

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

April 19, 1985

IE INFORMATION NOTICE NO. 85-31: BUILDUP OF ENRICHED URANIUM IN VENTILATION
DUCTS AND ASSOCIATED EFFLUENT TREATMENT
SYSTEMS

Addressees:

All uranium fuel fabrication licensees.

Purpose:

This information notice is provided to alert recipients of a potentially significant problem pertaining to criticality safety at enriched uranium fuel fabrication plants. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude a similar problem 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.

Description of Circumstances:

This notice provides information regarding a potential for the buildup of uranium in ventilation ducts and associated effluent treatment systems of enriched uranium fuel fabrication plants. For nuclear criticality safety purposes, licensees establish controls to prevent a buildup of enriched uranium in unsafe or unfavorable geometry ventilation equipment and other effluent treatment systems.

On two occasions recently, significant quantities of highly enriched uranium were found in unfavorable geometry effluent ducts and treatment systems as a result of settling or deposition of uranium-bearing solids.

In one event, uranium-bearing solids or vapors were picked up in the ventilation system and deposited on the inside of the ventilation ducts and scrubber walls above the water line. The deposition appears to have increased as the air stream cooled and when air changed direction in elbows. The accumulation above the water line appears to have resulted from splashing and subsequent drying of scrubber liquid on the scrubber walls. To control this situation the licensee initiated a surveillance program to identify accumulations of uranium in the effluent system and to take appropriate corrective actions when uranium buildup

exceeded predetermined limits. Also, a program was initiated to identify the uranium source and to take remedial actions to prevent the uranium from entering the system.

In another event, uranium solids were deposited in unfavorable geometry ducts as a result of changes in the speed or direction of air flows. Periodic cleaning of the ducts prevented a significantly large accumulation of uranium. As a control measure, the licensee initiated a visual inspection and a radiation detection surveillance program to identify significant accumulation of uranium in unfavorable geometry ventilation and effluent treatment systems.

Discussion:

These incidents are significant to nuclear criticality safety because enriched uranium accumulated in excess of acceptable quantities in ventilation and effluent treatment systems of unfavorable geometry. The lack of an adequate licensee program for detecting, locating, and estimating the quantity of the depositions was the major contributing factor.

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



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Attachment: List of Recently Issued IE Information Notices

LIST OF RECENTLY ISSUED
 IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
85-30	Microbiologically Induced Corrosion Of Containemnt Service Water System	4/19/85	All power reactor facilities holding an OL or CP
85-29	Use Of Unqualified Sources In Well Logging Applications	4/12/85	All well logging source licensees
85-03 Sup. 1	Separation Of Primary Reactor Coolant Pump Shaft And Impeller	4/9/85	All power reactor facilities holding an OL or CP
85-28	Partial Loss Of AC Power And Diesel Generator Degradation	4/9/85	All power reactor facilities holding an OL or CP
85-27	Notifications To The NRC Operations Center And Reporting Events In Licensee Event Reports	4/3/85	All power reactor facilities holding an OL or CP
85-26	Vacuum Relief System For Boiling Water Reactor Mark I And Mark II Containments	4/2/85	All BWR facilities having a Mark I or Mark II containment and holding an OL or CP
85-25	Consideration Of Thermal Conditions In The Design And Installation Of Supports For Diesel Generator Exhaust Silencers	4/2/85	All power reactor facilities holding an OL or CP
85-24	Failures Of Protective Coatings In Pipes And Heat Exchangers	3/26/85	All power reactor facilities holding an OL or CP
85-23	Inadequate Surveillance And Postmaintenance And Post-modification System Testing	3/22/85	All power reactor facilities holding an OL or CP
85-22	Failure Of Limitorque Motor-Operated Valves Resulting From Incorrect Installation Of Pinon Gear	3/21/85	All power reactor facilities holding an OL or CP

OL = Operating License
 CP = Construction Permit