

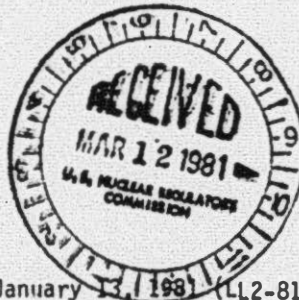


UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

March 10, 1981

Docket No. 50-320

Mr. Gale Hovey
Vice President and
Director of TMI-2
Metropolitan Edison Company
P.O. Box 480
Middletown, Pennsylvania 17057



Dear Mr. Hovey:

This letter is in response to your letter of January 13, 1981 (LL2-81-0008), concerning future EPICOR-II operations. Your suggested action to switch from organic ion exchange media to inorganic media in future EPICOR-II prefilters is constructive in that it eliminates concerns as to degradation of the loaded organic media in previously loaded prefilters. Before starting any future EPICOR-II operations utilizing inorganic media, please provide the physical and chemical properties and arrangement of the three stages of the EPICOR-II system.

With regard to the loading of these units to 1300 Curies based on onsite analyses, we understand that this can actually amount to a loading of as much as 2000 Curies or more when the full decay chain for the radionuclides involved is accounted for as noted in your report on "Methodology and Calculation of Integrated Dose to EPICOR-II Prefilters" of December 15, 1980. The present method of estimating the radionuclide loadings of the liners is apparently based primarily upon gamma analysis. This results in values which are somewhat at variance with actual loadings. Therefore, before starting any future EPICOR-II operations, please establish a sampling and analytical program that will provide a more accurate measure of the content of each significant radionuclide in each ion exchange stage.

Regarding the stability of inorganic ion exchange media in radiation fields, we agree that data available to date from the government sector on the stability of zeolite ion exchange media when loaded with radioactive materials seems quite good. However, we request that you provide the basis for your statement that this behavior will prevent the development of corrosive conditions or liner pressurization. At our earlier discussion of future EPICOR-II operations, it was noted by the NRC staff that organic and inorganic media and combinations thereof in the dewatered state appeared to be corrosive to carbon steel under radiation conditions. Qualitative tests of this nature were performed by Pennsylvania State University and reported by them in the October 1980 report, Radiation Effects on Ion Exchangers Used in Radioactive Waste Management, and by Brookhaven National Laboratory in their preliminary report, BNL-NUREG-28682,

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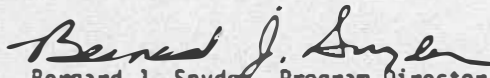
Mr. Gale Hovey

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provided to you in early December 1980. These investigations indicated that corrosion was evident on carbon steel samples exposed to such materials under radiation conditions while similar unirradiated control samples exhibited little or no corrosive attack.

Since the projected storage period for these wastes may be as long as 10 years as discussed in our meeting on this subject late last year, a more quantitative estimate of corrosion conditions is requested. We understand that your metallurgical experts are reviewing this matter and that you expect to include this evaluation in your final liner integrity report which is expected shortly. Preliminary advice from your staff indicates that the carbon steel liners will retain their integrity considerably beyond the maximum anticipated storage period of ten years. However, we believe that it is prudent that an evaluation of the use of more corrosion resistant material for the first stage ion exchange vessels be performed. Please provide this assessment within 60 days.

Sincerely,

A handwritten signature in dark ink, appearing to read "Bernard J. Snyder", is written over the typed name.

Bernard J. Snyder, Program Director
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