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**RESPONSE TO QUESTIONS RAISED DURING THE AUGUST 8, 1995
PUBLIC MEETING (RADIUM FOR CANCER ISSUES)**

09/11/95

DR. FISHER LISA CRAWFORD
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RESPONSE

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**Battelle**

Pacific Northwest Laboratories

Battelle Boulevard

P.O. Box 999

Richland, Washington 99352

Telephone: (509) 375-6852

Fax: (509) 375-3693

Internet: dr_fisher@pnl.gov

September 11, 1995

Ms. Lisa Crawford
Fernald Residents for Environmental
Safety and Health (FRESH)
10206 Crosby Road
Harrison, OH 45030

Dear Mrs. Crawford:

RESPONSE TO QUESTIONS RAISED DURING THE AUGUST 8, 1995 PUBLIC MEETING

During the August 8 Fernald Community Meeting in Harrison, Ohio, you asked me to respond to six specific questions. In providing a personal response, please understand that the opinions expressed are my own and do not represent those of my employer or the Department of Energy.

1. Q: Do you have a technology now to do the extraction of the radium from the K-65 silos? Be specific. When was it developed? Who developed it?

A: It is my understanding that a number of different options are being studied by the Department of Energy, FERMCO, various university researchers, and scientists at other institutions, for separating barium sulfate (containing radium) from the K-65 silos. I do not know which of these will be the most efficient and cost-effect method for separating barium and radium from sand tailings.

The extraction of radium from barium using crown ethers as solvent extraction reagents was demonstrated by W. J. McDowell at Oak Ridge National Laboratory. These methods were further advanced by M. K. Beklemishev and C. M. Wai at the University of Idaho, who showed that barium sulfate can be dissolved using carboxyl-containing ionizable crown ethers, and that radium can be selectively extracted from barium in aqueous solution (*Anal. Chem.* 66:3521-3524, 1994).

2. Q: How long will it take to do the extraction? What will be the specific time lines?

A: If the Department of Energy decides that radium will be extracted from fernald K-65 silo tailings, the time required will depend on the method chosen to conduct the extraction and the amount of radium desired. I believe

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that extraction could take place in parallel with activities already scheduled so as not to impact on the cleanup schedule.

3. Q: What will be the total cost of radium extraction, and who will pay for it?

A: As above, the answers will depend on several decisions yet to be made by the Department of Energy. Some of the options under discussion could involve significant cost savings. Other options may involve a search for radium somewhere other than that at Fernald, perhaps in a more convenient chemical form and higher concentration. Thus, the answer will not be known until further study is completed.

4. Q: Will you commit to an open, public process with regard to the radium-extraction issues?

A: It is my understanding that public participation in the decision-making process on radioactive waste management and site remediation is required by federal law. As scientists, we generally participate in this process by attending information meetings (such as this one) to answer questions, by presenting results of research at open scientific meetings, and by publishing results of our work in the open, peer-reviewed, scientific literature.

5. Q: Will all researchers agree to meet with the Department of Energy, regulators, and the public?

A: Although I can only speak for myself, I believe we have done so.

6. Q: Is Fernald the only source of radium? Where else have you looked? Be specific!

A: Radium will need to be collected and managed at a central facility prior to purification as a reactor target material. A number of different scientists have looked for radium in quite a few different places before considering the relatively large amounts in the K-65 silos at Fernald. A list of radium resources in the U.S. was made available to the news media and the general public by the Department of Energy on September 11, 1995 (copy attached). Some of these may be quite difficult to obtain. Other sources, such as radium needles in some hospitals, represent very small amounts that are perhaps readily available.

MISQUOTES IN THE NEWS MEDIA

My letter to you provides an opportunity to correct some of the misunderstandings that have arisen in the news media. Although quoted in the

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newspapers, I have never made the following statements attributed to me:

"Without Fernald, there does not appear to be enough radium in the world...to treat a large number of cancer patients."

"In essence, what we are talking about is a death sentence for current and future cancer patients."

"The very simple truth is that without Fernald's radium, current and future cancer patients may die needlessly."

"And without radium, current and future cancer patients may die needlessly."

I have not asked the Department of Energy to delay cleanup of the Fernald site or to postpone the proposed waste vitrification process.

I have never stated that our Laboratory was disinterested in obtaining radium. Our Laboratory has not proposed to build a new facility and laboratory for radium storage and processing. Staff have only discussed, in a preliminary way, the concept of identifying an existing facility for temporary storage for a small volume of radium. No proposals for a new facility have been written.

What I have said, many times, is that I concur with the Department of Energy's National Isotope Strategy (prepared by the Isotope Production and Distribution Program and presented to Congress in August, 1994). I believe that there is strong scientific justification to develop a reliable supply of alpha-emitting radionuclides for clinical research to develop more effective methods for cancer treatment. I believe that further research is needed to develop alpha emitter immunoconjugates for this purpose. And I support the decision of the Department of Energy to proceed with Fernald cleanup.

Sincerely yours,



Darrell R. Fisher, Ph.D.
Senior Scientist
Health Division

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