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**COMMENTS ON THE CONTAMINATED SOILS
ADJACENT TO THE SEWAGE TREATMENT
PLANT INCINERATOR, REMOVAL ACTION
NUMBER 14 WORK PLAN REVISED APPROACH
LETTER**

01/06/93

**DOE-FN/EPA
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LETTER**

**COMMENTS ON THE FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
"Contaminated Soils Adjacent to the Sewage Treatment Plant Incinerator,
Removal Action Number 14 Work Plan Revised Approach Letter"**

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OEPA COMMENTS:

General:

- 1) Comment: Ohio EPA agrees that DOE should proceed with removing the highest levels of contamination (>300 pCi/g); however,
- 2) Comment: DOE has an approved Removal Action Work Plan which it is required to implement. The finding of higher levels and more volume of contamination does not seem to be an appropriate reason for taking less conservative actions than were planned for lower volumes of contamination. DOE needs to comply with the work plan or submit a work plan addendum for approval. The addendum should present options other than just limiting action. DOE should consider alternative actions such as using a pilot scale soil treatment system for the incinerator soils. The incorporation of soil washing would allow DOE to investigate this technology and move forward with the removal action as required by the approved work plan.

Response: The Work Plan Addendum identifies and describes the additional data which were collected to more thoroughly evaluate the vertical extent of uranium contamination across the survey boundary. From these data, DOE has determined that in order to meet the intent of the Removal Action Work Plan (RAWP), approximately 1400 additional cubic yards of soil would need to be excavated from both within the Sewage Treatment Plant fence (approximately 1000 cubic yards) and outside the Sewage Treatment Plant fence (approximately 400 cubic yards). Furthermore, as outlined in the Work Plan Addendum, DOE has determined that the approximately 400 cubic yards outside the controlled fenced area of the Sewage Treatment Plant compound should be excavated and managed according to Removal Action 17 - Improved Storage of Soil and Debris.

Regarding the 1000 cubic yards, DOE recommends the contaminated soils greater than 100 pCi/g total uranium within the controlled area of the Sewage Treatment Plant Incinerator compound be remediated either under future actions, such as a removal action addressing the facilities, or under the final remediation for OUs 3 and 5. To attain the removal action goal within the Sewage Treatment Plant compound would require the closure of the Hazardous Waste Management Unit within the Sewage Treatment Plant fence and the structural integrity of many structures within the Sewage Treatment Plant fence would be threatened. The excavation of the additional contaminated soils outside the Sewage Treatment Plant compound satisfies the goal of the removal action for the uncontrolled areas on-property. Furthermore, the level of contamination within the Sewage Treatment Plant compound, a controlled area, has been reduced considerably, from a maximum uranium-238 concentration of 25,000 pCi/g to a total uranium concentration of less than 300 pCi/g. In fact, the additional soil sampling from within the Sewage Treatment Plant compound indicates the highest concentration of total uranium is 228 pCi/g.

The excavation of these 400 additional cubic yards would generate approximately 140 additional white metal boxes. These boxes will continue to be stored on the pad west of the Pilot Plant until a RCRA determination is made and the boxes can be transported to the Central Storage Facility in accordance with RA 17, once it is complete. Although soil treatment would be advantageous at this time, considering the volume and total uranium concentration of soil generated, immediate treatment is not viable. However, it will be investigated as a possible method for final disposition.

- 3) Comment: When this removal action was discussed at the August Project Managers Meeting, DOE stated they would provide the information available to date including the isoconcentration map from the walk-over survey. In order for the EPAs to make an informed decision concerning this removal action, DOE is obliged to provide all data to date including laboratory analyses, locations, and quantities and the walk-over survey isoconcentration map.

Response: Will comply. The Work Plan Addendum will contain all available data, including results from the original walk-over survey.

- 4) Comment: The schedule proposed in Attachment I is disappointing and unacceptable for a removal action. Taking six months to develop an interim report and nine months to determine an alternate action is not acceptable. The proposed schedule is not consistent with the determinations of the RSE or the frame work of a time critical removal action.

Response: The Work Plan Addendum provided contains all available data and provides the suggested alternatives for further action. The information provided in the Work Plan Addendum is the same as was expected for the Interim Report therefore, an Interim Report will not be required. The Work Plan Addendum enclosed outlines the additional data collected and analyzed to evaluate the quantity of soil which would need to be excavated in order to meet the action level of the Work Plan. Furthermore, DOE recommends the additional action of excavating the contaminated soil greater than 100 pCi/g total uranium, outside the Sewage Treatment Plant fence, on-property. Also outlined in the addendum are additional actions being pursued for addressing some of the off-property contaminated soil. Data are included for these actions as well. Upon approval of this addendum, DOE will submit, as a final report, a document detailing all excavation activities and all sampling results.

