

Environmental Restoration Program

**OPERABLE UNIT 4  
MIAMI-ERIE CANAL REMOVAL ACTION  
RESPONSIVENESS SUMMARY**

**RESPONSE TO EE/CA PUBLIC COMMENTS**

**MOUND PLANT  
MIAMISBURG, OHIO**

**FINAL**

**October 1994**



**U.S. Department of Energy  
Albuquerque Operations Office**

**EG&G Mound Applied Technologies**

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Appendix A: Complete Text of Public Comments

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Response Protocol

The EE/CA was issued for public comment on 19 July 1994. The comment period ended on 19 August. Comments were received from the following sources:

John K. Weithofer, City Manager (submitted 19 August)  
Dr. Velma Shearer (submitted on 18 August)  
Reed Smith (submitted on 18 August)  
Hydro-Log (submitted on 16 August)  
Barry M. Reed (submitted on 9 August)  
Dr. William Taylor (submitted on 22 July)  
Jeff Fisher (submitted on 31 July)  
Ohio EPA (submitted on 17 August)

The comments were collected at the end of the comment period. There was no formal style requirement for submitting comments, so they were received in various fashion. Some were narrative letters expressing concerns and asking questions, while others were "bulletized" items of specific inquiry. The bulletized items allowed one-to-one correspondence of comment with response. The enclosed document follows that format (Comment/Response/Action). The less structured letters were paraphrased or excerpted to identify specific comments. This has been noted where applicable, and the full text of such comments are attached.

The enclosed document reiterates the comments made by the public, provides the DOE response to each comment, and describes the action undertaken to address the comment.

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Comments from John K. Weithofer, City Manager

Comment	Based on the engineering evaluation/cost analysis for Operable Unit 4 and the information presented and discussed at the focus group meetings regarding the clean-up process for Community Park, the City recommends removing the contaminated soil and proceeding with either Alternative 4: Excavation and Disposal, Alternative 5: Excavation, Treatment, and Disposal.[excerpt]
Response	Alternative 4 has been recommended.
Action	No action taken.

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Comments from Dr. Velma Shearer

Comment #1: Recommendation that Alternative 5 be selected. [paraphrased]

Response #1: The reasons for recommending Alternative 4 are discussed in Section 7 of the EE/CA. Alternative 4 is less expensive as well as easier to implement than Alternative 5. Feasible treatment is not economical and does not significantly reduce the long-term risks.

Action #1: No action taken.

Comment #2: Mound does not have the right to dispose of its waste on other people's land. [paraphrased]

Response #2: The Nevada Test Site (NTS) is owned by DOE and is used as a common disposal location for radioactively contaminated soil from numerous DOE sites across the country. The disposal of DOE's soil will occur on DOE property. Further, consolidation of DOE's contaminated waste soil at one location promotes safe and effective management of potentially dangerous materials across the entire DOE complex.

Action #2: No action taken.

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Comments from Reed Smith

[The comments identified below have been paraphrased from Mr. Smith's letter to Jolene Walker. Issues raised in the letter have been identified and numbered. The original letter is attached.]

Comment #1: Why does this action require 12 months of design and planning and an additional 24 months from the end of planning to complete? This seems like an unnecessarily long time.

Response #1: Planning includes three design stages and required reviews of the proposed design by DOE, EPA and stakeholders. Finalizing the design (including excavation approach, sampling, site controls, waste management, community relations, etc...) necessitates 12 months of planning. Approximately 24 months will be required to conduct pre-excavation sampling, excavate the soil, restore the site, and conduct post-excavation sampling.

Action #1: No action taken.

Comment #2: On page 5-15, line 9, you say "The estimated time to complete...is one to two years." Isn't this inconsistent with the time cited above (36 months)?

Response #2: Line 9 on page 5-15 indicates the *construction phase* will take one to two years. This corresponds to the 24 months cited above.

Action #2: No action taken.

Comment #3: All of the cost shown on Table B-24 is incurred in the first year. Again, this seems contradictory to the statement that implementation will require 24 months.

Response #3: Table B-24 shows that the capital cost will be spread equally over two years, shown as years 0 and 1 on the table.

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Action #3: No action taken.

Comment #4: It appears the contingency percentages used to calculate projected cost are excessive. What is the justification for these values?

Response #4: A contingency percentage of 25 % was used for each alternative evaluated. This percentage was obtained from the "Remedial Action Costing Procedures Manual" (EPA/600/8-87/049, Oct 87). Contingency allowances typically fall in a range from 15 to 25 percent of the total capital costs. A high contingency percentage is used to ensure a budget is planned to accommodate any foreseeable contingency. This minimizes the chances that work would stop due to unexpected conditions occurring.

Action #4: No action taken.

Comment #5: Transportation cost of \$6,660,000 seems exceptionally high. What is the justification for this value?

Response #5: The transportation costs cited are for Alternative 4, which is assumed to require disposal of 26,520 cubic yards of contaminated soil to DOE's Nevada Test Site.

The transportation cost includes the cost of containers plus shipping costs which are based on a representative cost to haul large loads by truck from Mound to NTS.

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These costs are based on current shipments to NTS. During the design phase, alternative shipping methods (acceptable to the receiving site) will be evaluated, such as bulk shipments which are currently not acceptable to NTS.

Action #5: No action taken.

Comment #6: The total transportation cost should be \$6.8 million not \$6.6 million.

Response #6: The values cited on page 5-16 of \$3.2 and \$3.5 million are rounded values. The sum, \$6.7 million, is approximately the number presented in Table V.1 of \$6.66 million.

Action #6: No action taken.

Comment #7: Doesn't the transportation of such a large volume of soil to NTS pose an unnecessarily high risk?

Response #7: The risk associated during transportation of soil with such a low concentration of contaminants is minimal. Mound has shipped soil in the past, and there is nothing proposed in this transportation scenario which would pose elevated risk. Additionally, adherence to applicable transportation regulations will minimize the risk to humans and the environment in the unlikely event of a release.

Action #7: No action taken.

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Comment #8: Isn't disposal at NTS problematical, both logistically and technically? Is NTS a safe facility?

