

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

June 22, 1988

NRC INFORMATION NOTICE NO. 88-41: PHYSICAL PROTECTION WEAKNESSES IDENTIFIED  
THROUGH REGULATORY EFFECTIVENESS REVIEWS  
(RERs)

Addressees:

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

Purpose:

This information notice is being provided to alert addressees to potential problems resulting from weaknesses that may exist in their physical security systems and programs. The NRC identified physical security weaknesses during safeguards regulatory effectiveness reviews (RERs) at a number of plant sites. 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 Weaknesses:

During recent RERs, which assess a licensee's capability to cope with the NRC's design-basis threats, the staff identified problems at a number of sites. These findings involved such areas as intrusion detection systems, vital area barriers, alarm assessment and response, access portal search equipment, and weapons deployment and mix.

Some examples of findings identified at various sites that have generic applicability are given below.

1. Support posts, junction boxes, and fencing located in close proximity to perimeter intrusion detection systems have been demonstrated to be potential penetration aids for successfully defeating detection. Some intrusion detection systems also could be circumvented in certain instances by crawling. In addition, RER team members have found weaknesses in intrusion detection coverage on the roofs, ledges, and walls of structures that make up a portion of the protected area barrier at some sites.
2. Several sites have had difficulty distinguishing between nuisance or false alarms and alarms activated by a simulated intruder.

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3. Some vital area barriers were found where ventilation openings and ducting, walls, and hatches provided little resistance to undetected penetration by hand tools available within the protected area.
4. Performance problems with X-ray equipment were experienced at a few sites during RERs. Coordination of X-ray and explosive detection techniques also was a weakness at some sites.
5. Weaknesses were found in the storage locations and in the accessibility of response weapons and equipment.
6. Detection systems sometimes were not functionally tested following software changes to the security computer system.
7. Problems were identified with regard to the backup power supply for protected area security lighting.
8. Tactical training exercises have been infrequent or did not cover the range of potential safeguards contingencies consistent with NRC's design-basis threat.

#### Discussion:

To be fully effective, physical protection must be supported by a management commitment to excellence; performance testing of equipment, procedures, and personnel functions; and good maintenance. The approaches that some licensees have employed for dealing with the above-mentioned weaknesses are given below. However, these are not the only acceptable solutions; alternative solutions may exist that are better suited to the conditions of a particular site.

#### Intrusion Detection:

Reducing the height or changing the configuration of intrusion detection system support posts and relocating junction boxes and fencing are means of eliminating these objects from serving as penetration aids. Stacking microwave heads, adding E-field wire or shortening detection zones have been effective against jumping or crawling. Reconfiguring, replacing, or repairing existing intrusion detection systems or adding additional intrusion detection devices have, in some instances, improved the capability to detect attempted penetration over, around, or through protected area barrier structures.

#### Alarm Assessment:

Alarm assessment has been improved in several cases by the addition and/or enhancement of closed-circuit television cameras; timely and thorough on scene verification by a security patrol; the addition of a second fence to delay a running adversary; and/or increasing the alarm callup monitor speed.

#### Vital Area Barriers:

At a number of sites, material such as welded deck grating has been used to provide a substantial barrier. In some cases, intrusion detection systems have been installed to detect any attempted penetration of vital area barriers. Adequacy

of barriers is affected by factors such as time required to penetrate in relation to detection and response capability, the amount of normal foot traffic through the area, and the extent of concealment available to adversaries.

**Entry Searches:**

Licensees have made modifications to access controls to ensure that all hand-carried items will be subjected to appropriate explosives search. Insensitive equipment has been upgraded or replaced with new equipment at some facilities.

**Response Weapons and Equipment:**

Some licensees have stored response weapons in more than one location to facilitate a timely response to a security contingency and to prevent easy interdiction of the response force. Ammunition placed in the weapons that are locked in storage or in load bearing systems (e.g., cartridge case) can also facilitate rapid deployment.

**Computer Software Changes:**

In addition to testing those zones affected by software modifications, some licensees randomly test the remainder of the system to verify that it has not been adversely affected by the change, either accidentally or deliberately.

**Security Lighting:**

Uninterruptible power supply systems have been used as the preferred source of backup power. Station or security generators and station batteries also have been used.

**Tactical Training:**

Some licensees are increasing the frequency and thoroughness of tactical training drills for their security forces. Security training officers have been given specialized education and training in tactics.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.



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

Technical Contact: Michael S. Warren, NRR  
(301) 492-3211

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
 NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
88-40	Examiners' Handbook for Developing Operator Licensing Examinations	6/22/88	All holders of OLs or CPs for nuclear power reactors.
88-39	LaSalle Unit 2 Loss of Recirculation Pumps With Power Oscillation Event	6/15/88	All holders of OLs or CPs for BWRs.
88-38	Failure of Undervoltage Trip Attachment on General Electric Circuit Breakers	6/15/88	All holders of OLs or CPs for nuclear power reactors.
88-37	Flow Blockage of Cooling Water to Safety System Components	6/14/88	All holders of OLs or CPs for nuclear power reactors.
88-36	Possible Sudden Loss of RCS Inventory During Low Coolant Level Operation	6/8/88	All holders of OLs or CPs for PWRs.
88-35	Inadequate Licensee Performed Vendor Audits	6/3/88	All holders of OLs or CPs for nuclear power reactors.
88-34	Nuclear Material Control and Accountability of Non-Fuel Special Nuclear Material at Power Reactors	5/31/88	All holders of OLs or CPs for nuclear power reactors.
87-61, Supplement 1	Failure of Westinghouse W-2-Type Circuit Breaker Cell Switches	5/31/88	All holders of OLs or CPs for nuclear power reactors.
88-33	Recent Problems Involving the Model Spec 2-T Radiographic Exposure Device	5/27/88	All Agreement States and NRC licensees authorized to manufacture, distribute or operate radiographic exposure devices and source changers.

OL = Operating License  
 CP = Construction Permit

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*SEE PREVIOUS CONCURRENCES	 B/DOEA-NRR CERoss1 06/17/88	*C/OGCB:DOEA:NRR CHBerlinger 06/15/88	*PPMB:ARM TechEd 05/27/88
*OGCB:DOEA:NRR NPKadambi 05/19/88	*RSGB:DRIS:NRR MWarren 05/19/88	*RSGB:DRIS:NRR RDube 05/19/88	*C/RSGB:DRIS:NRR RErickson 05/19/88
			*AD/DRIS:NRR BGrimes 05/26/88

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\*See Previous Concurrence

OFC	:RSGB:NRR	:RSGB:NRR	:RSGB:NRR	:AD:RRIS:NRR	:OGCB:NRR	:OGCB:NRR
NAME	:MWarren* <i>mw</i>	:RDube*	:RErickson*	:BGrimes* <i>BJ</i>	:NPKadamb1*	:CHBerlinger
DATE	:05/19/88	:05/19/88	:05/19/88	:05/16/88 <i>mw</i>	:05/19/88	: / /88
OFC	:DOEA:NRR	: Editor	:	:	:	:
NAME	:CERossi	: <i>CR</i>	:	:	:	:
DATE	: / /88	: 5-27-88	:	:	:	:

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DATE	:5/19/88	:5/19/88	:5/19/88	:1/88 <i>MK</i>	:5/19/88	:1/88
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