

**R-009-207.7**

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**EE/CA SOUTH PLUME  
U.S. DOE FERNALD  
OH6 890 008 976**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.  
CHICAGO, ILLINOIS 60604

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SEP 04 1990

REPLY TO THE ATTENTION OF:

5HR-12

FACSIMILE AND  
FEDERAL EXPRESS

Mr. Bobby Davis  
U.S. Department of Energy  
Feed Materials Production Center  
P.O. Box 398705  
Cincinnati, Ohio 45239-8705

RE: EE/CA South Plume  
U.S. DOE Fernald  
OH6 890 008 976

Dear Mr. Davis:

On January 3, 1990, the United States Department of Energy (U.S. DOE) submitted a preliminary version of a draft Engineering Evaluation/Cost Analysis (EE/CA) for removal action #3 to address the south groundwater contaminant plume at the Fernald site. On March 30, 1990, the United States Environmental Protection Agency (U.S. EPA) provided comments on this preliminary draft report.

On April 16, 1990, U.S. DOE submitted the draft EE/CA as required by the 1990 Consent Agreement. U.S. EPA disapproved this draft document because of the deficiencies identified in our May 17, 1990, letter.

On August 1, 1990, U.S. DOE submitted a revised EE/CA that proposed to collect contaminated groundwater from the leading edge of the contaminant plume and discharge it directly to the Great Miami River. A second aspect to this removal is to provide an alternate water supply to the Paddy's Run companies.

U.S. EPA is approving the portion of this removal action that involves providing an alternate water supply to the commercial operations along Paddy's Run Road. This will prevent the further drawdown of contaminants in the aquifer. In accordance with the 1990 Consent Agreement, a work plan for this removal action must be submitted to U.S. EPA within thirty (30) days.

Regarding the collection of the south groundwater plume, the EE/CA does not support the alternative put forth by U.S. DOE (pumping water back to the plant and directly discharging to the Great Miami River without treatment). U.S. EPA is disapproving this portion of the EE/CA. The transferring of contaminants from groundwater to surface water without treatment is unacceptable and does not comply with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the

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National Contingency Plan (NCP). The basis for this disapproval is presented in the following comments.

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1. The risk assessment considers uranium as the only contaminant of concern. Current U.S. EPA policy is to address all chemicals found within the area of concern.
2. The risk assessment only quantifies the increased risk above background concentrations resulting from direct discharge of contaminated ground water to the Great Miami River. Risk assessments are required to quantify the total risk.
3. The risk assessment does not take into account the possibility of discharging from the waste pit area (proposed operable unit 1 removal action), or other yet to be identified sources.
4. Even after addressing the concerns raised in the specific comments on the risk assessment, it is unlikely that direct discharge (without treatment) to the Great Miami River will result in a risk greater than  $1E-06$  because contaminated ground water will be diluted by a comparably large surface water body. This method of lowering risk is not consistent with CERCLA.
5. The EE/CA states that organic chemicals have been observed in a few samples, but not on a persistent basis. However, data is not presented to support this statement. This may be a significant factor in evaluating whether treatment is needed or the type of treatment needed. This is of particular concern given the lack of data from near the Paddy, s Run Road site.
6. The EE/CA does not present any data to substantiate the background concentration of uranium (or other potential contaminants). Surface water data provided in the RI/FS analytical database indicates that only one sample had a total uranium concentration above 1 ug/L (apparent method detection limit). Sample 01102 had a concentration of 2 ug/L. None of the reported specific uranium isotopes had activity concentrations greater than 1.0 pCi/L (apparent method detection limit). The establishment of background concentrations is key to the direct discharge alternative because the risk assessment focusses, on increased risk above background and the determination not to treat the contaminated ground water is based on the comparatively small mass of uranium being added to the Great Miami River.
7. The reasons listed in the responsiveness summary for why treatment of the contaminated ground water is not viable are not sufficient to justify a non-treatment alternative. Although the advanced wastewater treatment plant (AWWTP) will be operational in 1994, the responsiveness summary also states that the AWWTP will not treat any of the contaminated water from environmental media (either ground water or surface water). Second, the discussion on the background concentration of uranium in the Great Miami River is not supported. Third, the estimates of \$50 million and 3 years to implement a treatment system

appear to be excessive. Estimates from vendors experienced in uranium removal range from \$1 to \$8 million in capital costs and 0.5 to 1.5 years to implement.

8. Because the AWWTP will not be used to treat contaminated ground water, the EE/CA should project the estimated loading of contaminants into the Great Miami River beyond the 5-year anticipated removal action time frame.
9. As stated on page 7 of the Responsiveness Summary, "The intent of any removal action . . . is to abate, minimize, stabilize, mitigate, or eliminate a release or threat prior to a final action if there is a threat to public health or the environment." However, the issue of ecological assessment, as required under the NCP (40 CFR 300.415) and the intent and scope of removal actions described therein, was not addressed in the risk assessment.
10. Models used for exposure assessment and their accompanying parameters and assumptions are not adequately described or properly referenced. Individual parameters should be defined (e.g., transfer coefficient), and their relevance to the model discussed. It is difficult to ascertain the suitability of a model without this information. In addition, it is not known whether the parameter values used in the exposure assessment represent local or regional conditions.
11. The uranium isotopes present in the ground water should be stated. If more than one isotope is present, then radiation dose calculations will be needed for each isotope, using specific dose conversion factors. If only Uranium-238 is being considered, then this should be made clear. Alternatively, a second dose calculation should be made if more than one uranium isotope is present in the water. Natural uranium is composed of equal activities of U-238 and U-234. These doses would be additive.
12. Responsiveness Summary, Page 73: The response to comment 112 is no adequate. U.S. DOE's assumptions and calculated doses from all pathways, including direct exposure resulting from the watering of lawns and gardens. The accumulation of uranium in surface soils in close proximity to homes may result in excessive direct exposure and inhalation hazards. Watering of lawns with water with up to 20 pCi/l of uranium may result in soil concentrations in the 10 to 50 pCi/g range.
13. Responsiveness Summary, Page 36: The responses to Comments 30, 34, and 119 contains irrelevant information on a limit for uranium in drinking water. The response cites U.S. EPA's groundwater protection portion of the proposed standards for the control of residual radioactive materials from inactive uranium processing sites, which sets a limit of 30 pCi/l. The response says that based on discussions between U.S. EPA and U.S. DOE that there was agreement to use 30 pCi/l as an allowable limit for drinking water. This statement is not true and there is no current MCL for this contaminant.



The work plan for the alternate water supply must be submitted within thirty (30) days of this approval. The portion of this removal that involves the collection of the south groundwater contaminant plume is disapproved and U.S. EPA is invoking the informal dispute resolution process as provided for in Paragraph C of Section IX of the 1990 Consent Agreement. U.S. EPA is recommending that we meet for informal dispute resolution on September 11 at 2:00 pm, in Chicago. Please confirm your availability for this date within five (5) days of the receipt of this disapproval.

Please contact me at (312/FTS) 886-4436 if you have any questions.

Sincerely,



Catherine A. McCord  
On-Scene Coordinator

cc: Richard Shank, OEPA  
Graham Mitchell, OEPA - SWDO  
Leo Duffy, U.S. DOE - HDQ  
Joe LaGrone, U.S. DOE - ORO