Response #8: Final disposition at NTS has been presented as one option; however, the details of disposal will not be finalized until detailed design. However, preliminary contact with NTS officials indicates the soil would be accepted. NTS has operated safely in the past, in compliance with DOE and EPA requirements. Furthermore, Mound has safely transported material to NTS in the past.

Action #8: No action taken.

Comment #9: Mound does not have the right to dispose of its waste in another state. Why doesn't DOE store its waste at Mound?

Response #9: NTS is owned by DOE and has been used in the past as a common disposal location for radioactively contaminated soil from numerous DOE sites across the country. The disposal of DOE's soil will occur on DOE property. Consolidation of DOE's contaminated waste soil at one location promotes safe and effective management of potentially dangerous materials across the entire DOE complex. On-site *storage* will not solve the problem of ultimate waste disposition. On-site *disposal* would reduce future land-use possibilities and necessitate the long-term involvement of DOE in maintaining the facility. Off-site disposal is felt to be the best way to ensure safe disposal of the waste while not compromising the long-term viability of the Mound property for other uses.

Action #9: No action taken.

Comment #10: What are the benefits derived from off-site disposal that justify incurring such a large cost from transportation and disposal fees?

Response #10: See response to Comment #9.

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Action #10: No action taken.

Comment #11: Is it necessary to remove *all* trees, shrubs, and sod? Attention should be given to preserving as much of the natural environment as possible.

Response #11: The natural setting will be disturbed only to the extent necessary to ensure thorough excavation of the contaminated material. When the excavation is complete, the area will be filled with clean backfill, and local vegetation will be re-introduced to the area (see EE/CA page 5-14).

Action #11: No action taken.

Comment #12: The cost incurred to recreate the original land contours may not be justified.

Response #12: Recreating the original land contours is necessary to ensure proper surface water drainage. The cost for this is expected to be minimal.

Action #12: No action taken.

Comment #13: If construction is occurring during the summer, why are the costs calculated over an entire year? "Is that overkill?"

Response #13: The EE/CA states "Performance of the removal action is estimated at approximately 24 months." Alternative 4 text states, "Work in the north canal will be conducted during the summer months when the canal is normally dry to mitigate the effect of canal surface water runoff." Work in the North Canal only represents a portion of the total construction project. During the four months of dry weather, this portion of construction would be implemented (including removal of the contaminated soil and restoring the site to pre-removal condition). The total duration would be approximately 2 years, but this includes excavation and restoration of all areas.

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Action #13: No action taken.

Comment #14: Why is the cost for maintaining the cap (\$75,000/year) so high?

Response #14: The \$74,507/yr cost for operation and maintenance activities for Alternative 3 (containment) are detailed in Appendix B of the EE/CA, Table B-16.

The O&M costs associated with maintenance and repair of cap were estimated to be \$16,000 annually. This estimate includes equipment, materials, and labor associated with the maintenance and repair of drainage systems and containment cover (i.e., cap system for restricted use option and paved surface/cap system for beneficial reuse option). Other direct O&M costs include sampling, site inspection, analytical reporting, inspection reporting, and analysis of samples. This component of the total O&M costs is estimated at \$42,575. Miscellaneous O&M costs (e.g., supervision of staff, administration of payroll, overhead, and contingency) are estimated at \$31,932, which gives a total O&M cost of \$74,507.

Action #14: No action taken.

Comment #15: Why is partial excavation not acceptable?

Response #15: Preliminary sampling results suggest a uniform distribution of contamination, which precludes partial excavation. Nevertheless, pre-sampling will be conducted ahead of excavation in an attempt to identify areas which may not require off-site disposal. The volume of soil requiring excavation is proportional to the cleanup-goal, and the estimate of 23,000 yd<sup>3</sup> was arrived at using conservative assumptions. Sampling may identify areas that do not require excavation and this could reduce the volume considerably as well as reduce costs.

Action #15: No action taken.

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Comment #16: Is there some way to test portions of the soil as it's excavated to determine if it is contaminated? Without such a test it is probable that a large amount of soil will be unnecessarily shipped to NTS.

Response #16: See response to Comment #15.

Action #16: No action taken.

Comment #17: "The whole cost analysis seems to me extravagant!" What justification can we provide for the costs presented?

Response #17: The basis for the cost analysis is presented in Appendix B of the EE/CA report. See also responses to Comments #4, 5, 6, 12, 13, and 14.

Action #17: No action taken.

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Comments from Hydro-Log

Comment #1: The EE/CA should have been made available to the public before the OU-4 Focus Group Meeting on July 7th.

Response #1: The EE/CA was made available to the public at the earliest time possible, which was just after the July 7th Focus Group Meeting.

Action #1: No action taken.

Comment #2: Options 1 through 3 are not acceptable alternatives for clean up of the Canal [because they would still require an RI/FS].

Response #2: It is true that Alternatives 1, 2, and 3 would not eliminate the need for an RI/FS at OU4. However, that is not sufficient reason for eliminating them from consideration since the object of a removal action is *not* necessarily complete elimination of the contamination. The benefits of a permanent solution have been noted on page 6-4.

Action #2: No action taken.

Comment #3: We do not believe the results and validity of the 1974 Roger's report, and reject environmental actions that rely on historic DOE data like the Roger's report.

Response #3: The findings of the 1974 Roger's study (referenced "Rogers 1975" in the EE/CA) are supported by a more recent special canal sampling study (referenced "DOE 1993b" in the EE/CA). As stated on page 2-16 of the EE/CA, the USEPA, OEPA, and the Ohio Department of Health all concurred with the Roger's study conclusion that the plutonium contaminated sediments do not present a credible risk to the public or environment based on existing conditions. Additionally, no critical aspects of the removal action have been based on the Roger's report.

Action #3: No action taken.

