



The University of Michigan

MICHIGAN MEMORIAL - PHOENIX PROJECT
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January 5, 1994

Docket No. 50-002
License No. R-28

US Nuclear Regulatory Commission
Region III
ATTN: W. L. Axelson, Director
Division of Radiation Safety and Safeguards
799 Roosevelt Road
Glen Ellyn, Illinois 60137-5927

Dear Mr. Axelson:

SUBJECT: RESPONSE TO YOUR LETTER OF 6 DECEMBER 1993 RE: NRC INSPECTION REPORT
NO. 50-002/93004 (DRSS)

I appreciate your response to my letter dated September 30, 1993 and the modifications made to the Notice of Violation. On the remaining point we can agree to disagree, but I won't repeat the points that I made in the letter.

You asked that we provide you with a statement describing the criteria that we used to determine the shelf life of the mixed gamma standard and the evaluation that we did to determine the adequacy of the "expired" standard. I have asked Alan M. Jackson, Health Physicist, to provide this response. His statement follows:

NRC requested that we provide the criteria used to determine the shelf life of the mixed gamma standard prepared by Analytics Inc. This evaluation included the following elements:

- A comparison of the calibration values obtained with the new source and the "expired" source. These calibration factors did not significantly change from when the source was new to the when the source was "expired."
- Results of blind cross checks (EPA samples). Correct results for analyses of mixed radionuclide concentrations were obtained using the "expired" source.
- Analyzing the importance of the loss of the ^{203}Hg line. This line was removed by me prior to the "expiration" date since I had already determined that this line was too weak. Thus, prior to NRC concerns, I was clearly aware of the problems of using an old calibration source (even an unexpired one). My evaluation determined that the source retained several useful calibration photons. Finally, I convinced myself that the calibration program was sufficiently resilient to use fewer and weaker calibration lines.

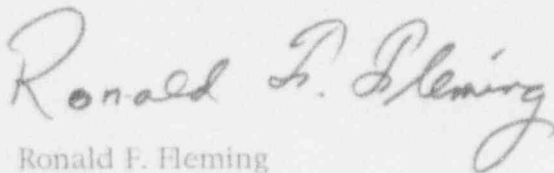
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- Discussions with several gamma spectroscopy experts to evaluate whether using an expired source was reasonable. These experts universally agreed that this "expired" source could be used for this application.
- A visual inspection did not indicate that the source was degraded in any way.
- Knowledge that other similar calibration sources produced by other vendors do not expire.

All of these reasons amount to the use of my professional judgment. I could have easily procured a new source prior to the expiration date. I had previously chosen this option of renewal at the "expiration" date. Certainly, I could not have been criticized for this practice. I remain convinced that this particular "expiration" date was chosen arbitrarily by Analytics Inc. As a commercial vendor, Analytics Inc. is motivated by profit. Analytics Inc. can sell more sources if it establishes a "expiration" date. I have different incentives. My primary motivation is to manage a radiation safety program in a manner consistent with ALARA. The ALARA principle specifically includes consideration of social and economic factors. I submit that the unnecessary production of radioactive wastes and the expenditure of \$1,600 per year is inconsistent with the ALARA principle. In fact, Dr. Daniel Montgomery of Analytics, Inc. stated that the "expiration date had no scientific or measurement significance." I agree with Dr. Montgomery. The "expired" source can be used for calibrations.

Sincerely,



Ronald F. Fleming
Director

cc: US Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555