

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, D.C. 20555

June 11, 1987

NRC INFORMATION NOTICE NO. 87-25: POTENTIALLY SIGNIFICANT PROBLEMS RESULTING FROM HUMAN ERROR INVOLVING WRONG UNIT, WRONG TRAIN, OR WRONG COMPONENT EVENTS

Addressees:

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

Purpose:

This information notice is provided to inform recipients of potentially significant problems resulting from human error involving wrong unit, wrong train, or wrong component events. It is expected that recipients will review the information for applicability and consider actions, if appropriate, to preclude similar problems from occurring at their facilities. Suggestions contained in this notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

On April 14, 1987, with Calvert Cliffs Unit 1 in Mode 5 and electrical terminal boxes open for equipment qualification work, plant personnel were attempting to use a portion of the containment spray system to fill the safety injection tanks. In preparation for this, an operator had been sent to close a Unit 1 containment spray valve. However, the operator mistakenly closed the corresponding Unit 2 containment spray valve. The inadvertent containment spray actuation resulted in approximately 4000 gallons of borated water being injected into the Unit 1 containment and created the potential for electrical equipment degradation due to wetting by borated water (boric acid intrusion).

Discussion:

A large number of reports have been made to the NRC that describe events resulting from human error involving actions performed on the wrong unit, wrong train, or wrong component. A study published in January 1984 by the NRC Office for Analysis and Evaluation of Operational Data, "Human Error in Events Involving Wrong Unit or Wrong Train," and supplementary reports on August 8, 1984, February 13, 1986, September 19, 1986, and May 20, 1987, have identified more than 200 events of this nature that have occurred since 1981. The data indicate that there does not appear to be any substantial change in the rate of occurrence in events per reactor year, and that the rate of these events at

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plants with little operating experience seems to be higher than that at plants with more experience. Examples of recent events caused by human error involving the wrong unit, wrong train, or wrong component are described below.

A study performed by the Office of Nuclear Reactor Regulation and reported in NUREG-1192, "An Investigation of the Contributors to Wrong Unit or Wrong Train Events," indicates that some of the primary causes of the events studied were inadequate labeling of plant equipment, components, and areas; inadequate personnel training and experience; and inadequate procedures. Examples of actions taken by licensees to help prevent recurrence of these types of events are also given.

Adequate procedures, planning, labeling, and training of personnel usually prevent such events from happening. In addition, an independent verification program can assist in promptly identifying and correcting the misalignment of plant systems. The frequency and number of such events being reported to the NRC suggest that industry needs to increase its attention in these areas.

#### Additional Events:

On May 13, 1986, with Kewaunee at power, personnel were performing a surveillance procedure on the power range nuclear instrumentation. The protection signal bistables had been tripped to test Channel N44; however, a test signal simulating an increased power level was inadvertently input to Channel N43. This created the necessary 2 out of 4 coincidence logic and the reactor tripped on simulated overpower  $\Delta T$ .

On January 11, 1986, with St. Lucie 2 at power, an operator was performing the weekly turbine overspeed surveillance. A manual turbine trip (and subsequent reactor trip) occurred when the operator inadvertently actuated the turbine trip lever instead of the test lever.

On March 18, 1985, with Surry 1 and 2 at power, an operator assigned to "lock out" the automatic initiation of CO<sub>2</sub> portion of the fire protection system for Fire Zone #8 (the Unit 2 containment penetration area) to facilitate construction activities, mistakenly "locked out" the CO<sub>2</sub> for Fire Zone #5 (the Unit 1 cable vault). This error went undetected for approximately 10 hours and resulted in a violation of the Technical Specifications (no fire watch in affected area).

#### References:

Information on independent verification programs is provided by IE Information Notice 84-51, "Independent Verification." Information regarding inadvertent defeat of safety function caused by human error involving wrong unit, wrong train, or wrong component events is provided by IE Information Notice 84-58, "Inadvertent Defeat of Safety Function Caused by Human Error Involving Wrong Unit, Wrong Train, or Wrong System."

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.

*Charles E. Rossi*  
Charles E. Rossi, Director  
Division of Operational Events Assessment  
Office of Nuclear Reactor Regulation

Technical Contact: Jack Ramsey, NRR  
(301) 492-9081

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
INFORMATION NOTICES 1987

| Information Notice No. | Subject   | Date of Issuance | Issued to   |
|------------------------|---|------------------|---|
| 87-24                  | Operational Experience Involving Losses of Electrical Inverters                             | 8/4/87           | All nuclear power reactor facilities holding an OL or CP.                     |
| 87-23                  | Loss of Decay Heat Removal During Low Reactor Coolant Level Operation                       | 5/27/87          | All PWR facilities holding an OL or CP.                                       |
| 87-22                  | Operator Licensing Requalification Examinations at Nonpower Reactors                        | 5/22/87          | All research and nonpower reactor facilities.                                 |
| 87-21                  | Shutdown Order Issued Because Licensed Operators Asleep While on Duty                       | 5/11/87          | All nuclear power facilities holding an OL or CP and all licensed operators.  |
| 87-20                  | Hydrogen Leak in Auxiliary Building   | 4/20/87          | All nuclear power facilities holding an OL or CP                              |
| 86-108<br>Sup. 1       | Degradation of Reactor Coolant System Pressure Boundary Resulting from Boric Acid Corrosion | 4/20/87          | All PWR facilities holding an OL or CP.                                       |
| 86-64<br>Sup. 1        | Deficiencies in Upgrade Programs for Plant Emergency Operating Procedures.                  | 4/20/87          | All nuclear power facilities holding a CP or OL.                              |
| 85-61<br>Sup. 1        | Misadministrations to Patients Undergoing Thyroid Scans                                     | 4/15/87          | All licensees authorized to use byproduct material                            |
| 87-19                  | Perforation and Cracking of Rod Cluster Control Assemblies                                  | 4/9/87           | All Westinghouse power PWR facilities holding an OL or CP                     |
| 87-18                  | Unauthorized Service on Telotherapy Units by Non-licensed Maintenance Personnel             | 4/8/87           | All NRC licensees authorized to use radioactive material in telotherapy units |

OL = Operating License  
CP = Construction Permit

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\*See Previous Concurrence

OGCB:DOEA:NRR\*  
JRamsey  
06/4/87

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MHarwell  
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OGCB/DOEA:NRR  
JRamsey  
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