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- Comment #4: Unfortunately, option 4 presents no actual remediation of the contamination...the contamination is still present, and this fact should be noted in the cleanup documents.
- Response #4: Agreed. It is physically impossible to destroy plutonium or tritium in the sense that organic contaminants can be destroyed. This fact is noted in the document on page 5-15 by acknowledging that toxicity is not reduced. However, Alternatives 4 and 5 eliminate the toxicity of contaminants in the canal by removing them from the canal. The disposal of the material at NTS places the contamination at a location which is monitored and removes it from exposure pathways to the public.
- Action #4: No action taken.
- Comment #5: ...a protocol for disposal at the NTS site should be made available to the public. [excerpt]
- Response #5: The NTS waste acceptance criteria are outlined in a document available to the public entitled, "Nevada Test Site Defense Waste Acceptance Criteria, Certification, and Transfer Requirements" (Document# NVO-325). It describes many of the procedures used by NTS to handle and dispose of waste.
- Action #5: NVO-325 will be made available in the public reading room.
- Comment #6: The possible environmental consequences of excavation of the soils, during transportation (850 truckloads), and at the NTS site should be considered in addition to the environmental benefit gained to the Miamisburg area from the cleanup.
- Response #6: The proposed activities should have a minimal impact on environmental receptors either at the Miami-Erie Canal, during transportation, or after final disposition at NTS. Possible impacts are described in Table VI.1. However, Mound has safely shipped remediation wastes to NTS in the

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past. Impacts from excavation have been considered. The ecological assessment (OU9) does not indicate any critical habitats or species are endangered. Basically, impacts would be similar to major roadwork construction on an existing roadway.

Action #6: No action taken.

Comment #7: 25 pCi/g should be the cleanup goal, if feasible. Otherwise, 100 Pci/g could be used. [paraphrased]

Response #7: The EE/CA assumes a final cleanup level between 25 and 100 pCi/g. The value 25 pCi/g was used to calculate a conservative estimate of the amount of soil to be excavated.

Action #7: The final cleanup level remains to be determined. This will be done during the detailed design phase by DOE with input from the stakeholders. The final cleanup level will be documented in an Action Memorandum.

Comment #8: ...calculations that are used to determine rem exposures should be included for public review in applicable documents. [excerpt]

Response #8: The Mound Focused Risk Assessment (DOE, 1994) for the Miami-Erie Canal contains these types of calculations. This document has been recently added to the public reading room.

Action #8: No action taken.

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Comments of Barry M. Reed

- Comment #1            I find it outrageous that a request for public comment is requested after a recommended solution has been decided. I would like to think that the stakeholders, to whom such concern is allegedly directed, would be allowed the courtesy of commenting before someone decides what should be done. This is akin to being told that you will have the opportunity to decide if you want to physically keep a freight train from leaving the station but only after it has reached a speed of fifty miles per hour.
- Response #1            That this is the "final" version of the EE/CA does not imply the decision of which alternative to select is final. The Removal Action EE/CA with a recommended removal action alternative was presented to the public for comment per CERCLA regulations. Any comments received on the validity of the recommended alternative will be duly considered and appropriately addressed. The final recommended alternative, to be documented in an Action Memorandum, will not be established before considering public comments.
- Action #1              No action taken.
- Comment #2            It would seem implausible that soil, which by everyone's evaluation poses no true hazard to the populace, would be dug up, containerized and transported across a goodly part of the country just so it can be put back in the ground. I believe Alternative 2 provides sufficient control and safeguards at this time without the disruption and potential problems that Alternative 4 introduces. After all, the City of Miamisburg is probably not going to go away very soon and they certainly seem capable of monitoring access to this area (which "... do not present an immediate or imminent threat to public health or the environment..." [page 1-2 of introduction of EE/CA, OU4]) for the many years that the area will be populated.
- Response #2            Although no current significant risks to the public or the environment have been determined, independent evaluation by regulatory agencies, Miamisburg City officials, and DOE has determined that a removal action is appropriate. Also, the continued concern expressed by a part of the

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public has made it necessary to consider this option. Implementation of Alternatives 1, 2, or 3 would still require continued studies, per Mound's Federal Facility Agreement (RI/FS, ROD, RD/RA) which will incur additional costs. The chief advantage of Alternative 4 or 5 (in which contaminated soils are completely removed from the canal site) is that it accelerates the cleanup schedule. Other major factors such as the uncertainty of DOE's resources available in the area and changing mission make a one time cleanup a viable option versus continued monitoring and response.

Action #2

No action taken.

Comment #3

Spending upwards of \$25,000,000 of the taxpayers' money to move soil (which "... do not present an immediate or imminent threat to public health or the environment ..." [page 1-2 of introduction of EE/CA, OU4]) seems an exorbitant cost. This is especially so when Alternative 2 can be done at ~4% of the cost. Furthermore, knowing how costs of government initiated and controlled programs have a tendency to escalate, it is difficult to believe the estimated <\$25,000,000 cost would be attained. I know that at one time a much higher cost was projected for this activity.

Response #3

Although the costs of Alternative 4 are among the highest of the alternatives evaluated, the primary criteria to be used in the selection of alternatives are short- and long-term effectiveness, and implementability. An alternative cannot be selected solely based on the criterion of being the least expensive to implement (especially if the alternative is judged not to be as effective as other alternatives). As pointed out in the response to Comment #2 above and as described in Section 6 of the EE/CA, Alternative 4 was judged to be superior than Alternative 2 in achieving the Removal Action Objectives for OU4 and providing a permanent solution for the off site contaminant release.

Action #3

No action taken.

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- Comment #4      Based on the current reluctance of other states to accept out-of-state radioactive waste as well as the difficulty Mound has had with getting its low level waste accepted in Nevada, it seems rather optimistic to believe that a reception site will be readily available when the time comes for the move. If such a site is not available then Alternative 5 would seem to be the only viable solution. Of course that means a few million dollars more, but who's counting at this time.
- Response #4      Mound has used and is currently using NTS for final disposition of some of its waste. Per DOE's program orders, only licensed facilities, such as NTS, can be used for disposal of contaminated soil. However, in the EE/CA, NTS has been presented as a representative site for disposal of contaminated soil. The details of soil disposal will be worked out during detailed design. Preliminary contact with NTS officials indicates the Mound soil would be accepted. In addition, Alternative 5 also requires acceptable off-site disposal.
- Action #4      No action taken.
- Comment #5      As you are well aware I worked at Mound at the time of the incident which brought the contamination into the canal and during the subsequent periods of discovery, evaluation, recommendations, hand wringing, finger pointing, blame fixing, etc. I believed then and believe now that the entire incident has been blown way out of proportion. After all these years the "experts" (which "... do not present an immediate or imminent threat to public health or the environment ..." [page 102 of introduction of EE/CA, OU4]) agree with me.
- Response #5      Comment noted.
- Action #5      No action taken.
- Comment #6      It seems ludicrous to take the second most expensive solution to a virtual non-problem in these days of declining funding to the DOE, increasing efforts to reduce federal deficits and the reduction of funds to EG&G to operate the facility. This money could certainly be better spent on

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projects that truly constitute a health and/or environmental threat to the community. Such is not the case in Miamisburg.

