

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION &
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

September 2, 1993

NRC INFORMATION NOTICE 93-69: RADIOGRAPHY EVENTS AT OPERATING POWER REACTORS

Addressees

All holders of operating licenses or construction permits for nuclear power reactors and all radiography licensees.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert licensees to three events involving radiography at operating nuclear power plants. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

During three events in late 1992 and early 1993, employees at nuclear reactor facilities circumvented controls established to ensure the safe conduct of radiography. In each event, licensee personnel made unauthorized entries into areas where radiography was either just about to occur or in progress. No significant exposures resulted from these events; however, such events indicate a potential for significant exposures.

Zion Event

On December 9, 1992, an operator on routine rounds in the auxiliary building entered an area that was temporarily roped off and posted with a sign that read, "High Radiation Area; Radiography In Progress; Exclusion Area; Do Not Enter." The operator had read and signed a radiation work permit that allowed entry into high radiation areas normally encountered during operator rounds and felt that he was authorized to enter the area. However, Zion Station procedures require the use of a specific radiation work permit to enter areas in which radiography is taking place. Once inside the area, the operator encountered the radiographer who had just finished setting up his equipment and was doing a final boundary check. The radiographer noted he was not authorized to enter this area and escorted the operator from the radiography area. Subsequent interviews with the operator indicated that he was unaware of the significant radiological hazards associated with radiography.

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Kewaunee Event

On March 27, 1993, a licensee supervisor made an unauthorized entry into an area in the turbine building that was temporarily roped off and posted with a sign that read "Radiation Area; Danger - Keep Out; Radiography In Progress; Contact Health Physicist Prior To Entry." The supervisor was obtaining temperature data in the area and had not read or signed the appropriate radiation work permit nor was he wearing proper dosimetry for the restricted area. After obtaining his data, he was observed leaving the area by Health Physics personnel who were responsible for watching the boundary while radiography was in progress. The Health Physics personnel were watching a different boundary when the licensee supervisor entered the unauthorized radiography area. Subsequent interviews with the individual indicated that he did not stop and read the sign. The licensee dose estimate indicated that the individual received an approximate dose of 0.001 mSv [0.1 mrem].

Dresden Event

About 11:00 p.m. on February 13, 1993, two workers made an unauthorized entry into a posted radiologically controlled area established for radiography in the Unit 1 high-pressure coolant injection building. The two radiographers and the radiation protection technician involved with the radiography were on a meal break at the time of the entry. After the break, the radiographers and the radiation protection technician returned to the radiological controlled area, without verifying the area was free of personnel. Radiography was resumed and after 5 minutes of a 6 minute exposure had elapsed, the radiographers observed the two workers leaving the area. In its review of the event, the licensee determined that the two workers disregarded the postings and intentionally entered the area to hold a personal conversation in a room on the second floor of the building. Both workers were wearing thermoluminescent dosimeters but had not signed the appropriate radiation work permit for the radiography area. The route to the second floor led through the first-floor room where the radiography source was located, but was some distance away from the source. The licensee determined that doses of 0.15 mSv [15 mrem] and 0.30 mSv [30 mrem] were received by the two individuals. The two individuals received disciplinary action from the licensee.

Discussion

Radiography sources can create radiation fields in which permissible occupational dose standards can be exceeded in a short period of time. Although doses were low in the three events described above, each could have resulted in more serious exposures had the timing been different or had personnel been closer to the radiography source. Appropriate enforcement actions have been taken against the licensees as a result of the events. In

an effort to improve control during radiography, licensees have taken the corrective actions, including some of the following, as a result of their review of and lessons learned from the events.

- (1) Heightened employee awareness of the potential hazards associated with radiography through the use of station newsletters.
- (2) Enhanced general employee training to ensure that licensee employees receive information describing the radiological hazards associated with radiography and radiography controls.
- (3) Emphasized to licensee employees the importance with regard to safety of obeying radiological procedures, signs, and warnings.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation project manager.



