

7051

U-007-305.91

**OU 5 K1 SAMPLING AND ANALYSIS REPORT**

07/18/95

USEPA            DOE-FN  
6  
COMMENTS



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

7051

FERNALD

100 I-3053

JUL 20 10 21 AM '95

FILE:  
REPLY TO THE ATTENTION OF:

JUL 18 1995

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

HRE-8J

RE: OU 5 K<sub>1</sub> Sampling and  
Analysis Report

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the Operable Unit (OU) 5 K<sub>1</sub> Sampling and Analysis Results Report. The report summarizes the K<sub>1</sub> sampling and analysis program conducted to gather data on the leachability of uranium in surface and subsurface soils at the Fernald site.

U.S. EPA has several concerns regarding the report. First, the quality of uranium data for both the soil and leachate analysis is not known. No method detection limits are reported, and it appears that the majority of the uranium data has not been validated. Second, no evaluation and comparison is performed on the K<sub>1</sub> determined from the batch tests to the K<sub>1</sub> values derived from the lysimeter data. Further, the significance and implication of any discrepancies between the two data sets is not provided in the report. Third, the two-phase desorption batch tests for off-site leachate sample analysis appear to have been stopped prematurely, and the determination of final equilibrium seems to have been based on on-site laboratory data.

These issues must be resolved because they could affect the K<sub>1</sub> and the K<sub>e</sub> values used in the fate and transport modeling, and consequently affect the predicted future contaminant concentrations and cleanup scenarios.

U.S. EPA hereby disapproves the K<sub>1</sub> report pending incorporation of appropriate responses to the attached comments into the report. The United States Department of Energy must provide responses to the attached comments and revised pages within thirty (30) days receipt of this letter.

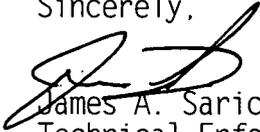
(KAPPA CJ)  
PARTIAL  
ACTION RESPONSE  
TO Q-1025  
(8956)

1

-2-

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

Sincerely,



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

Enclosure

cc: Tom Schneider, OEPA-SWDO  
Jack Baublitz, U.S. DOE-HDQ  
Don Ofte, FERMCO  
Charles Little, FERMCO  
Terry Hagen, FERMCO  
Michael Yates, FERMCO



concentrations reached equilibrium. However, the two-phase desorption batch test curves in Appendix E.1 indicate that leachate concentrations in over half of the runs were still rising when the final sample for the determination of equilibrium concentrations ( $C_{W1}$  and  $C_{W2}$ ) was collected and analyzed. It appears that these desorption batch tests were stopped prematurely. The determination of final equilibrium was based on on-site laboratory data. It is not clear why higher equilibrium concentrations were not extrapolated from the curves. The report should clarify why the batch tests were stopped before equilibrium was reached and why higher equilibrium concentrations were not extrapolated. Also, the potential errors and the impact of potential errors on the calculated leaching coefficient for the extractable mass ( $K_1$ ) and the percent of extractable contaminant ( $K_e$ ) values should be quantified.

#### SPECIFIC COMMENTS

Commenting Organization: U.S. EPA  
 Section #: 1.2  
 Original Specific Comment #: 1

Commentor: Saric  
 Line #: 27 to 29

Page #: 1-4

Comment: The text states that not all MDLs were achieved but that data quality was determined sufficient to set geochemical values. However, problems with total uranium analyses when leachate concentrations were low caused the  $K_1$  and the  $K_e$  to remain largely undefined for the 24- to 30-inch below ground surface (bgs) interval. The text should state how  $K_1$  and  $K_e$  values for the 24- to 30-inch bgs interval were determined. Also, Table 1-1 indicates that of the 92 samples analyzed for total and isotopic uranium, data from only two samples were validated. The text should specify the analyses for which MDLs were not achieved. The text should also provide more specific information regarding how the adequacy of data quality was determined, and a re-evaluation of the conclusion regarding sufficient data quality should be considered.

Commenting Organization: U.S. EPA  
 Section #: 1.2  
 Original Specific Comment #: 2

Commentor: Saric  
 Line #: 5 to 7

Page #: 1-5

Comment: The text states that the batch test water was pH-adjusted to reflect acid rain conditions. Appendix E.2 of this report provides pH results through time; however, initial pH values are not provided. The initial batch test pH values should be provided. In addition, the majority of the figures in Appendix E.2



