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UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
611 RYAN PLAZA DRIVE, SUITE 1000  
ARLINGTON, TEXAS 76011

November 24, 1980

In Reply Refer To:  
RIV

Docket Nos. 50-458/IE Information Notice No. 80-42  
50-459/IE Information Notice No. 80-42

1980 DEC 2 PM 1 00  
REGISTRATION SERVICES  
UNRESTRICTED  
SERVICES UNIT

Gulf States Utilities  
Attn: Dr. E. Linn Draper, Jr.  
Vice President - Technology  
Post Office Box 2951  
Beaumont, Texas 77704

Gentlemen:

The enclosed IE Information Notice is provided as an early notification of a probably significant matter. Recipients of this notice should review the information for possible applicability to their facilities. However, no specific action or response is requested at this time. If further NRC evaluations so indicate, an IE Circular or Bulletin will be issued to recommend or request specific licensee actions. If you have questions regarding this matter, please contact the Director of the appropriate NRC Regional Office.

Sincerely,

*Karl V. Seyfrit*  
Karl V. Seyfrit  
Director

Enclosures:

- 1. IE Information Notice  
No. 80-42
- 2. List of Recently Issued  
IE Information Notices

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

IE Information Notice No. 80-42  
Date: November 24, 1980  
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EFFECT OF RADIATION ON HYDRAULIC SNUBBER FLUID

Description of Circumstances:

On August 7, 1980, Florida Power Corporation (FPC) filed a report in accordance with 10 CFR Part 21 that identified an upper service limit of 10 Mrad (megarad) of radiation on the General Electric Versilube F-50 fluid that was provided in Anker-Holth shock suppressors mounted on the reactor coolant pumps.

This upper limit was obtained from the results of a study performed for FPC by Rensselaer Polytechnic Institute (RPI). These results contained two items of prime importance to the operation of the suppressors. The first result was a significant increase of the viscosity of the fluid to the extent that incipient gelation of the fluid occurred at exposures of approximately 50 Mrad. The viscosity increased linearly for exposures up to 20 Mrad and then increased exponentially for exposures greater than 20 Mrad. The second result showed that hydrochloric acid (HCl) was formed in significant quantities when the fluid was subjected to radiation. The following table lists the dose irradiation time and HCl formed.

Dose (Mrad)	Irradiation Time	HCl Formed (ppm)
0		2.78
1.2	1 minute	70.3
5.8	5 minutes	329.
5.8	10 hours	335.
18.5	11.2 minutes	555
50.3	15.2 minutes	1592

One of the recommendations by the RPI personnel was that the fluid be replaced before a limit of approximately 6 Mrads was reached. FPC reported that the fluid in service at Crystal River No. 3 plant had absorbed doses ranging from 2.3 to 3.6 Mrads, these values were determined by comparing the viscosity of the fluid in service to that of the test samples at RPI. The Technical Instruction Manual that is provided by the vendor for these suppressors contains a recommendation that 12.5 Mrads should be the maximum service life for Versilube F-50.

This IE Information Notice is provided as an early notification of a possibly significant matter that is still under review by the NRC staff. Recipients should review the information for possible applicability to their facilities. No specific action or response is requested at this time. If NRC evaluations so indicate, further licensee actions may be requested or required.

No written response to this IE Information Notice is required. If you have any questions regarding this matter, please contact the Director of the appropriate NRC Regional Office.

LISTING OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date Issued	Issued To
80-35	Leaking and Dislodged Iodine-124 Implant Seeds	10/10/80	All categories G and G1 medical licensees
80-36	Failure of Steam Generator Support Bolting	10/10/80	All nuclear power reactor facilities holding Operating Licenses (OLs) or Construction Permits (CPs)
80-37	Containment Cooler Leaks and Reactor Cavity Flooding at Indian Point Unit 2	10/24/80	All nuclear power facilities holding power reactor Operating Licenses (OLs) or Construction Permits (CPs)
80-38	Cracking in Charging Pump Casing Cladding	10/30/80	All Pressurized Water Reactor Facilities holding power reactor Operating Licenses (OLs) and Construction Permits (CPs)
80-39	Malfunctions Of Solenoid Valves Manufactured By Valcor Engineering Corporation	10/31/80	All light water reactor facilities holding power reactor Operating Licenses (OLs) or Construction Permits (CPs)
80-40	Excessive Nitrogen Supply Pressure Actuates Safety-Relief Valve Operation to Cause Reactor Depressurization	11/7/80	All power facilities with an Operating License (OL) or Construction Permit (CP)
80-41	Failure of Swing Check Valve in the Decay Heat Removal System at David-Besse Unit No. 1	11/10/80	All power reactor facilities with an Operating License (OL) or Construction Permit (CP)

Enclosure