

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

June 15, 1993

NRC INFORMATION NOTICE 93-44: OPERATIONAL CHALLENGES DURING A DUAL-UNIT  
TRANSIENT

Addressees

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

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to inform addressees of an event during which an atypical shift staffing level and lack of familiarity with the tasks to be performed in that shift configuration affected the ability of the control room operating shift to respond to the event. 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

On December 31, 1992, a dual-unit reactor trip initiated by an electrical fault in the switchyard occurred at the Sequoyah Nuclear Plant. Units 1 and 2 at Sequoyah share a common control room. At the time of the event the control room reactor operator staffing was the minimum allowed by the plant Technical Specifications (TS); shift staffing consisted of five licensed senior operators (the shift operations supervisor, one assistant shift operations supervisor for each unit, the shift technical advisor, and an additional senior operator) and three reactor operators - two assigned to Unit 1 and one assigned to Unit 2. The NRC inspection team investigating the event concluded that the Unit 2 response to the event, with one reactor operator, was hampered by lack of adherence to procedures, operator errors, and an unnecessary cooldown of the reactor coolant system (RCS) after the reactor trip. The Unit 1 response to the same event, with two reactor operators, was normal.

Discussion

An NRC inspection team reviewed the effects of the Unit 2 staffing level during the event with regard to the crew's ability to stabilize the unit after the reactor trip occurred. The inspection team concluded that the Unit 2 staffing level delayed the recovery of plant systems, contributed to erroneous decisions made by the assistant shift operations supervisor (ASOS), and

9306080170

PDR I & E Notice 93-044

930615  
QD&R-11C

QFOL  
1/0

overburdened and challenged the crew's ability to perform tasks in the manner in which it was trained. Control room simulator training scenarios had not been conducted using only one reactor operator.

Although the normal shift staffing and training consisted of two reactor operators for each unit, licensee operational staffing practices resulted in the frequent use of one reactor operator for one of the units. The licensee used this reduced staffing configuration 12 times in December 1992. In this configuration, with the dual-unit transient, the single reactor operator performed all of the recovery evolutions for the unit as directed by the ASOS in charge of the unit.

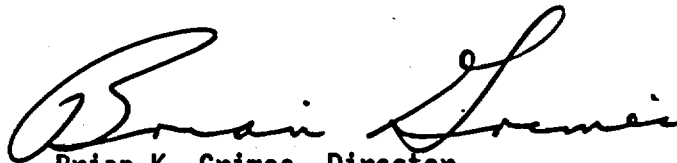
Because of delays caused by the one reactor operator performing primary and secondary system recovery evolutions, as required by the applicable recovery procedures, an RCS cooldown resulted. This was a direct result of the crew not adequately controlling auxiliary feedwater after the reactor trip. The atypical staffing level also contributed to problems involving the decision of the assistant shift operations supervisor to use the normal-batch borate process in response to the cooldown rather than the emergency borate process as required by the emergency procedure. The decision not to use the emergency borate process was made, in part, because of the reluctance of the assistant shift operations supervisor to commit the one reactor operator to the emergency borate process, which restricts the operator's attention to monitoring only that activity.

As a corrective action to prevent recurrence, the licensee implemented revised administrative controls to ensure that the control room staffing will be maintained at two reactor operators for each operating unit. The need for additional training at minimum staffing levels is being evaluated by the licensee.

#### Related Generic Communications

1. IN 85-80, "Timely Declaration of an Emergency Class, Implementation of an Emergency Plan, and Emergency Notifications," dated October 15, 1985
2. IN 91-77, "Shift Staffing at Nuclear Power Plants," dated November 26, 1991

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 Office of Nuclear Reactor Regulation (NRR) project manager.