- 5) Comment: Enclosure II, Additional Sampling: Are the HSL samples proposed in this section in addition to those proposed in the Removal Action Work Plan? The text should clarify this issue.

Response: The sampling approach proposed in the Removal Action Work Plan was developed prior to the time the walk-over survey was performed. Due to the broad extent of the 100 pCi/g boundary, all sample locations and depths were revised and re-located within the 100 pCi/g boundary. The letter addendum showed the revised sample locations and depths. In addition, this is clarified in the Work Plan Addendum.

- 6) Comment: The sampling section of Enclosure II provides insufficient detail concerning sampling methodologies. Detail should be provided stating how DOE will determine the vertical extent of contamination. With the potential quantity of containerized contaminated soil to be generated by this removal action, it would be advisable to have a good characterization of the soil contamination profile.

Response: The revised sampling approach presented in the referenced letter was performed in accordance with the methodologies called out in the approved Removal Action Work Plan. The Work Plan Addendum will re-state these methodologies and detail the sampling which has been performed and the need for any further sampling. During several of the fall DOE and EPA Program Manger's meetings, DOE presented various sampling schemes for acquiring the additional data needed to ascertain the vertical extent of uranium contamination across the survey boundary. Based on EPA's informal comments, the present approach, as outlined in the Work Plan Addendum, was implemented.

- 7) Comment: No figure within this document describes or shows the grid discussed for the off-property sampling. Additional detail concerning this sampling is needed and additional sampling locations to the north of the 58.4 pCi/g location should be chosen to determine the extent of off-property contamination.

Response: The grid, with sample locations and analytical results, is included in the Work Plan Addendum. A 250' by 250' grid at 25' intervals was established with the center at the 58.4 pCi/g location. 10 sample points were selected along this grid by a random number generator. There were points north of the 58.4 pCi/g location.

- 8) Comment: This document makes no reference as to the type of analytical work to be completed or the time required for such analyses. Due to the nature of this investigation, it would seem that more samples with a lower QA/QC would be appropriate (e.g. on-site lab for radionuclides).

Response: The Work Plan Addendum outlines the samples taken and analyzed at the on-site lab, for quick turn-around, in order to better define the vertical extent of contamination. Duplicates of these samples were also sent to an off-site lab for isotopic analysis.

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U.S. EPA COMMENTS:

General:

- 1) Comment: The letter report summarizes the proposed scope of the Option 5 remedial alternative which includes the following: (1) excavation of soils with greater than 300 pCi/g total uranium and (2) additional sampling for on-property and off-property areas. The report does not discuss interim measures for erosion control or controlling potential direct exposure. Because much of the contaminated soils will remain in place until Phase III can be implemented, DOE should consider immediately implementing institutional measures such as fencing and temporarily covering exposed soils.

Response: Fencing has been erected around all areas exceeding 100 pCi/g total uranium and areas which have been excavated have been bermed with surrounding soil and seeded to prevent wind erosion and migration of exposed soil. In addition, after the soil with a total uranium concentration exceeding 100 pCi/g outside the Sewage Treatment Plant has been excavated, all areas within and adjacent to the Sewage Treatment Plant fence will be further bermed to prevent migration from within the fenced area (still exceeding 100 pCi/g total uranium) to outside the Sewage Treatment Plant fence (below 100 pCi/g total uranium).

- 2) Comment: DOE proposes on-property sampling of surface soils and off-site sampling of surface soils from a depth of 0 to 18 inches. On-site samples will be collected from 4-foot deep borings. DOE should provide more detail on the proposed sampling procedures. DOE should clearly indicate whether sampling location will be random or biased, and whether they will consist of grab or composite samples. EPA suggests that depth discrete samples be taken in areas exhibiting low, moderate, and high contamination to determine whether there is (1) a relationship between elevated contamination levels at the surface and with depth, and (2) whether contamination is confined to the upper soil horizon.

DOE's proposed approach appears to be too limited to determine the depth of contamination and the volume of soil that will have to be removed. DOE indicated (in the August 19, 1992 meeting) that soils could be analyzed for total uranium with a 6-week turnaround. Considering the extent of contamination, EPA believes that additional subsurface sampling points should be included to identify the depth of contamination and to accurately assess the volume of soil that may require remediation.

Response: The Work Plan Addendum provides more detail on the sampling which has been performed. Additional subsurface sampling locations were detailed in the August 28, 1992 submittal of the letter addendum and the Work Plan Addendum provides all available data. The sampling scheme, developed to acquire the additional data necessary to determine the vertical extent of contamination, was developed in October and November, 1992 from informal correspondence with EPA through Program Manager's meetings. The scheme was based on separating the contaminated areas across the survey boundary, with each having several additional segmented soil borings being taken so that volumes could be calculated accurately.

- 3) Comment: While DOE's letter indicates that a report will be prepared following the implementation of Phase II activities, DOE does not indicate when Phase II activities will take place or when the report will be submitted. DOE should provide a revised schedule for the Phase II activities and should include a date for the submittal of the Phase III Report.

