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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

L-1730

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FILE 6446.6

JUN 25 1998

REPLY TO THE ATTENTION OF: SRF-5J

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 538705
Cincinnati, Ohio 45253-8705

Subject: Technical Review of Responses to U.S. EPA Comments on the "User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site"

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the above-referenced document as part of its oversight activities for the Fernald Environmental Management Project. The document, which is dated June 5, 1998, was prepared by Fluor Daniel Fernald for the U.S. Department of Energy (U.S. DOE). The document provides U.S. DOE's responses to U.S. EPA comments on the "User Guidelines, Measurement Strategies, and Operational Factors for Deployment of In-Situ Gamma Spectrometry at the Fernald Site" discussed in a letter dated May 27, 1998.

U.S. EPA's review focused on assessing whether U.S. DOE adequately addressed U.S. EPA comments. U.S. EPA found that U.S. DOE's responses are generally adequate. However, U.S. DOE and the regulatory agencies have not yet agreed upon several issues. These issues include use of real-time instruments for certification of soils, and radium 226 and thorium 230 measurements. Sections that discuss these topics and cross references to these topics in other sections should be deleted from the revised version of the document.

U.S. DOE has 30 days to submit to U.S. EPA a revised document that deletes the respective sections and cross references and incorporates the U.S. DOE comment responses. U.S. EPA's general and specific review comments are enclosed. Please contact me at (312) 886-4591 if you have any questions.

Sincerely,

Gene Jablonowski
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Bill Murphie, U.S. DOE-HDQ
John Bradburne, FERMCO
Terry Hagen, FERMCO
Tom Walsh, FERMCO

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ENCLOSURE

TECHNICAL REVIEW OF RESPONSES TO U.S. EPA COMMENTS ON THE "USER GUIDELINES, MEASUREMENT STRATEGIES, AND OPERATIONAL FACTORS FOR DEPLOYMENT OF IN-SITU GAMMA SPECTROMETRY AT THE FERNALD SITE"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

(Three Pages)

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TECHNICAL REVIEW OF RESPONSES TO U.S. EPA COMMENTS ON THE "USER GUIDELINES, MEASUREMENT STRATEGIES, AND OPERATIONAL FACTORS FOR DEPLOYMENT OF IN-SITU GAMMA SPECTROMETRY AT THE FERNALD SITE"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: Not Applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1
Comment: The U.S. Department of Energy (DOE) and the regulatory agencies have not reached a consensus on several topics relevant to the use of real-time instruments. These topics include certification of soils, and radium 226 and thorium 230 measurements. To expedite approval of this document, DOE should either eliminate the sections that discuss these topics or else reduce the sections to a placeholder. In either case, cross references to these topics should be deleted from other sections of the document.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2
(Original General Comment 3 in U.S. EPA's May 27, 1998, letter)
Comment: The original general comment identifies concerns that many of the issues raised with regard to radium 226 measurement using the high-purity germanium (HPGe) system were not fully addressed and that little or no information is available regarding radium 226 measurement using the radiation tracking system. In the response to this comment, DOE states that the third addendum to the July 1997 comparability study demonstrates that the HPGe system would meet analytical support Level B data quality criteria based on results from 10 data points. However, during discussions at real-time workgroup meetings, it was generally agreed that this number of data points is too small and that additional measurements should be taken. Of the data available, only a few points were within the critical range for determining whether the soil meets or exceeds the final remediation level of 1.7 picocuries per gram. Furthermore, DOE agreed to take additional HPGe measurements to substantiate the correction factors applied to radium 226 measurements. However, no additional data have been provided. Additional data to substantiate and justify the correction factors should be provided. Until these data are available, discussions regarding measurement of radium 226 should be deleted from the document.

SPECIFIC COMMENT

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.1.1 Page #: 2.1-2 Line #: 23 and 24
Original Specific Comment #: 1
(Original Specific Comment 3 in the May 27, 1998, letter)
Comment: The original comment questions the use of in situ gamma spectrometry for detection of thorium 230 in soil based on the

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isotope's low energy gamma signature. The response to this comment states that based on a calculational analogy to measurement of thorium 234 (uranium 238 daughter in secular equilibrium), thorium 230 should be resolved from other isotopes. However, this analogy appears to be based on measurement of thorium 234 in a laboratory setting. Also, it does not adequately account for interference from other isotopes (namely thorium 232, radium 226, and uranium 238 and their associated daughters). References to measurement of thorium 230 should be removed from the document at this time.

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