



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
631 PARK AVENUE  
KING OF PRUSSIA, PENNSYLVANIA 19406

November 24, 1980

Docket No. 50-412

Duquesne Light Company  
ATTN: Mr. E. J. Woolever  
Vice President  
435 Sixth Avenue  
Pittsburgh, Pennsylvania 15219

13 NRC  
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Gentlemen:

The enclosed IE Information Notice No. 80-42, "Effect of Radiation on Hydraulic Snubber Fluid," is forwarded to you for information. No written response is required. If you desire additional information regarding this matter, please contact this office.

Sincerely,

*Boyce H. Grier*  
Boyce H. Grier  
Director

Enclosures:

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

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cc w/encls:  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

SSINS No.: 6835  
Accession No.:  
8008220261  
IN 80-42

*Dupe*

November 24, 1980

IE Information Notice No. 80-42: 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.

IE Information Notice No. 80-42  
November 24, 1980

Enclosure 2

RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date Issued	Issued to
80-41	Failure of Swing Check Valve in the Decay Heat Removal System at Davis-Besse Unit No. 1	11/10/80	All holders of a power reactor OL or CP
80-40	Excessive Nitrogen Supply Pressure Activates Safety-Relief Valve Operation to Cause Reactor Depressurization	11/6/80	All holders of a power reactor OL or CP
80-38	Cracking in Charging Pump Casing Cladding	10/30/80	All holders of a PWR power reactor OL or CP
80-37	Containment Cooler Leaks and Reactor Cavity Flooding at Indian Point Unit 2	10/24/80	All holders of a power reactor OL or CP
80-36	Failure of Steam Generator Support Bolting	10/10/80	All holders of a power reactor OL or CP
80-35	Leaking and Dislodged Iodine-125 Implant Seeds	10/10/80	All holders of a Category G or G1 Medical License
80-34	Boron Dilution of Reactor Coolant During Steam Generator Decontamination	9/26/80	All holders of a PWR Power Reactor OL
80-33	Determination of Teletherapy Timer Accuracy	9/15/80	All holders of a teletherapy license
80-32	Clarification of Certain Requirements for Exclusive-use Shipments of Radioactive Materials	9/12/80	All holders of an NRC or Agreement State License