Response #6

The DOE budget process does focus on priorities based on assessment of needs. Funding available for OU4 will be determined on basis of priority with input from stakeholders. It is worthwhile to note that as budgets change it is possible that initiation of this project may be delayed due to funding constraints.

Action #6

No action taken.

Comments of William H. Taylor

Comment #1

Section 3.2, page 3-3 reads, "The scope of this removal action does not include any surface water or groundwater in the vicinity of the canal. Consequently, the surface waters in the south pond, the canal, and the overflow creek are excluded." However, section 5-5, page 5-13 says, "Water generated during excavation and treatment that is tritium-contaminated will be disposed." The following questions concern tritium in water:

1. What is "water generated during excavation"? Is it water from dewatering soil? Rinse water? Surface water? Other?
2. How much tritium constitutes "tritium-contaminated" water? Detectable?
3. Will water be tested for tritium? Which water?
4. How will tritium-contaminated water be disposed?

Response #1

1. The scope of the removal action does not include surface water or groundwater associated with the canal. Prior to the start of this removal action, all sources of water in the canal will be diverted and the canal will be allowed to dry. However, Alternative 4 (Excavation and Disposal) involves soil excavation from the saturated zone (i.e., much of the excavated soil will still be wet). This soil will be dewatered prior to disposal. This is the source of potentially contaminated water mentioned on page 5-13.
2. Water will be considered contaminated if the tritium concentration exceeds the limits defined through the Safe Drinking Water Act (SDWA).
3. All water collected from dewatering procedures will be collected in storage tanks and sampled.

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4. If the concentration exceeds the SDWA limit, the water will be solidified and shipped off site. If the tritium concentration is below the SDWA levels, the water will be eligible for discharge to the Mound sanitary sewer (Mound NPDES Outfall 001).

Action #1 No action taken.

Comment #2 The second topic of inquiry concerns the following statement: "Chip all trees and shrubbery and stockpile on-site along with all sod and clean soil" (Section 7.2, page 7-2). Will trees, shrubbery, and (particularly) sod be tested for plutonium or tritium? Since Mound regularly reports trace quantities of plutonium in grass and root crops in the annual environmental monitoring reports, will there be monitoring to determine whether vegetation should be rejected from the clean fill?

Response #2 The purpose of removing trees, shrubs, etc. is to permit soil excavation. Since only trace quantities of plutonium have ever been detected in vegetation, the trees, shrubbery, and sod are not expected to be contaminated (Ref. Rogers, 1975). As stated in the EE/CA (Section 7.2), representative samples of the removed vegetation will be sampled for contamination. However, it is not planned that the removed vegetation will be returned to the canal environment. Rather, it will be disposed off site as construction debris.

Action #2 No action taken.

Comment #3 The last question is a physical science question which your plutonium chemists may know the answer to: Will the process of excavation and dewatering the soils contribute to dissolution of plutonium from soil and sediments into surface water?

Response #3 Excavation and dewatering the soils would not contribute significantly to the releasing of plutonium from soils and sediments into surface water because plutonium tends to be chemically bound to clay particles, which

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would essentially immobilize plutonium. Further, plutonium does not readily dissolve in water (Ref. Rogers, 1975). The removal action will include precautions to prevent the suspension of any clay particles contaminated with plutonium and their subsequent release.

Action #3

No action taken.

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Comments of Jeff Fisher

GENERAL

- Comment #1            I am pleased that the process for setting clean-up standards for the soil in the canal area includes the public. However, the comment period is less than 30 days. This allows too little time for distribution of the information, discussion and response by the public. Can commentary be accepted beyond 9 August, 1994?
- Response #1            Although the comment period for the Removal Action EE/CA is 30 days, other opportunities are available for further comments and questions. The comment period for the EE/CA was July 19 through August 19, 1994, not August 9 as stated in the comment.
- Action #1              No action taken.
- Comment #2            I am impressed with the prior risk assessment efforts that DOE has funded to determine soil clean-up levels for plutonium. I believe that these efforts will help in establishing more "realistic" risk assessment methodology for soil clean-up levels. DOE's documents should be published in the peer reviewed private sector and offer a basis for regulatory evaluation of the proposed methodologies.
- Response #2            Regulatory agencies have participated in some of the development of the risk assessment methodology for determining soil cleanup levels at Mound. The Focused Risk Assessment (DOE, 1994) has recently been added to the reading room to permit public review of the risk assessment methodology.
- Action #2              No action taken.
- Comment #3            I was unable to critically evaluate the document because many of the cited documents are not available in the CERCLA reading room. This is a considerable problem because the authors summarize the findings of other reports (several internal DOE documents) and offer limited evaluations of the citations. Without the cited publications, I am forced to either accept

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the EE/CA author's interpretation or spend several week trying to obtain the cited documents (beyond the public comment period). I propose that whenever a position paper of the sort is given to the public for comment that the references be available for review (preferably included as exhibits to the primary document).

Response #3 Inclusion of all the references as "exhibits to the primary document" would become unwieldy and repetitive. DOE tries to identify important reference documents and make them available in the public reading room.

Action #3 No action taken.

Comment #4 Future land use of the entire canal (north and south) must be evaluated before clean-up levels are established. A review of the current use would suggest that there are two land uses, a defined recreational area and a heavily vegetated area open to the public, but not developed. Future land use of the undeveloped portion of the canal area must be clarified.

