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**RISK ASSESSMENT POSITION PAPER CONCERNING PROPOSED
REMEDATION LEVELS AND PROPOSED RECREATIONAL SCENARIOS**

06/21/94

USEPA DOE-FN
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COMMENTS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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REPLY TO THE ATTENTION OF:

JUN 21 1994

Mr. Jack R. Craig
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

HRE-8J

RE: Risk Assessment Position Paper
Concerning Proposed Remediation
Levels and Proposed
Recreational Scenarios

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's Risk Assessment Position Paper concerning Development of Preliminary Remediation Goals and Proposed Remediation Levels, and the Proposed Recreational Scenarios. Attached are U.S. EPA's comments the issues.

Please contact me at (312) 886-0992 if you have any questions.

Sincerely,

James A. Saric, Remedial Project Manager
Technical Enforcement Section #1
RCRA Enforcement Branch

Enclosure

cc: Tom Schneider, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ
Don Ofte, FERMCO
Jim Theising, FERMCO
Paul Clay, FERMCO

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 14, 1994

SUBJECT: Review of Attachment I: Approach for Evaluating Proposed
Recreational Use of the Fernald Environmental
Management Project (FEMP), Fernald, OH

FROM: Pat Van Leeuwen, Toxicologist
Technical Support Unit 

Scott Lloyd
PRC

TO: Jim Saric
Project Manager

The document describing the "Development of Preliminary Remediation Goals and Proposed Remedial Levels" was submitted by FERMC0 for use at the Fernald Environmental Management Project (FEMP) site. The document was reviewed by both EPA and PRC Environmental Management, Inc., (PRC), and discussed in a meeting of EPA and PRC personnel on May 18, 1994. All reviewers thought that some revisions and clarifications to the document were required. The recommendations from both EPA and PRC expressed at that meeting are summarized below.

GENERAL COMMENTS

(1) Throughout the document, the term "chemical of concern (COC)" is used without clarification. In the baseline risk assessment, COCs are defined as chemicals of potential concern (CPC) that contribute significant risk. If this definition holds true within this document, then COCs should not be eliminated in any step of this process. Any procedure which eliminates information makes the process difficult to follow and confuses the reader.

(2) The general approach for deriving Proposed Remediation Levels and Final Remediation Levels appears to be in error. Section 2.3 (Step 13) describes a process by which the modified PRGs are added to the site-specific background level to determine the PRL. However, in most cases, the modified PRG will be the PRL. In the example, if 10 pCi/g of COC X presents a risk to a receptor population, no further increase in that exposure is

allowed, unless the contaminant is a naturally-occurring radionuclide, and there are no further limitations on the amount above background which is allowed to remain onsite after remediation. Only naturally-occurring radionuclides are regulated on the residual above background level, and I continue to stress that this is the value that should be reviewed in the FS, to show consistency with all existing regulations.

An alternate example for this document might be lead. If the acceptable level of lead in soil is 400 ppm and the background level is 150 ppm, the PRL is still 400 ppm, not 550 ppm. Using the DOE approach, a greater contaminant level could be tolerated (greater risk would be acceptable) for residents in areas with high natural background of contaminants than those in areas with low natural background levels, while in actuality if Environmental Justice is considered, the opposite is true. The addition of site-based contaminant exposure is more harmful to those whose exposure is already elevated. New regulations are likely to reflect this concern. Of course, for inorganic contaminants, the PRG (risk level) includes background (as shown in the lead example), while for anthropogenic radionuclides and organic contaminants, the background level is considered to be zero.

In addition, Region 5 has developed soil cleanup criteria for sites with uranium, thorium and radium. These criteria should be reviewed, as they may further impact the PRL for these individual radionuclides if the total allowable residual radioactivity or total allowable risk level is exceeded when these contaminant levels are summed.

(3) One of the alternative land uses considered in the document is a wildlife reserve. However, the document does not address the potential impact of an ecological assessment on PRGs/PRLs for the OU. Potential ecological effects are not quantified as easily as human health effects; however, it may be that PRGs estimated for a scenario with limited human exposure may be set at levels of ecological concern. The document should address this issue.

(4) As with the baseline risk assessment, it is not clear how the contributions to groundwater and air from multiple sources and multiple OUs will be addressed. The document should clarify whether groundwater and air concentrations to which the PRGs/PRLs will be compared correspond to total media concentrations of COCs or only that part of the total concentration that is not attributable to a particular source or OU. This is important to clarify whether the total potential risk to a receptor is being considered.

SPECIFIC COMMENTS

(1) Page 3, Para. 2, line 2:
"Is" should be "as" in this sentence.

(2) Page 3, Para. 2, line 9:
"Has" should be "have" in this sentence.

(3) Page 4, Para. 2, Line 1: This line states that action may be warranted if carcinogenic risk exceeds the 10^{-6} to 10^{-4} risk range. However, the reference to "chemical toxicants" should be changes to noncarcinogenic toxicants; many chemical toxicants are carcinogens. The document should reference IRIS, as well as HEAST, as IRIS is the primary reference.

(4) Page 4, Para. 3, line 2:
ARARs are not always risk-based values; they may be based on economic or technical feasibility.

(5) Page 5, Para. 5:
See the discussion in the general comments above. All contaminants identified in the Baseline Risk Assessment should be included in the FS for understanding and clarity. If all remediation alternatives assume some engineering or administrative controls that alter the source term, this should be noted in the tables with a (separate) footnote. Do to the complexity of this site, it is necessary to maintain a system which enables the reader to track the process applied to all identified COCs.

(6) Page 6, Para. 1:
In reading this section, it is apparent that the term "residual" is being using in two quite different ways in this document. The radionuclide regulations consider the residual level to be the amount above the naturally-occurring background. In this document, the residual contaminant level is the amount of contaminant allowed to remain in a medium after the remediation action is completed. Some resolution of these terms is required.

(7) Page 7, Para. 8, Lines 2 and 3: Step 10 states that a COC may be excluded from consideration in a particular medium if the estimated PRG is at or below the 95-percent UCL of the background concentration. This approach is not in accordance with current EPA guidance and does not make logical sense. In such a case, the background value may be used as a PRL, but the COC should not be eliminated from consideration. DOE should revise Step 10 to clearly state that no COC identified in the baseline risk assessments will be removed from consideration, regardless of whether the COC requires remediation under the selected land use scenario.

(8) Page 8, bullets:

First bullet: How would cross-media impacts on the PRGs be evaluated if the contaminant was eliminated as a COC in some media, but not in others? This further illustrates the need to retain all identified COCs in all media.

Third bullet: Indicate that this procedure applies only to naturally-occurring radionuclides.

(9) Page 8, Step 13:

Step 10 indicates that the modified PRGs include background. Why is background added a second time. The methodology is not stated clearly. Also refer to discussion of this issue in the general comments section.

(10) Page 9, Para. 5, last sentence:

This sentence does not fit in this discussion, which is centered on adverse health effects other than cancer. Risk levels refer to carcinogenic effects.

(11) Page 10, Para. 0, Bullet 4:

This bullet briefly discusses limiting biota exposure. However, the discussion is brief and vague. DOE should expand the discussion of ecological considerations in setting PRGs.

(12) Page 13:

This page presents methods for considering air and groundwater exposures in setting PRGs. However, the text does not discuss how contributions from multiple sources and multiple OUs will be handled. DOE should include a more complete discussion of how such contributions will be considered in setting PRGs.