall be provided or accompanied by a radiation monitoring device set forth in Technical Specification 6.12.1.C(a) or (b), or (2) an individual qualified in radiation protection procedures shall be responsible for providing positive control over the activities conducted in the area and shall perform periodic radiation surveillance at the frequency specified by the facility Health Physicist in the Radiation Work Permit.

Contrary to the above, on May 3, 1986, an individual, who was not provided or accompanied by a radiation monitoring device described in Technical Specification 6.12.1.C(a) or (b), attempted retrieval of an object from the secondary side of Steam Generator No. 32 by placing his right hand in the hand hole, a high radiation area with dose rates ranging from 7,000 to 12,000 millirems per hour, and at the time, an individual qualified in radiation protection procedures was not assigned to the area to provide positive control over activities specified in Radiation Exposure Authorization (Radiation Work Permit) No. 2878, dated April 28, 1986. As a result, the individual received an unplanned radiation exposure of 2,034 millirems to the upper right arm, bringing his total whole body exposure for the calendar quarter to 2,648 millirems.

## Response

### (1) Reason for Violation

Indian Point 3 had been shut down for a mid-cycle steam generator tube inspection.

Camera inspections of the secondary side of No. 32 steam generator following sludge lancing operations identified a foreign object within the tube bundle. The object was located in proximity to the cold side handhole. A Foreign Object Search And Retrieval (FOSAR) effort was initiated. On May 3, 1986 at approximately 1300 hours, FOSAR activities resulted in an unplanned exposure to a maintenance engineer.

The following sequence of events outlines the activities of the involved individuals prior to the occurrence of the incident:

- o Two maintenance engineers utilized a mockup to test foreign object removal methods.
- o The engineers checked with Health Physics supervision for permission to perform the job.
- o The engineers suited up with appropriate protective clothing and dosimetry.
- o The engineers signed in under REA 2878 (Foreign object sighting and retrieval).
- o The health physics supervisor notified the lead health physics technician on the 46' level of containment that the object retrieval job would be starting, and that continuous HP coverage should be provided.
- o The engineers checked with the lead HP technician on the 46' level of containment for permission to start the job. There was a miscommunication between the lead HP technician and the engineers resulting in the engineers proceeding to the steam generator and ultimately starting work without the necessary HP coverage.
- o The engineers proceeded to the steam generator and started work. Because of the high level of work activity in the area, the HP's did not follow up on the location of the engineers.

The engineers spent approximately one hour on the steam generator platform, and a portion of that time required placing of the right arm inside the handhole. During this attempt to locate and retrieve the object, one of the engineers exceeded the administrative guideline for whole body exposure. However, the engineer did not exceed the exposure limits delineated in 10CFR20.

A review of the incident identified the following contributing causes for the violation.

A. Continuous health physics coverage was not provided.

- i. The miscommunication between the HP and the engineer was the reason that continuous HP coverage was not provided. The miscommunication, in turn was caused by:
  - o Intensive work effort on the 46' level of containment. Simultaneous with the effort to remove the foreign object, the following work was in progress: primary side steam generator eddy current testing, sludge lancing, area decontamination and valve repair. Health Physics coverage was necessary for all these jobs.
  - o The enthusiasm of the engineers in performing this task and the desire to complete the job in a timely manner contributed to the problem.

ii. The REA did not specify continuous health physics coverage.

B. The individuals failed to frequently read their self-reading dosimeters.

- i. Their intensity on the job decreased their normal level of radiological awareness, including the amount of time spent at the handhole.
- ii. The dosimeters were taped inside a bag and were difficult to remove.
- iii. There was a misunderstanding on the part of the engineers concerning the requirements for multiple badging, whole body (upper arms) vs. extremity monitoring (finger ring TLD's and wrist disimeters).

(2) Corrective Steps Taken

The foreign object retrieval job was stopped and the engineer's badge was pulled. He was immediately restricted from entry into the radiologically controlled area and remained restricted from the controlled area for the entire calendar quarter.

Involved Health physics technicians were immediately informed of the incident and of the requirement for continuous coverage during FOSAR.

REA 2878 was modified to ensure subsequent FOSAR work was performed with continuous health physics coverage.

Discussions of the incident were held on May 3, 1986 between appropriate department superintendents and upper management at Indian Point 3. Health Physics and Maintenance supervisors met on May 4, 1986 to discuss the workload and scheduled maintenance activities on the 46' level of containment.

(3) Corrective Steps Taken to Prevent Future Violations

The following actions have been or will be taken to prevent the recurrence of this incident.

- A. A Health Physics procedure has been written to control work associated with the steam generator secondary side handhole, with emphasis on the type of coverage required, timekeeping requirements, and expected dose rate gradients. The procedure will be reviewed and approved by September 1, 1986.
- B. An HP technician training module will be developed covering steam generator handhole work. The lesson plan will include the steam generator handhole procedure, handhole dose rates and gradients, and this incident. The training will be presented prior to the cycle 5/6 refueling outage.
- C. A followup evaluation was performed to verify the dose rate gradient within the handhole. A report issued on May 15, 1986 which details the magnitude of the dose rate gradient within the handhole.
- D. Future improvements to steam generator handhole work are being evaluated. Additional video cameras have been purchased to enhance remote visual HP coverage of the steam generator platforms. Handhole shielding has been purchased and will be evaluated for implementation. The evaluations will be accomplished by the cycle 5/6 refueling outage.
- E. Future handhole work will require that TLD and self-reading dosimeter be securely attached so that sensitive volumes are adjacent. This will provide for better accuracy between the self monitoring device and the TLD badge which is used as the official dose recording device.
- F. Guidance for placement of the dose measuring devices will be included in the HP procedure described in Item A.

- G. For future outages, when unscheduled high priority jobs are necessary, maintenance and HP supervision will evaluate the existing schedule to assure that an excessive workload does not exist.
- H. Training will be provided to maintenance and other appropriate plant personnel to increase awareness of radiological hazards associated with outage maintenance activities. Topics of discussion will include primary and secondary side steam generator work (including handholes), reactor coolant pump work, refueling activities, reactor internals work, and valve maintenance. The training will include requirements for multi-badging for these jobs. This training will be provided prior to cycle 5/6 refueling outage.
- I. Radiation safety training for all employees has been modified to emphasize the awareness of the hazards in the area or job being performed. This includes the importance of checking the self-reading dosimeter frequently, and special or multiple whole body badging requirements.

(4) Date When Actions will be Completed

Time frames have been provided for the completion of certain corrective actions as described in Section (3). All items will be completed prior to scheduled steam generator work during the cycle 5/6 refueling outage.