Response #4 Future land use is an important factor in establishing the cleanup goal and is being developed with input from the OU4 Focus Group. Previous risk studies have assumed a recreational land use. (Dunning & Rogers, 1990)

Action #4 Include input on future land use from the Focus Group in the Action Memorandum.

**SPECIFIC**

Comment #1 In the ARAR section, provide Pu-238 and H-3 clean-up levels using the slope factors (and exposure assumptions) provided in the U.S. EPA Health Effects Assessment Summary Tables (HEAST). This will provide an evaluation of health risks using toxicity values that have been reviewed and accepted by U.S. EPA. Most clean-up levels provided in this section were taken from DOE sponsored projects.

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- Response #1      The cleanup levels derived from the Focused Risk Assessment uses an approach similar to that of EPA's Risk Assessment Guidance for Superfund (RAGS) and is less conservative in the selection of exposure parameters. However, slope factors (a tool used to translate intake of a potential carcinogen into a probability of developing cancer during a lifetime) obtained from USEPA's HEAST tables were used to calculate cancer risks and establish cleanup levels in Table A.1 (EPA, 1991).
- Action #1      No action taken.
- Comment #2      Add citizens as recognized stakeholders in establishing the clean-up levels in the canal. Please provide an "intended process" for decision making on establishing clean-up levels for the canal. It is unclear how citizen comments will be used. A process that is mutually acceptable needs to be developed.
- Response #2      The cleanup level for this removal action will be determined by DOE in consultation with Mound stakeholders, which includes citizens. Following input from and discussion with the stakeholders, DOE will issue an Action Memorandum as a decision document supporting the selection of the Removal Action cleanup level.
- Action #2      No action taken.
- Comment #3      Expand the report to include off-site (canal) contamination that occurred in the residential area as a result of the 1969 accident and heavy rainfall. If no sampling was undertaken, state so. If sampling was completed provide a summary of the data and cite reference. Provide more commentary on the amount of sediment that was washed from Mound into the Canal area. Explain why Pu-238 was found so deep in the soil at the canal.
- Response #3      This removal action is limited to contamination released into the Miami-Erie Canal soils and sediments as a result of Mound activities. In addition to the canal area, sampling was conducted off-plant site by Rogers in

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J. Fisher (cont'd)

1974. The sampling plan was reviewed by the Energy Research and Development Administration (ERDA, now DOE), Montgomery County Health Department, Miami Conservancy District, Ohio Department of Health, Ohio and USEPA, and others. Only waterways and their sediments were investigated in this report, since the plutonium release consisted of surface water runoff. Sampling was conducted in the runoff hollow, drainage ditch, north and south ponds, overflow creek, and the Great Miami River. The complete results of the 1974 sampling project are documented in Rogers, 1975. DOE has no indication of contamination in the residential area (west of the canal) as determined by monitoring well data and soil sampling taken as part of OU9 environmental assessment.

The amount of sediment deposited during and subsequent to the release into the canal is unknown. The contamination profiles resulting from the 1974 and 1993 sampling studies indicate that the depths of the maximum concentration range from near-surface to three feet in the canal. One explanation for this result is that sediment runoff had covered some locations to various degrees between 1969 and 1974. See Rogers (1975) for additional assessment of sediment deposition and contamination mechanisms.

Action #3

No action taken.

Comment #4

Include map(s) to show nature and extent of contamination of the canal. It is important to produce a stand alone document describing the canal investigation, risk assessment and proposed remediation. Include the results from recent sampling (SAIC) and the Roger's study. Provide schematics of areas that would be excavated, relative to the known contamination.

Response #4

The extent of contamination in all sampling locations is summarized in the EE/CA. For the purposes of the removal action report, the EE/CA sufficiently describes the extent of contamination and estimates of excavation volumes. Schematic drawings of the areas of excavation will be developed during the design phase. The Special Canal Sampling

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J. Fisher (cont'd)

Report (DOE, 1993b) and the Rogers Study are available in the public reading room.

Action #4

No action taken.

Comment #5

SAIC individuals responsible for this report and the new sampling data should be available to answer questions. Based on a recent meeting on the canal clean-up at the Mound (chaired by Art Kleinrath), there appear to be inconsistencies between answers to questions raised at the meeting and information provided in this document. For example, my impression was that no thought had been given to the volume of soil that may need to be excavated and the associated costs. However, this report suggests that these issues have been addressed.

Response #5

Questions on the EE/CA can be directed to Mr. Arthur Kleinrath (DOE), Mr. Monte Williams (EG&G), or Ms. Jolene Walker (EG&G). Only preliminary estimates of volume of soil to be excavated are provided in the EE/CA document based on conservative assumptions of cleanup levels. More accurate estimates will be available in the removal action design phase.

Action #5

No action taken.

Comment #6

For risk assessment and clean-up consideration, two recently published documents describing low dose potency (risks) for radionuclides need to be included in this report. The documents are: (1) ICRP (Publication 60), "Recommendations of the International Commission on Radiological Protection" (1990), Pergamon Press and (2) Committee on the Biological Effects of Ionizing Radiation (BIER V), National Research Council, National Academy of Science, "Health Effects of Exposure to Low Levels of Ionizing Radiation" (1990).

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J. Fisher (cont'd)

Aside from the uncertainties of the exposure assumptions used in risk assessment of radionuclides, I believe that the potency of radionuclides needs to be carefully accounted for using the most up-to-date information, such as the documents mentioned above.

Response #6           The references described above have been incorporated in specific references used in the EE/CA (eg., ATSDR (1993) and DOE (1990)).

Action #6            No action taken.

Comment #7           Deviation from a risk based clean-up level of 1 in 1 million ( $10^6$ ) requires the acceptance of the public and should be based on land use. Also, the use of alternative methodologies in the calculation of risk (eg., exposure assumptions), other than those employed by the U.S. EPA, need to be accepted by the public.

