

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

March 28, 1979

IE Information Notice No. 79-08

INTERCONNECTION OF CONTAMINATED SYSTEMS WITH SERVICE AIR SYSTEMS USED AS
THE SOURCE OF BREATHING AIR

Description of Circumstances:

This Information Notice describes an event which occurred at the Peach Bottom Nuclear Power station; however, the generic implications may be applicable to other power reactors and selected fuel cycle facilities.

On October 4, 1978, the Philadelphia Electric Company (PECO) reported that, on two occasions at Unit 2, contamination had leaked from the radwaste system to a system used to provide the plant source of breathing air. The leakage occurred through an interconnection of the radwaste system with the plant breathing air source. PECO established that no personnel were subjected to contaminated breathing air as a result of this leakage.

One of the functions of the service air system at Peach Bottom is to provide a source of breathing air for personnel using supplied air respiratory protective equipment. By means of an interconnection to the radwaste system, the facility also uses the service air system to provide a source of compressed air during the backwash cycle of the demineralizer filter element. The compressed air provides the motive force for reverse water flow through the filter element and was being used to perform this function when the two incidents occurred. Liquid from the radwaste system leaked past a check valve and a process valve. PECO determined by analysis of liquid samples that contamination had leaked into the service air system. Valves in the leakage path were subsequently dismantled and examined. The examinations revealed the presence of dirt deposits in the check valve and air operated ball valve. PECO attributes the specific cause of the leakage to these dirt deposits which prevented the proper seating of the valves.

NRC contacts with other operating power reactors have indicated that other facilities also use service air as a source of breathing air. In several cases, the service air system is physically interconnected to other systems which carry radioactive material and relies on valves or other barriers to prevent contamination of the plant source of breathing air.

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NUREG-0041, "Manual of Respiratory Protection Against Airborne Radioactive Materials," which supplements the stipulations of Regulatory Guide 8.15, states in Section 9.8, "A separate breathing air supply and distribution system shall be used. The ordinary plant supply of compressed air in any building shall not be used for breathing purposes...unless it has been specifically modified and properly adapted for such use and specifically approved for this purpose by the qualified person supervising the respiratory protective equipment program."

At those facilities where service air is used as a source of breathing air, certain precautions can be taken to minimize the potential of a problem similar to the one described. By review of the service air system and as-built (or design) drawings, interconnections between contaminated systems and the source of breathing air can be identified. Where interconnections are identified, the design should assure that adequate separation is provided. In addition, operating procedures should provide for controls to prevent contamination of the breathing air source.

No specific action or written response to this Information Notice is required. If you desire additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

LISTING OF IE INFORMATION NOTICES
ISSUED IN 1979

Information Notice No.	Subject	Date Issued	Issued To
79-01	Bergen-Paterson Hydraulic Shock and Sway Arrestor	2/2/79	All power reactor facilities with an OL or a CP
79-02	Attempted Extortion - Low Enriched Uranium	2/2/79	All Fuel Facilities
79-03	Limitorque Valve Geared Limit Switch Lubricant	2/9/79	All power reactor facilities with an OL or a CP
79-04	Degradation of Engineered Safety Features	2/16/79	All power reactor facilities with an OL or a CP
79-05	Use of Improper Materials in Safety-Related Components	3/21/79	All power reactor facilities with an OL or CP
79-06	Stress Analysis of Safety-Related Piping	3/23/79	All Holders of Reactor OL or CP
79-07	Rupture of Radwaste Tanks	3/26/79	All power reactor facilities with an OL or CP
79-08	Interconnection of Contaminated Systems with Service Air Systems Used As the Source of Breathing Air	3/28/79	All power reactor facilities with an OL and Pu Processing fuel facilities