UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

September 19, 1986

IE INFORMATION NOTICE NO. 86-83: UNDERGROUND PATHWAYS INTO PROTECTED AREAS, VITAL AREAS, MATERIAL ACCESS AREAS, AND CONTROLLED ACCESS AREAS

Addressees:

All nuclear power reactor facilities holding an operating license or construction permit and fuel fabrication and processing facilities using or possessing formula quantities of special nuclear material.

Purpose:

This notice is to advise licensees of the potential for undetected, unauthorized access to controlled areas on the site through unprotected, underground pathways. The existence of any unprotected underground pathway of the type described below may be considered a violation and may be reportable to the NRC in accordance with the appropriate sections of 10 CFR Part 73.

It is expected that the recipients of this notice will review the information for applicability to their facilities and consider actions, if appropriate, to preclude similar problems from occurring at their facilities. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required at this time.

Description of Circumstances:

There have been a number of recent discoveries by licensees and NRC inspectors of underground pathways into protected areas (PAs), vital areas (VAs), material access areas (MAAs), and controlled access areas (CAAs). These pathways are normally some form of tunnel, pipe, or other design feature for which no protection had been installed or from which the protective features have been removed. (Protective features must provide a nonremovable physical obstacle to attempted entry to, or exit from, the tunnel.) Because these penetrations are often underground, traditional intrusion detection systems are ineffective for monitoring unauthorized attempts at entry, and the existence of such a pathway simultaneously defeats both the barrier and monitoring elements of access control.

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The following examples were discovered at various sites during recent inspections:

1. Large piping used as part of the storm drain system led from outside the PA to inside the PA where numerous unsecured manhole covers were located.

2. Personnel restraint bars which were required by design had not been installed in a 20-inch drain line penetrating a vital area barrier.

3. Personnel restraint features installed in a heating, ventilating, and air conditioning system had only bolted covers which failed to meet the standards for physical barriers, thereby reducing the overall level of security.

4. Two large storm drains penetrated the VA barrier and could be accessed by as many as 30 unsecured manholes and other openings inside the PA. One of the drain outfalls was covered by a grate that was secured by four bolts into the concrete, but bolts had not been welded or peened over and were accessible for easy removal by a hand wrench. The other could be accessed through two manholes secured only with a metal strap and brass shackled locks.

5. A drainage pipe extended from outside the PA into the PA. The manhole cover intended to seal the opening inside the PA had originally been welded closed, but traffic over the grate had broken the weld.

Discussion:

Improperly secured underground pathways into PAs and VAs pose a potentially significant threat to site security because they allow unauthorized and undetected access. The seriousness of the threat is determined by the physical characteristics of the pathway, which include the type of entry as well as impediments to entry.

Vital area barriers are expected to completely enclose vital equipment to prevent the introduction of objects and materials useful in sabotage as well as to preclude unauthorized access by individuals. Therefore, any opening that reduces effectiveness of the barrier would be unacceptable.

Any breach of a PA barrier that exceeds the industry standards of 96 square inches with at least one dimension greater than 6 inches (as referenced in NUREG-0908 and ANSI 3.3) is considered to be sufficient to allow the unauthorized entry of an individual. Therefore, openings into or out of tunnels that cross PA physical barriers may not exceed the 96-square-inch standard. Openings include the open ends of the tunnel, removable grates and manholes, and gaps in the grates and manholes.

However, the 96-square-inch standard applies only to two-dimensional openings and may not apply to large pipes and tunnels. Tunnels may be slightly larger than 96 square inches cross-section (11.04-inch diameter) and still preclude passage to a controlled area because its length and circuitous route may make it impossible for an intruder to move along the interior of the tunnel in such a small area.

It is suggested that licensees review their physical barriers for suspected penetrations to assure that they conform to existing requirements. It is advisable that any variation from the 96-square-inch standard be documented and appended to the physical security plan (PSP). It is suggested that these situations be evaluated and that a determination be made as to whether operational or physical impediments to entry should be installed.

Continuous operational impediments to entry include such things as continuous flushing, high pressure areas, or other activity that would prevent a person from using the tunnel. Discontinuous or random operational impediments cannot adequately preclude unauthorized entry.

Physical impediments to entry can include bars installed in the tunnel to reduce the size of the opening; grates or covers that are locked and alarmed, welded, or permanently installed in a way that precludes the entry of a person; bottlenecks in the tunnel; pipe bundles installed inside the tunnel; or other devices that form a barrier between the areas. Note that physical impediments must have penetration resistance equivalent to that specified in 10 CFR 73.2 for physical barriers.

No written response to this information notice is required. If you need additional information about this matter, please contact the Regional Administrator of the appropriate NRC regional office or the technical contact listed below.

Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Technical Contact: Dick Rosano, IE
(301) 492-4006

Attachment: List of Recently Issued IE Information Notices

Attachment 1
IN 86-83
September 19, 1986

LIST OF RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
86-82	Failures Of Scram Discharge Volume Vent And Drain Valves	9/16/86	All power reactor facilities holding an OL or CP
86-81	Broken Inner-External Closure Springs On Atwood & Morrill Main Steam Isolation Valves	9/15/86	All power reactor facilities holding an OL or CP
86-80	Unit Startup With Degraded High Pressure Safety Injection System	9/12/86	All power reactor facilities holding an OL or CP
86-79	Degradation Or Loss Of Charging Systems At PWR Nuclear Power Plants Using Swing-Pump Designs	9/2/86	All power reactor facilities holding an OL or CP
86-78	Scram Solenoid Pilot Valve (SSPV) Rebuild Kit Problems	9/2/86	All BWR facilities holding an OL or CP
86-77	Computer Program Error Report Handling	8/28/86	All power reactor facilities holding an OL or CP and nuclear fuel manufacturing facilities
86-76	Problems Noted In Control Room Emergency Ventilation Systems	8/28/86	All power reactor facilities holding an OL or CP
86-75	Incorrect Maintenance Procedure On Traversing Incore Probe Lines	8/21/86	All power reactor facilities holding an OL or CP
86-74	Reduction Of Reactor Coolant Inventory Because Of Misalignment Of RHR Valves	8/20/86	All BWR facilities holding an OL or CP
86-73	Recent Emergency Diesel Generator Problems	8/20/86	All power reactor facilities holding an OL or CP

OL = Operating License
CP = Construction Permit

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