Response #7           The assumptions used in Mound's Focused Risk Assessment were based on EPA default values except where site-specific parameters were available, some of which are less conservative than the EPA values. This procedure is acceptable under EPA's Superfund guidance (EPA, 1991). EPA's risk-based cleanup goal is  $10^{-4}$  to  $10^{-6}$  lifetime cancers; however, there are EPA approved standards which fall outside this range. For example, the dose limits in ICRP, Publication 60 for members of the public (100 mrem/yr) correspond to a lifetime cancer risk of  $2 \times 10^{-3}$ .

Action #7            No action taken.

Comment #8           Health risks for children playing in Outfall 002 water and sediment need to be addressed as part of the clean-up plan. This area is accessible to the public. Please note that Outfall 001 water should be included in the risk assessment process also.

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J. Fisher (cont'd)

- Response #8            The Mound Focused Risk Assessment (DOE, 1994) is based on exposure scenarios for recreational use of the canal. The assumptions include eating small amounts of canal soils and water by children.
- NPDES Outfall 001 does not represent a source of plutonium contamination from the canal, since it does not come in contact with the soils or water flowing through the canal.
- Action #8              Revise EE/CA reference to Focused Risk Assessment: DOE, 1994.
- Comment #9            A tritium clean-up level should be established. Although soil concentrations may not exceed the anticipated clean-up level (which is not stated), there may be an impact on the groundwater. The mobility of tritium in the environment differs from Pu-228.
- Response #9            The mobility of tritium does differ from Pu-238. There are currently no regulatory standards for tritium in soil. Current tritium concentrations as monitored annually by Mound do not exceed Safe Drinking Water Act (SDWA) standards. Thus, tritium levels are not out of compliance and, therefore, cleanup standards for tritium were not established.
- The EE/CA summarizes the results of tritium studies for the canal (e.g., Kershner and Rhinehammer, 1978) which conclude that, although it is more mobile than plutonium, the distribution of tritium contamination in the canal is similar to that for plutonium and thus would be removed with the excavation of plutonium contaminated soil.
- Action #9              No action taken.
- Comment #10           Adequate information was not provided in this report to determine the extent of contamination and the degree of hazard associated with the non-radiological contamination of the site. SAIC should expand this section and provide supporting data. Although there are no regulatory toxicity values for some chemicals, toxicity can and should be evaluated.

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J. Fisher (cont'd)

Depending on the chemicals present, it may be important to develop toxicity values, in the same manner as Plutonium-238. Lead levels in soil near the road and railroad should be determined.

Response #10

The currently available data on potential chemical contaminants, other than radionuclides, supports the initial determination that the canal is not contaminated with other chemicals. For example, the 1993 canal study concluded that there were no significant amounts of non-radiological contamination in the canal (see "Operable Unit 4 Special Canal Sampling Report DOE, 1993b). In this study, maximum concentrations of detected contamination were compared to known standards. The results indicated that, since such contamination is either below or only slightly above these standards, they do not represent a hazard. Higher concentrations of lead were measured near the roadway and this was reported in the study. Nevertheless, the removal action design will include contingencies for the possibility that chemical contamination above cleanup standards may be encountered along with the plutonium-contaminated soil. Other potential contaminants will be considered in detail during the RI/FS and Record of Decision (ROD).

Action #10

No action taken.

Comment #11

Without the cited literature, I can not evaluate Table A-1 (page A-9). A more detailed description of how the calculations (normalization) were conducted is required for evaluation. My first impression is that the comparisons are inappropriate.

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J. Fisher (cont'd)

Response #11

The normalization was accomplished by simply taking any given standard (e.g., Till and Moore, 400 pCi/g) and multiplying it by the ratio of 25 mrem/yr divided by the dose at the given standard:

$$(400 \text{ pCi/g}) \times \left( \frac{25 \text{ mrem}}{100 \text{ mrem}} \right) = 100 \text{ pCi/g}$$

Action #11

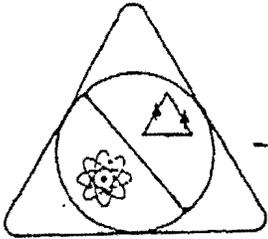
No action taken.

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Comments from Ohio EPA

Comment	The Ohio Environmental Protection Agency (Ohio EPA) would like to express its support for the Operable Unit 4 Canal Engineering Analysis/Cost Analysis which selects excavation of plutonium contaminated sediment/soils in the Miami Erie Canal, located west of the Mound Plant. [excerpt]
Response	Alternative 4 has been recommended.
Action	No action taken.

**APPENDIX A**  
**COMPLETE TEXT OF PUBLIC COMMENTS**



# City of Miamisburg

10 N. FIRST ST. • P.O. BOX 570 • MIAMISBURG, OH 45343-0570 • FAX 513-866-0891 • PHONE 513-866-3303

August 19, 1994

Mr. Arthur Kleinrath  
DOE On-Scene Coordinator  
P O Box 66  
Miamisburg, OH 45343-0066

Dear Art:

Based upon the engineering evaluation/cost analysis for Operable Unit 4 and the information presented and discussed at the focus group meetings regarding the clean-up process for Community Park, the City recommends removing the contaminated soil and proceeding with either Alternative 4: Excavation and Disposal, or Alternative 5: Excavation, Treatment, and Disposal.

Since there seems to be ongoing questions regarding the minimal acceptable levels for allowing the contaminated soil to remain, the City feels it is in the best interest of the community to remove the soil from the contaminated site. The removal action is also the best course of action long-term for the community, the park site, and the Department of Energy. The presence of plutonium and tritium in the canal and in the park will continue to be an issue for the City, the park site, and for the users of the facilities in Community Park. The presence of these radioactive elements create an image and concern among the public as to the safety of this park site.

With DOE's decision to decommission the Mound Facility, the City believes it is imperative that the Department address the canal contamination through a removal action. A removal action will eliminate the need for the Department to continue to actively monitor the canal and park site well into the next century. A removal action would also bring closure to this situation and to the many issues, questions, and concerns involved with the 1969 spill and the contamination within Community Park.

If you have any questions, please contact me at 847-6456.