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

Technical contacts: S. M. Shaeffer, RII  
(615) 842-8001

D. R. Desaulniers, NRR  
(301) 504-1043

Attachment: *(In accordance with)*  
List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
93-43	Use of Inappropriate Lubrication Oils in Safety-Related Applications	06/10/93	All holders of OLs or CPs for nuclear power reactors.
93-42	Failure of Anti-Rotation Keys in Motor-Operated Valves Manufactured by Velan	06/09/93	All holders of OLs or CPs for nuclear power reactors.
93-41	One Hour Fire Endurance Test Results for Thermal Ceramics Kaowool, 3M Company FS-195 and 3M Company Interam E-50 Barrier Systems	05/28/93	All holders of OLs or CPs for nuclear power reactors.
93-40	Fire Endurance Test Results for Thermal Ceramics FP-60 Fire Barrier Material	05/26/93	All holders of OLs or CPs for nuclear power reactors.
93-39	Radiation Beams from Power Reactor Biological Shields	05/25/93	All holders of OLs or CPs for nuclear power reactors.
93-38	Inadequate Testing of Engineered Safety Features Actuation System	05/24/93	All holders of OLs or CPs for nuclear power reactors.
93-37	Eysbolts with Indeterminate Properties Installed in Limitorque Valve Operator Housing Covers	05/19/93	All holders of OLs or CPs for nuclear power reactors.
93-36	Notifications, Reports, and Records of Misadministrations	05/07/93	All U.S. Nuclear Regulatory Commission medical licensees.
93-35	Insights from Common-Cause Failure Events	05/12/93	All holders of OLs or CPs for nuclear power plants (NPPs).

OL = Operating License  
CP = Construction Permit

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE, \$300

FIRST CLASS MAIL  
POSTAGE AND FEES PAID  
USNRC  
PERMIT NO. G-67

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 Office of Nuclear Reactor Regulation (NRR) project manager.

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

Technical contacts: S. M. Shaeffer, RII  
(615) 842-8001

D. R. Desaulniers, NRR  
(301) 504-1043

Attachment:  
List of Recently Issued NRC Information Notices


**\*SEE PREVIOUS CONCURRENCE**

*DD:DRCH	*D:DRCH
RGallo	BBoger
05/21/93	05/21/93

*PD2-4:DRPE		*DRP:RII RVC
FHebdon	for	EMerschhoff
06/02/93		05/28/93

*OGCB:DORS	*TechEd
TJKim	MMejac
05/28/93	05/24/93

*OGCB:DORS
GMarcus
06/04/93

  
DORS:NRR  
BGrimes  
06/10/93

DOCUMENT NAME: 93-44.IN

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 Office of Nuclear Reactor Regulation (NRR) project manager.

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

Technical contacts: S. M. Shaeffer, Region II  
(615) 842-8001

D. R. Desaulniers, NRR  
(301) 504-1043

Attachment:  
List of Recently Issued NRC Information Notices

**\*SEE PREVIOUS CONCURRENCE**

*DD:DRCH	*D:DRCH
RGallo	BBoger
05/21/93	05/21/93

*PD2-4:DRPE	
FHebdon	for
06/02/93	

*DRP:RII RVC
EMerschhoff
05/28/93

*OGCB:DORS	*TechEd
TJKim	MMejac
05/28/93	05/24/93

OGCB:DORS
GMarcus <i>OK</i>
06/4/93 <i>melem</i>

DORS:NRR
BGrimes
06/ /93

DOCUMENT NAME: SEQUOYAH.INF

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 contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

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

Technical contact: S. M. Shaeffer, Region II  
(615) 842-8001

D. R. Desaulniers, NRR  
(301) 504-1043

Attachment: List of Recently Issued NRC Information Notices

File Name: SEQUOYAH.INF

Concurrences

DD:DRCH  
RCallo  
05/2/93

*For N/Comments*  
D:DRCH  
BBoyer  
05/2/93

PD24:DRPE  
FHebdon  
05/2/93

DRP:RII RVC  
EMerschhoff  
05/28/93

OGCB:DORS  
TJKim  
05/28/93

TechEd  
M. Mejia  
05/24/93

OGCB:DORS  
GMarcus  
05/ /93

DORS:NRR  
BGrimes  
05/ /93

**From:** Richard V. Crlenjak (RVC)  
**To:** TJK3  
**Date:** Friday, May 28, 1993 1:01 pm  
**Subject:** RII CONCURRENCE OF PROPOSED IN

Region II has completed a review of the proposed Information Notice, OPERATIONAL CHALLENGES DURING A DUAL-UNIT TRANSIENT. We have no further comments and concur with the proposed IN.

Should you need any additional info let me know.

Thanks, Jack

**CC:** WEH, PJK1, SMS, AFG, JRJ, TAP, EWM