LIS ORIGINAL

SSINS No.: 6835
IN 86-44

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

June 10, 1986

IE INFORMATION NOTICE NO. 86-44: FAILURE TO FOLLOW PROCEDURES WHEN WORKING IN HIGH RADIATION AREAS

Addressees:

All nuclear power reactor facilities holding an operating license (OL) or a construction permit (CP) and research and test reactors.

Purpose:

This information notice is provided to alert licensees of the problem of recurring, unauthorized entries by maintenance workers into high radiation areas. A recent event is discussed below, and a related event is summarized in Attachment 1. Since the workers ignored and bypassed maintenance procedures that include radiological controls established to limit exposures in high radiation areas, it is fortuitous that during these entries no personnel exposure limits were exceeded.

It is expected that recipients will review this notice for applicability to their facilities' work controls programs and consider actions, if appropriate, to preclude the occurrence of a similar problem at their facilities. Suggestions contained in this information notice do not constitute NRC requirements and, therefore, no specific action or written response is required.

Past Related Correspondence:

INPO Significant Event Report (SER) 50-85, "Uncontrolled Personnel Radiation Exposure," November 4, 1985 (discusses two events).

INPO Significant Operating Experience Report (SOER) 85-3, "Excessive Personnel Radiation Exposures," April 30, 1985 (discusses seven events).

IE Information Notice No. 84-19, "Two Events Involving Unauthorized Entries Into PWR Reactor Cavities," March 21, 1984.

IE Information Notice No. 84-59, "Deliberate Circumventing of Station Health Physics Procedures," August 6, 1984 (discusses six events).

8606040010

Description of Circumstances:

On January 8, 1986, at Turkey Point, an instrument and controls (IC) technician made an unaccompanied, unauthorized entry into a high radiation area to complete repairs on the traversing incore probe (TIP) drive unit with an irradiated TIP withdrawn into the work area. Earlier that same day, with a health physics (HP) technician providing job coverage, the IC technician had made adjustments to the TIP drive unit (dose rates only 5 to 25 mR/hr), which later enabled the technician to successfully withdraw the TIP into the accessible TIP drive work area.

During the unauthorized entry, the IC technician received 500 millirem whole body exposure during an approximately 5-minute stay time in a work area, which was later calculated to be 6 R/hr in the general area. The radiation level 1 foot away from the work area was 65-70 R/hr on contact with the tubing containing the irradiated TIP. The low-range Geiger-Mueller (GM) portable survey instrument (scale of 0-1 R/hr) used by the IC technician upon entering the high radiation area initially moved up the scale to 800 mR/hr and then reportedly went rapidly down the scale to zero, when moved closer the the radiation source. The IC technician failed to recognize the malfunctioning survey instrument and stayed in the area to complete his maintenance task. At these dose rates, it was fortuitous that the technician did not remain in the TIP area for any longer period.

Subsequent licensee and NRC regional review of the event revealed several key factors that contributed to the incident.

1. Failure To Follow Procedures

   Numerous procedural violations occurred before and during the unauthorized entry. These violations included failure to notify HP personnel before operating the TIP, performing craft work outside the scope of the authorized plant work order (PWO), and making entry and working alone on the TIP system.

2. Personnel Shortcomings

   The IC technician's foreman failed to clearly define the TIP system problem and provide adequate instructions on the PWO. The IC technician failed to obey the local radiological area warning, a posting that read "high radiation area - keep out." Inadequate training caused the IC technician to fail to recognize a malfunctioning survey instrument (downscale reading caused by GM detector tube continuous discharge response to intense radiation levels), which he was using to help control his exposure.

The NRC noted subsequent to the event that, although not contributory to this incident, governing maintenance procedures for the TIP system did not require tagging out of other operable TIPs (to prevent inadvertent withdrawal into an occupied work area) with work in progress on a malfunctioning TIP unit. For future TIP work, the licensee agreed to control movement of the irradiated TIPs with equipment tag out controls.

Discussion:

The NRC continues to note repeated occurrences of unauthorized entries into high radiation areas (see Past Related Correspondence). In most of the individual events discussed in these documents and the two events in this notice, failure of personnel to adhere to existing work/control procedures or radiation work permits (RWP), or both, is a central cause of the exposure incidents. Adherence to work/surveillance procedures forms a basic framework for providing effective, consistent radiological controls for work in high radiation areas. Short of providing direct, continuous health physics coverage for each and every task, these procedures serve as the formal mechanism for initiating necessary communications between various plant worker crafts groups and the health physics support group. This communication results in appropriate radiological support (e.g., RWP issuance) for the maintenance/surveillance activities. Bypassing these procedures and thus failing to comply with the radiological precautions in them seriously weakens the health physics control program established to protect the workers. It is the licensee's responsibility to ensure that these procedures are adhered to.

To emphasize the importance of workers properly performing work activities in high radiation areas, appropriate enforcement action has been proposed for the Turkey Point event (proposed $50,000 civil penalty).

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the Regional Administrator of the appropriate regional office or this office.

Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Technical Contacts: James E. Wigginton, IE
(301) 492-4967

Roger L. Pedersen, IE
(301) 492-9425

Attachments:
1. Related Exposure Event
2. List of Recently Issued IE Information Notices

RELATED EVENT SUMMARY

At the Cooper Nuclear Station on August 28, 1985, two IC technicians performed maintenance (TIP alignment) as required by a craft work procedure. Contrary to the work procedure's radiological-cautions warnings, these workers failed to obtain a special RWP and entered the TIP drive enclosure housing, ignoring the access posting, "Notify Health Physics Prior to Opening." The TIP maintenance procedure further warned that the drive unit's Gleason reel is spring loaded and the incore detector could be withdrawn by the spring tension. It further warned that the withdrawn incore detector probe could be highly radioactive.

Upon opening the unsurveyed enclosure, they found the TIP had withdrawn into the enclosure and the detector had broken off. The technicians immediately exited the high radiation and high airborne radioactivity area. The individuals each received approximately 200 mrem whole body exposure and airborne intakes of 44 and 90 MPC-hrs.

As corrective actions, the licensee (1) stressed to all station personnel the importance of properly following radiological controls and (2) revised the governing maintenance procedure to require written documentation (signoff) notifying HP before working on the TIP system.

LIST OF RECENTLY ISSUED IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
86-43	Problems With Silver Zeolite Sampling Of Airborne Radio-iodine	6/10/86	All power reactor facilities holding an OL or CP
86-42	Improper Maintenance Of Radiation Monitoring Systems	6/9/86	All power rector facilities holding an OL or CP
86-41	Evaluation Of Questionable Exposure Readings Of Licensee Personnel Dosimeters	6/9/86	All byproduct material licensees
86-32 Sup. 1	Request For Collection Of Licensee Radioactivity Measurements Attributed To The Chernobyl Nuclear Plant Accident	6/6/86	All power reactor facilities holding an OL or CP
86-40	Degraded Ability To Isolate The Reactor Coolant System From Low-Pressure Coolant Systems in BWRS	6/5/86	All power reactor facilities holding an OL or CP
86-39	Failures Of RHR Pump Motors And Pump Internals	5/20/86	All power reactor facilities holding an OL or CP
86-38	Deficient Operator Actions Following Dual Function Valve Failures	5/20/86	All power reactor facilities holding an OL or CP
86-37	Degradation Of Station Batteries	5/16/86	All power reactor facilities holding an OL or CP
86-36	Change In NRC Practice Regarding Issuance Of Confirming Letters To Principal Contractors	5/16/86	All power reactor facilities holding an OL or CP

OL = Operating License
CP = Construction Permit