Response: Phase II activities as detailed in the referenced letter were completed on October 15, 1992. A summary of all Phase II sampling and excavation activities are included in the Work Plan Addendum. With the submittal of a Work Plan Addendum, the Phase III Report as stated in the referenced letter, is now obsolete. The need for any further documentation will be detailed in the Work Plan Addendum.

- 4) Comment: DOE's letter presents a phased approach and states that DOE, U.S. EPA, and OEPA agreed upon this approach in an August 19, 1992 meeting. Although EPA did agree to the removal of soil exceeding 300 pCi/g, EPA did not agree to the proposed scope of the investigation. DOE should qualify the statement appropriately.

Response: Agreed. The phased approach was a way to clarify what work had been completed, what work was underway and what work was planned. The scope of the field work completed, the subsequent additional sampling requested by EPA, and all available analytical data are clarified and presented in the enclosed Work Plan Addendum.

- 5) Comment: The letter states that DOE will complete Phase II (submittal of analytical results of additional sampling) by April 30, 1993. The time frame for this report is unacceptable. Waiting six months for data from a time critical removal action is not appropriate when the removal site evaluation (RSE) determined there is an imminent and substantial threat to human health and the environment. Further, DOE's indication that on-site analysis of uranium requires only 6 weeks makes the decision making time-frame too long. DOE should expedite the submittal of the Phase III Report.

Response: See response to U.S. EPA comment number 3 above. Also, as a point of clarification, the RSE did not determine that there is an imminent and substantial threat to human health and the environment. Rather, the RSE simply evaluated the source term, contaminated soil, and made a comparison to the NRC guideline for residual soil. With this comparison, the RSE stated that some soil should be excavated although the risks and doses presented did not represent an imminent or substantial threat.

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- 6) Comment: The letter also states that DOE will complete Phase IV (submittal of the Need for Further Action Report) by July 30, 1993. First, it is unacceptable to revise the RSE to determine if additional action is required. The original RSE already determined that the contamination present above 100 pCi/g for total uranium presented an unacceptable risk. DOE has proposed removing soils with greater than 300 pCi/g total uranium, which will leave soil in-place exceeding the original 100 pCi/g action level. Thus, the phase IV report must identify actions which will control exposure to soils exceeding 100 pCi/g total uranium. Second, it is unacceptable to wait until July 30, 1993, for DOE's proposal for additional action. DOE has already determined that removal and containerizing all soils with total uranium concentration above 100 pCi/g is not a viable alternative. Therefore, DOE should propose other alternatives (eg. capping, stabilization, in-situ solidification) as soon as possible.

Response: As detailed in Section 1.1, the RSE evaluated the contaminated soil adjacent to the Sewage Treatment Plant Incinerator based on the data available at the time, which indicated discrete, localized hot spots. Due to some of the sample points showing very high concentrations of uranium-238, the RSE and Action Memorandum recommended localized soil removal. The action level of 100 pCi/g was developed in the Removal Action Work Plan because: 1) the action level could easily be implemented in the field; 2) the action level for on-property soil was considered to be protective of human health and the environment, and 3) the action level would be consistent with final remedy while limiting the generation and management of large volumes of contaminated soil.

In this Work Plan Addendum, DOE has more thoroughly investigated the extent of contamination, both vertical and horizontal, and determined the additional quantity of soil required to be removed in order to meet the 100 pCi/g total uranium limit on-property. Based on these findings, DOE is recommending the additional excavation of approximately 400 cubic yards of soil outside the fenced Sewage Treatment Plant area. Furthermore, DOE is proposing to revise the action level of 100 pCi/g total uranium within the Sewage Treatment Plant fence to the preliminary excavation action level of 300 pCi/g total uranium. The justification for this change is two-fold: 1) this is a controlled, fenced area, with restricted access thereby limiting potential exposure via worker or the public and 2) to achieve the 100 pCi/g total uranium action level within this area would most likely require the removal of the incinerator, threaten the structural integrity of existing facilities in the area, as well as requiring entrance into and potential closure of a Hazardous Waste Management Unit. Therefore, DOE is recommending that further soil remediation within the fenced Sewage Treatment Plant compound be performed concurrently with the decontamination and decommissioning of the structures and Sewage Treatment Plant facility.

- 7) Comment: The sampling plan attached as Enclosure II to DOE's letter should also include field screening method for volatile organic compounds (VOCs). Any sample which screens positive should be sent to an off-site lab for organic analysis.

Response: All excavated soil has been and will continue to be boxed until the chemical data is available from the RI/FS QAPP off-site lab. A predetermined number of soil samples will be analyzed for volatile and semi-volatile organics. Also, it is important to note that based on historical data and process knowledge, there is no reason to expect volatile or semi-volatile organics within the boundary of this removal action.