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**BENTONITE EFFECTIVENESS EVALUATION FOR  
OPERABLE UNIT 4 AT THE FERNALD  
ENVIRONMENTAL MANAGEMENT PROJECT**

12/17/92

**DOE-0650-93  
DOE-FN/EPA  
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LETTER**



R-008-204.9

**Department of Energy**  
**Fernald Environmental Management Project**  
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Cincinnati, Ohio 45239-8705  
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DEC 17 1992  
DOE-0650-93

Mr. James A. Saric, Remedial Project Director  
U.S. Environmental Protection Agency  
Region V - 5HRE-8J  
77 West Jackson Street  
Chicago, Illinois 60604

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Mr. Graham E. Mitchell, Project Manager  
Ohio Environmental Protection Agency  
40 South Main Street  
Dayton, Ohio 45402

Dear Mr. Saric and Mr. Mitchell:

**BENTONITE EFFECTIVENESS EVALUATION FOR OPERABLE UNIT 4 AT THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

As you are aware, the K-65 Removal Action, completed on November 28, 1991, included the installation of a minimum of one foot of bentonite clay in silos 1 and 2. This Removal Action was necessary, in broad terms, to reduce the chronic radon emissions from the K-65 Silos and control the potential release of silo residues in the event of dome failure. As shown by the monitoring results provided to the United States Environmental Protection Agency (U.S. EPA) and the Ohio Environmental Protection Agency (OEPA) on a monthly basis and as documented in this evaluation, the objectives of the Removal Action have been, and are continuing to be met.

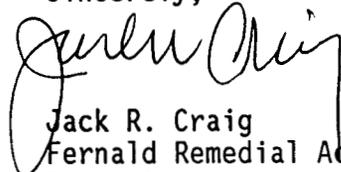
As stated in Section V of the Removal Action Work Plan, approved by U.S. EPA on November 30, 1990, a performance goal was established to monitor the effectiveness of the bentonite (0.015 pCi/l of radon concentration above background for the area, calculated at the nearest resident). After an evaluation by the Department of Energy Fernald Field Office (DOE-FN) of the results of the model runs utilizing the Industrial Source Complex Long Term (ISCLT) Model, as approved by U.S. EPA, it was concluded that the 0.015 pCi/l concentration was met. Although the U.S. EPA proposed and approved model indicated that the goal was met, DOE has determined that the effectiveness cannot be demonstrated using the ISCLT Model (statistically or mathematically) within the appropriate confidence level. To enhance the approved modeling effort, the attached evaluation includes a complete analysis of the bentonite's effectiveness, utilizing statistical comparisons between observed concentrations and dose rates in the headspace and monitoring locations, both on-site and off-site, meteorological data, instrumentation accuracy, etc. The evaluation also establishes monitoring criteria required to assure DOE, EPA, and the public that the objectives of the Removal Action are indeed being met.

Until your response to this evaluation is received, DOE-FN will continue monitoring in accordance with the Work Plan and submit all raw data and summary results (Enclosure C of the Monthly Consent Agreement Report) on a monthly basis for your information.

Upon your review and approval of this evaluation and revised approach to measure the effectiveness of bentonite, DOE-FN will submit a Document Change Request for your approval to modify Section V of the Work Plan.

If you or your staff have any questions or comments, please contact Randi Allen at FTS/Commercial 513-738-6158 or Randy Janke at 513-738-6937.

Sincerely,

  
Jack R. Craig  
Fernald Remedial Action  
Project Manager

FN:Allen

Enclosure: As stated

cc w/enc.:

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