Sincerely,

John K. Weithofer  
City Manager

Post-It™ brand fax transmittal memo 7671		# of pages > 1
To Art Kleinrath	From John Weithofer	
Co.	Co.	
Dept.	Phone #	
Fax #	Fax #	

Neighbors in Need  
124 Chestnut St., #210  
Englewood, OH 45322  
August 18, 1994

Jolene Walker  
E.G.O. Community Relations  
P.O. Box 3000, OSE-245  
Miamisburg, OH 45343-2000

Dear Jolene Walker:

The following is my response to the OU 4  
EE/CA Final, current proposed removal of  
soils from the Miami-Erie Canal.

At this point, and based on the information  
that I have now, I am recommending that  
Alternative 5 be implemented, using the  
following:

- a) excavation of the soil;
- b) treatment facility with storage space  
be constructed on site;
- c) removal of stones, etc., (non-contam-  
inated) from the soil;
- d) containerization and storage on-site  
until a treatment method is  
developed; and
- e) handling throughout as transuranic  
wastes.

Ethically, we do not have a right to dispose  
of these wastes on another people's land.

Sincerely,

Rev. Dr. Wilma M. Shearer      c.c.: Brian Nickols

1518 Catalpa Drive  
Dayton, OH, 45406-5945  
August 18, 1994

Jolene Walker, EG&G Community Relations  
PO Box 3000, DSE-245, Miamisburg, OH, 45343-3000

Dear Jolene Walker:

Following our recent phone conversations, I drove down to Miamisburg yesterday, & with the help of Mr. Donuhue(sp?), secured a copy of your EE/CA report, which I have now read, with some difficulty, due to the sheer size (over 80pp. of text, plus tables & appendices), the enormous number of abbreviations or acronyms (82 are too many to memorize, tho identified a few times), and, of course some scientific or technical terms & numbers. Nevertheless, I'll try to make a few relevant comments now, to meet your deadline.

Actually, I find the report is logically and effectively done, and well indexed, though it seems to me there is a great deal of repetition, perhaps due to its method of organization. In fact, I tend to agree that Alternative 4, excavation and disposal, is the most logical, though I'm not sure I have to read that 10 or 20 times (whatever it is) to get the point.

Since I am not technically qualified to deal with the scientific data, my major concerns relate to schedule, cost (including cost of this report), and possibly some details of implementation, and methods of calculation.

In a positive sense, I am happy to read in the introductory comments such terms as "early action", "expedite" (pp. 1, 2) and EPA encourages "accelerated" action (pp. ES-2, 2-22), because it seems to me that the whole Superfund Cleanup process has been dragged out interminably--historically, as well as in your present plans--which use the term, "non-time" critical, which you define as not within 6 mos. (Everybody knows that two 6 months make a year, and it has been 25 years since the 1969 plutonium spill. And now some of your tables project action, or O & M, to use your term, over a span of 30 years, which added to 25 yrs. or the origin of these nuclear activities in the 1940's, equals a lifetime!)

**SCHEDULE:** For instance, on Removal Action Objectives, p. 3-3, beyond the months & years that were required to issue this EE/CA report, in great detail, you schedule **12 more months** for design/planning of removal action, "due to the complexity & range of issues". That puts removal action to start in late FY'95, and to take **approximately 24 months.** I realize there are many precautions needed in such removal, but if you observe the speed of sky-scrapers, shopping centers, and other constructions, just soil removal seems to me a good bit less time-consuming. In fact, on page 5-15, line 9, you say "The estimated time to complete... is one to two years." On your Table B-24, p. B-41, you put all of the cost on the first year, and though I don't understand all details of tables B-22 to B-26. (I gather the discount factor refers to monetary inflation, which is used to calculate present worth," which apparently escalates the capital costs from some \$12 million in 30 years to \$24 million, which I suppose is meaningless on

Table B-24, with 0's for the next 29 years.) But to add to the confusion, I see in several of the alternatives calculated, you estimate the "Indirect costs" as 50% of direct capital costs, for design, management & insurance, p.5-10, 5-16. These estimates vary according to action taken--so that in Alternative 2, the O & M Indirect Costs are 25% for admn., 25% for insurance and 25% for reserve and contingency= a total of 75% of direct O & M costs. But for Alternative 3, you divide the 50% of Direct Capital into Indirect Capital costs as 15% for engineering & design, 10% for license & permits, and 25% for contingencies. That equals \$677,838. Isn't that excessive? (Alternative 4 shows 75% of direct costs for indirect O & M, but since the you show the maintenance there as 0 for 30 years, it is a meaningless percentage (Table B23). But in Table B27, Indirect Capital becomes 50% of direct costs again, or \$10.4 million, just in the first 1-2 years.)

These various percentages do not bother me so much, since they are hypothetical estimates, but they seem to me to illustrate a general extravagance with expenses, which we have heard so much about on ABC nightly news lately, and elsewhere. But to illustrate further, I may lack the technical knowledge to evaluate Table V.1 on p. 5-17, but I note the removal (or remediation) costs \$ 820,000 (itself a hefty sum!), but the transportation costs \$ 6,660,000, which must be over 8 times as much. On page 7-3 you mention 850 truck trips. I figure that is \$7835 per truck trip! On page 5-15 you cite \$ 3.2 million for transport and \$ 3.5 million for containers (plus your 20ydx3 dump trailers, p.7-3. Or is that the same trucks?) Those 2 figures = \$ 6.8 million, not the 6.6, shown in Table V.1:

**DISPOSAL:** I have further questions about your disposal plans. First, the danger of a truck accident from SW OH to Nevada= a perhaps unnecessary risk. Second, the Nevada facility seems to be at best problematical, according to my memory of the news. Do you recall that extravagant 25 foot experimental tunnel boring machine, which lacks belts for ground removal, when an 18 ft. machine was already on hand? (ABC news) (Was this not also mentioned in US-EPA comments? re: the 1 mo. NTS deal) Thirdly, I agree with Dr. Velma Shearer that ethically we cannot dump our toxic waste on another state. Cannot we avoid both the transit cost, the transportation danger, and the dumping crime by storing it at the Mound? That would also eliminate the **\$ 8 million NTS disposal cost**, listed in Table B-20, p. B-36, as **\$14.6 million**. Returning to the cost issue, if the excavation cost is **\$ 1.7 million** (construction costs), or 12%, it seems irrational to spend 88% on moving or disposal. And I feel the same about the 50% figure, or c. \$8.2 million for engineering, licenses and contingency, as mentioned above. (Of course, on-site storage would cost something, but nothing like the \$22 million in the above figures (\$8 + \$14 m.)