Carl J. Paperiello, Director
Division of Industrial
and Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards



Brian K. Grimes, Director
Division of Operating Reactor Support
Office of Nuclear Reactor Regulation

Technical contacts: William G. Snell, RIII
(708) 790-5513

John B. Carrico, NMSS
(301) 504-2634

Attachments:

1. List of Recently Issued NMSS Information Notices
2. List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
NMSS INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
93-60	Reporting Fuel Cycle and Materials Events to the NRC Operations Center	08/04/93	All fuel cycle and materials licensees.
93-50	Extended Storage of Sealed Sources	07/08/93	All licensees authorized to possess sealed sources.
93-36	Notifications, Reports, and Records of Misadministrations	05/07/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-31	Training of Nurses Responsible for the Care of Patients with Brachytherapy Implants	04/13/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-30	NRC Requirements for Evaluation of Wipe Test Results; Calibration of Count Rate Survey Instruments	04/12/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-19	Slab Hopper Bulging	03/17/93	All nuclear fuel cycle licensees.
93-18	Portable Moisture-Density Gauge User Responsibilities during Field Operations	03/10/93	All U.S. Nuclear Regulatory Commission licensees that possess moisture-density gauges.
93-14	Clarification of 10 CFR 40.22, Small Quantities of Source Material	02/18/93	All Licensees who possess source material.
93-10	Dose Calibrator Quality Control	02/02/93	All Nuclear Regulatory Commission medical licensees.

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 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
93-68	Failure of Pump Shaft Coupling Caused by Temper Embrittlement during Manufacture	09/01/93	All holders of OLs or CPs for nuclear power reactors.
92-16, Supp. 2	Loss of Flow from the Residual Heat Removal Pump during Refueling Cavity Draindown	08/23/93	All holders of OLs or CPs for nuclear power reactors.
93-67	Bursting of High Pressure Coolant Injection Steam Line Rupture Discs Injures Plant Personnel	08/16/93	All holders of OLs or CPs for nuclear power reactors.
93-66	Switchover to Hot-Leg Injection Following A Loss-of-Coolant Accident in Pressurized Water Reactors	08/16/93	All holders of OLs or CPs for pressurized water reactors.
93-65	Reactor Trips Caused by Breaker Testing with Fault Protection Bypassed	08/13/93	All holders of OLs or CPs for nuclear power reactors.
93-64	Periodic Testing and Preventive Maintenance of Molded Case Circuit Breakers	08/12/93	All holders of OLs or CPs for nuclear power reactors.
93-63	Improper Use of Soluble Weld Purge Dam Material	08/11/93	All holders of OLs or CPs for nuclear power reactors.
93-62	Thermal Stratification of Water in BWR Reactor Vessels	08/10/93	All holders of OLs or CPs for boiling water reactors.

OL = Operating License
 CP = Construction Permit

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Original signed by

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- *SEE PREVIOUS CONCURRENCE

OFF	**REGION III	*TECH ED	*PRPB:NRR	*NRR:DRSS:D	*OGCB:DORS
NAME	WGSnell	MMejac	LJCunningham	FJCongel	NECampbell
DATE	07/08/93	07/21/93	08/03/93	08/10/93	07/30/93
*C:OGCB:DORS	*D:IMNS	D:DORS			
GHMarcus	CJPaperiello	BKGrimes			
08/19/93	08/10/93	08/21/93			

Document Name: 93-69.IN

**Electronic concurrence

***Projects has reviewed this information notice
 Zion - Clyde Shiraki
 Kewaunee - Richard Laufer
 Dresden - Peter Erickson

***NMSS, Industrial, Medical
 Nuclear Safety
 Division Director
 C.J. Paperiello
 08/10/93

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 Nuclear Safety
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 C.J. ~~Papariello~~ *Papariello*
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EB
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Campbell

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 Division Director C.G. Popovich
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