UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 76012

PDR
[redacted]
TIC
NSIC
CENTRAL FILES

June 24, 1980

In Reply Refer To:
Docket No. 50-192

The University of Texas
ATTN: Dr. E. F. Gloyna, Dean
College of Engineering
Austin, Texas 78712

Gentlemen:

The enclosed IE Circular No. 80-14 is forwarded to you for information. If there are any questions related to your understanding of the suggested actions, please contact this office.

Sincerely,

for Karl V. Seyfrit
Director

Enclosures:
1. IE Circular No. 80-14
2. List of IE Circulars Recently Issued

cc: The University of Texas
ATTN: D. E. Klein, Director
Nuclear Reactor Lab.
Austin, TX 78712

cc: The University of Texas
ATTN: J. A. Burack, Supervisor
Nuclear Reactor Lab.
Austin, TX 78712

8008140155

SSINS.: 6830
Accession No.:
8005050074

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

RADIOACTIVE CONTAMINATION OF PLANT DEMINERALIZED WATER SYSTEM AND RESULTANT INTERNAL CONTAMINATION OF PERSONNEL

This circular describes an event which occurred at a nuclear power facility; however, the generic implications may be applicable to research reactors, and fuel cycle facilities.

On March 17, 1980, a licensee informed the NRC resident inspector that portions of the plant demineralized water (DW) system were found to be radioactively contaminated. A temporary hose used to add demineralized water to the spent fuel pool was the pathway for the cross-contamination. After this fuel pool makeup was completed on March 14, the temporary DW line (still connected to the DW header) was inadvertently left submerged in the fuel pool. Since the DW header pressure at the point of supply was relatively low (a DW booster pump had been secured), a siphoning action occurred, resulting in radioactive contamination of portions of the DW header.

On March 17, 1980, while performing routine secondary system chemical analyses, the licensee discovered that the demineralized water tap in the chemistry lab contained high levels of boron and had activity of 1.5 x 10-4 uCi/ml (mainly Cs-134, Cs-137, Co-58, Co-60 and Mn-54). It was subsequently discovered that demineralized water from the chemistry laboratory supply tap had been used to make five (5) pots of coffee. The remaining coffee was confiscated and the twenty-three (23) individuals who had consumed this coffee were whole-body counted. All involved individuals showed no intake greater than an equivalent 0.01 MPC-HRS. Analysis performed by the licensee's radiation consultant, based on the maximum concentration of radioactivity found in the coffee, indicated that the resultant 50-year dose commitment to an individual drinking eight ounces of this coffee would be less than 1 millirem.

Further licensee investigation revealed that the non-radiological chemistry DW supply tap was the only DW supply point outside the Auxiliary Building controlled area. This DW supply tap was tagged prohibiting human consumption to prevent a similar event in the future.

It is recommended that you review your facility's use of demineralized water (DW) via temporary connections and give attention to the following:

1. Provisions should be made to assure that radioactive materials are not inadvertently introduced into your facility's DW system via the improper use of temporary connections. A temporary cross connection between contaminated systems and the DW system without adequate physical controls to prevent cross-contamination should be prohibited.

2. In addition to some physical means of preventing backflow into the DW system, appropriate administrative controls should be established to ensure that the DW supply valve is secured and temporary hosing is disconnected from the DW supply header after use.

3. Use of plant-supplied DW for human consumption should be prohibited. The potable water system should be the only authorized source of water for human consumption.

4. Examine potable and demineralized water systems to determine if pathways exist allowing or having the potential to allow contamination of these systems including temporary connections whereby siphons could cause situations described above.

No written response to this Circular is required. Your review of this matter to determine its applicability to your facility and any corrective and preventive actions taken or planned, as appropriate, will be reviewed during a subsequent NRC inspection. If you desire additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

RECENTLY ISSUED
IE CIRCULARS

Circular No.	Subject	Date Issued	Issued To
80-09	Problems With Plant Internal Communications Systems	4/28/80	All holders of a power reactor Operating License (OL) or Construction Permit (CP)
80-10	Failure to Maintain Environmental Qualification of Equipment	4/29/80	All holders of Reactor Operating Licenses (OLs) and Construction Permits (CPs)
80-11	Emergency Diesel Generator Lube Oil Cooler Failures	5/13/80	All holders of a power reactor Operating License (OL) or Construction Permit (CP)
80-12	Valve-Shaft-To-Actuator Key May Fall Out of Place When Mounted Below Horizontal Axis	5/14/80	All holders of Reactor Operating Licenses (OLs) and Construction Permits (CPs)
80-13	Grid Strap Damage in Westinghouse Fuel Assemblies	5/18/80	All holders of Reactor Operating Licenses (OLs) and Construction Permits (CPs)

Enclosure