

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

December 4, 1990

NRC INFORMATION NOTICE NO. 90-74: INFORMATION ON PRECURSORS TO
SEVERE ACCIDENTS

Addressees:

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

Purpose:

This information notice is intended to alert addressees to the existence of reports that examine events that have occurred at commercial nuclear power plants and that quantify how close these events were to causing severe core damage. This information notice does not contain NRC requirements; therefore, no specific action or written response is required.

Discussion:

The Office for Analysis and Evaluation of Operational Data and its consultants at the Oak Ridge National Laboratory have published a series of accident sequence precursor study reports ("Precursors to Potential Severe Core Damage Accidents: [year] A Status Report"). The studies reviewed licensee event reports (LERs), for the period from January 1969 through December 1989, to identify and categorize precursor events to potential severe core damage accidents. Accident sequences considered in these studies were those associated with the failure of one or more safety systems, the degradation of two or more safety systems, or the occurrence of an initiator; such as loss-of-offsite power, loss of coolant accident, steam line break, or a transient with complications. When coupled with one or more other postulated events, precursor events may result in a plant condition in which core cooling is inadequate. Study of accident precursors has indicated that the causes of the most safety significant events are essentially the same as those of minor events and can reveal areas of a plant's design, procedures, or operation that potentially could contribute to a severe core damage accident. The accident sequence precursor study reports estimate the conditional probability of core damage, given the occurrence of precursor events.

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The accident sequence precursor study reports may be obtained from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 37082, Washington, D.C. 20013-7082. The following reports are available:

<u>Year(s)</u>	<u>Document Number</u>
1969 to 1979	(NUREG/CR-2497, vol. 1 and 2)
1980 to 1981	(NUREG/CR-3591, vol. 1 and 2)
1984	(NUREG/CR-4674, vol. 3 and 4)
1985	(NUREG/CR-4674, vol. 1 and 2)
1986	(NUREG/CR-4674, vol. 5 and 6)
1987	(NUREG/CR-4674, vol. 7 and 8)
1988	(NUREG/CR-4674, vol. 9 and 10)
1989	(NUREG/CR-4674, vol. 11 and 12)

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: Adel El-Bassioni, NRR
(301) 492-1094

Fred Manning, AEOD
(301) 492-4426

Attachment: List of Recently Issued NRC Information Notices

**LIST OF RECENTLY ISSUED
 NRC INFORMATION NOTICES**

Information Notice No.	Subject	Date of Issuance	Issued to
90-73	Corrosion Of Valve-To-Torque Tube Keys In Spray Pond Cross Connect Valves	11/29/90	All holders of OLs or CPs for nuclear power reactors.
90-72	Testing of Parallel Disc Gate Valves In Europe	11/28/90	All holders of OLs or CPs for nuclear power reactors.
90-71	Effective Use of Radiation Safety Committees to Exercise Control Over Medical Use Programs	11/6/90	All NRC licensees authorized to use by-product material for medical purposes.
90-70	Pump Explosions Involving Ammonium Nitrate	11/6/90	All uranium fuel fabrication and conversion facilities.
90-38, Supp. 1	License and Fee Requirements for Processing Financial Assurance Submittals for Decommissioning	11/6/90	All fuel facility and materials licensees.
89-30, Supp. 1	High Temperature Environments At Nuclear Power Plants	11/1/90	All holders of OLs or CPs for nuclear power reactors.
90-69	Adequacy of Emergency and Essential Lighting	10/31/90	All holders of OLs or CPs for nuclear power reactors.
90-68	Stress Corrosion Cracking of Reactor Coolant Pump Bolts	10/30/90	All holders of OLs or CPs for pressurized water reactors (PWRs).
90-67	Potential Security Equipment Weaknesses	10/29/90	All holders of OLs or CPs for nuclear power reactors and Category I fuel facilities.

OL = Operating License
 CP = Construction Permit

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Changes to the final draft were discussed with Ed-Bassioni on 11/24/90. c = Rossi

*SEE PREVIOUS CONCURRENCE

*C:OGCB:NRR *TECHED
 CBerlinger JMain

11/27/90 11/27/90

OFC	:*RAB:DREP:NRR	:*SC:RAB:DREP	:*BC:RAB:DREP	:*D:DREP:NRR	:D:DBEA	*AEOD
NAME	:GKelly:bw	:AE1-Bassioni	:WBeckner	:FCongel	:CRossi	:Novak

DATE	:11/02/90	:11/02/90	:11/02/90	:11/13/90	:11/28/90	:11/28/90
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The following Accident Sequence Precursor Study reports may be obtained from the:

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 U.S. Government Printing Office
 P.O. Box 37082
 Washington, D.C. 20013-7082

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C:OGGS:NRR
 CBerlinger

TECHED
 JMain

*Technical comments
 made and concurred
 CHB
 V. Benaroya
 concurred for
 AEOD in phone
 call 11-27-90
 AEB*

*SEE PREVIOUS CONCURRENCE

11/27/90

11/27/90

OFC	:*RAB:DREP:NRR	:*SC:RAB:DREP	:*BC:RAB:DREP	:*D:DREP:NRR	:D:DOEA	:AEOD
NAME	:GKelly:bw	:AEl-Bassioni	:WBeckner	:FCongel	:CRossi	:TNovak
DATE	:11/02/90	:11/02/90	:11/02/90	:11/13/90	:11/ /90	:11/ /90

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most important accident sequences in these reports can help to identify areas of a plant's design, procedures, or operation that potentially could contribute to a severe core damage accident. In addition the NRC believes that many important insights, applicable on a plant-specific basis, can be derived from the reports.

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