

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

June 27, 1991

NRC INFORMATION NOTICE NO. 91-42: PLANT OUTAGE EVENTS INVOLVING  
POOR COORDINATION BETWEEN OPERATIONS AND  
MAINTENANCE PERSONNEL DURING VALVE  
TESTING AND MANIPULATIONS

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

This information notice is intended to alert addressees to potential problems resulting from poor coordination between operations and maintenance personnel during valve testing and manipulations. 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 do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

During plant outages, plant personnel may perform many testing and maintenance activities concurrently. Valve testing and manipulation, in particular, must be carefully coordinated so that system status is maintained for accomplishing safety-related functions and preventing inadvertent spills. The following events demonstrate the importance of maintaining proper coordination between operations and maintenance personnel.

FARLEY UNIT 1--APRIL 24, 1991

During a refueling outage at the Joseph M. Farley Nuclear Plant, Unit 1, the licensee drained approximately 4500 gallons of water from the refueling water storage tank (RWST) to the containment sump by performing inappropriate valve manipulations.

A motor-operated valve testing team requested permission from the shift supervisor to test five valves associated with the containment sump. The shift supervisor did not specify that the valves be tested one at a time. The valve testing team placed all five valves in mid-position. This action aligned a flow-path from the RWST to the containment sump. The control room operators were notified of a spill in the containment sump and subsequently shut one of the valves in the flowpath. Approximately 4500 gallons of water had spilled into the containment sump.

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QUAD CITIES UNIT 1--JANUARY 24, 1991

During a refueling outage, plant personnel opened (for maintenance) the shutdown cooling suction valve without appropriately notifying the operations department as required by the test plan being used. This action initially resulted in losing five inches of coolant from the reactor vessel with some of the water exiting the reactor coolant system through open shutdown cooling vent and drain valves. The vessel lost an additional nine inches of coolant when the shutdown cooling suction header refilled as it was restored to service. Control room personnel did not expect the two sudden reductions in reactor vessel level.

BRAIDWOOD UNIT 1--OCTOBER 4, 1990

During a maintenance outage, 620 gallons of coolant spilled as a result of improper valve sequencing because of poor coordination between the control room and auxiliary building personnel. This spill contaminated three individuals and burned one of them.

A valve testing team reported to the control room that a seat leak test was complete on the residual heat removal (RHR) suction isolation valve from the hot leg of the reactor coolant system (RCS). The team also reported that they were shutting the vent valve used for this test. Without receiving positive confirmation that the vent valve was closed, the control room personnel opened the RHR suction isolation valve from the RCS hot leg for stroke time testing. This action aligned the RCS to the open vent valve, which caused a tygon measuring tube to break loose and spray the three test personnel. The control room personnel then shut the same valve to stop the spill. The coolant level in the pressurizer decreased approximately five percent during this event.

FOREIGN REACTOR EVENT--FALL 1990

During a refueling outage, RHR was lost for 46 minutes and the temperature of the reactor coolant increased 30 degrees C. This event occurred because a suction valve in the RHR system was unintentionally shut without valve indication in the control room and without the operators knowing when the work activities involved would take place.

Initially, RHR train B was aligned to transfer water from the refueling water storage tank to the refueling cavity. When the refueling cavity reached the desired water level, the operators attempted to restore the normal RHR train B lineup. When the B train RHR pump was started, operators noticed signs of cavitation and secured it. RHR train A was unavailable because of electrical maintenance. Operators attempted to restore both RHR trains to service. They determined that the problem with RHR train B was a RHR pump suction isolation valve that had jammed shut. They subsequently pried the valve open to restore the RHR flowpath. The utility investigated the incident and found that the valve motor was incorrectly continuously energized with temporary power. The

temporary power was supposed to provide remote operability and indication for the valve, but the electrical contractor mistakenly connected the temporary power directly to the valve motor.

Discussion:

All of these events involved poor coordination and/or errors during valve testing and manipulations. These events illustrate the importance in maintaining proper control over the operation of valves during outages when many testing and maintenance activities may be occurring simultaneously.

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

*Charles E. Rossi*

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

Technical Contacts: David L. Gamberoni, NRR  
(301) 492-1171

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(301) 492-1176

Attachment:

List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
91-41	Potential Problems with the Use of Freeze Seals	06/27/91	All holders of OLs or CPs for nuclear power reactors.
88-63, Supp. 2	High Radiation Hazards from Irradiated Incore Detectors and Cables	06/25/91	All holders of OLs or CPs for nuclear power reactors, research reactors, and test reactors.
91-40	Contamination of Non-radioactive System and Resulting Possibility for Unmonitored, Uncontrolled Release to the Environment	06/19/91	All holders of OLs or CPs for nuclear power reactors.
91-39	Compliance with 10 CFR Part 21, "Reporting of Defects and Noncompliance"	06/17/91	All Nuclear Regulatory Commission (NRC) material licensees.
91-38	Thermal Stratification in Feedwater System Piping	06/13/91	All holders of OLs or CPs for nuclear power reactors.
91-37	Compressed Gas Cylinder Missile Hazards	06/10/91	All holders of OLs or CPs for nuclear power reactors.
91-36	Nuclear Plant Staff Working Hours	06/10/91	All holders of OLs or CPs for nuclear power reactors.
91-35	Labeling Requirements for Transporting Multi-Hazard Radioactive Materials	06/07/91	All U.S. Nuclear Regulatory Commission (NRC) licensees.
91-34	Potential Problems in Identifying Causes of Emergency Diesel Generator Malfunctions	06/03/91	All holders of OLs or CPs for nuclear power reactors.
91-33	Reactor Safety Information for States During Exercises and Emergencies	05/31/91	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License  
CP = Construction Permit

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Original Signed by  
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\*Please see previous concurrences.

\*Intn'l Programs  
 06/14/91

OFC	:EAB:DOEA:NRR:EAB:DOEA:NRR	:PM:PD2-1:NRR:SC:EAB:DOEA:NRR:C:EAB:DOEA:NRR			
NAME	:*DGamberoni	:*DKirkpatrick	:*SHoffman	:*DFischer	:*AChaffee
DATE	: 05/23/91	:05/23/91	:05/23/91	:05/23/91	:05/30/91

OFC	:Tech Ed	:C:OGCB:DOEA:NRR: D:DOEA:NRR			
NAME	:*JMain	:*CBerlinger	: Gross		
DATE	:06/10/91	:06/17/91	: 06/25/91		

Summary:

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International Programs
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