**IMPLEMENTATION:** Somewhere you mention removal of all trees, shrubs and sods. With such a large excavation, that may be necessary. But I would hope the guidelines could preserve trees and natural vegetation where possible. On p.5-24 you mention "retaining existing contours." I do

not know all of the contours, but if excavation results in leveling some of the unused canal, or other areas, perhaps even to improve the contours I do not see spending extra funds just to recreate some former hills and knolls. You also say several times that cost estimates do not include constructing a new drainage pathway to the creek. Hopefully this can be a temporary construction without extensive earth-moving--particularly if, as mentioned, most of the earth moving will be in the summer months, when weather problems would be less severe. In fact, at one point you mention a summer construction; so I wonder about calculating the costs over a period of years (2 or 30, in some cases). Is that "overkill"? On page 5-11, for Limited Use, you estimate a "yearly maintenance cost for the cap as \$ 75,000." That is for inspections, erosion, drainage, and cap maintenance. What other business would spend that much on such work?

In Table IV.2, p.4-8, your plan opts for complete excavation, which I'm sure the environmentalists favor. But you explain that partial excavation from "discrete areas where contamination exceeds target levels" is not applicable. Why not? If some is below target levels, must you move that too? This may be a matter of terminology. I have no scientific knowledge here, but I wonder about your comment that "Contamination appears to be fairly uniform rather than discrete hot spots in the canal." You may be right. I'm sure you've spent mega-bucks on samples. But if, as the digging progresses, you find large areas uncontaminated, I would hope you would not haul everything away, just to fulfill your budget plan.

On page 5-14 you speak of 17,000yd.x3 of soil (does that mean cubic yards) for contamination above 100pCi/g, but 33% more, or 23,000ydx3 to lower the contamination to 25pCi/g. I feel sure that those people knowledgeable about this would prefer the 25pCi/g level, since the excavation cost is the smallest part of the operation, in your estimates. This comment may seem inconsistent with the previous one about the possibility of partial excavation, but I hope it is not.

**CALCULATIONS:** Returning to some of the cost concerns, there are some figures I don't understand. But I get some hint about your calculations, e.g., in Table B-9, p.B20. You pay your samplers \$50/hr, your analysts, \$ 75/ hr, your inspectors & writers, \$75/hr., & maintenance \$50/hr. for labor, and on purchased services, \$150/sample analysis, for 50 samples. (Can I get a job there?) (In 1937 I dug ditches, and carried cement bags & lumber for 40 cents an hour, 9 hrs. a day, which was above minimum wage. If we have inflation 10-fold, that would be \$4.00/hr., just below the minimum wage. But \$50/hr, or \$75/hr. is 125 or 187 times my wage. Surely inflation is not that high in 57 years. Or is it?) I guess we just don't live in the same world. The whole cost analysis seems to me extravagant! And according to the media the DOE has been extravagant from the beginning.

*Frank ...*  
*Bob M. Smith*

8/16/94

Review of Removal Action EE/CA  
OU4, Miami Erie Canal

We have read the EE/CA document and have the following suggestions:

Our first suggestion deals with public participation and availability of documents. The EE/CA should have been made available to the public before the OU-4 focus group meeting on July 7th. In that meeting an agreement on what should be done at the canal was attempted. Most stakeholders present agreed that something should be done to clean up the canal.

However, without the EE/CA to review before the meeting, a thorough review of the options available was not possible. Consequently, an informed opinion from the public was also not possible.

In the future, the public should have access to all documents at the same time as other governmental agencies and contractors, such as the DOE, EPA, ATSDR, EG&G etc..., so as to make the most informed decision.

The EE/CA suggests that option 4- "removal and disposal" of canal soils should be taken. This option would result in permanent removal of plutonium and tritium contaminated soils from the canal. In the long term, this action would provide the best cleanup action for the Miamisburg area.

Any solution less than a clean-up and removal of soil in the relatively mobile stream sediments would necessitate an extensive

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RI/FS. Therefore, options 1 through 3 are not acceptable alternatives for clean up of the Canal.

Further, recent revelations in the national press have illustrated highly questionable historic DOE practises (such as lying to the public regarding exposure of the public to radiation, in some cases where DOE intentionally exposed members of the public to radiation without the public's knowledge). Therefore, all DOE documents produced during the 1970's and earlier without outside agency oversight, like the EPA, are highly suspect. Accordingly, we do not believe the results and validity of the 1974 Roger's report, and reject environmental actions that rely on historic DOE data like the Roger's report.

Unfortunately, option 4 presents no actual remediation of the contamination. Rather, the contaminated soils would merely move from one place to another. To put it more succinctly, the contamination is still present, and this fact should be noted in the cleanup documents.

Before option 4 is implemented, a protocol for disposal at the NTS site should be made available to the public. This should include:

How is the soil being disposed?

In what setting is the disposal facility? (Geologic, ecologic, etc...)

Is the disposal of this waste going to result in a less potentially harmful situation for the public and the environment. And if so, why?

The possible environmental consequences of excavation of the soils, during transportation (850 truckloads), and at the NTS site

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should be considered in addition to the environmental benefit gained to the Miamisburg area from the cleanup.

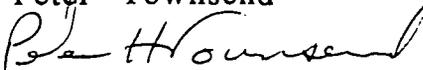
Our last suggestion deals with the cleanup standard to be used in excavation of the canal. The *OU4 Miami-Erie canal removal action plutonium clean-up guideline matrix* that was distributed presents different standards as options to be used in the cleanup. Considering that the contamination in the canal soils is a result of an off-site release from Mound, the onsite D&D standard of 100pCi/g may not represent the best standard to use.

Considering the contamination is in a public area, a stricter standard than the on-site standard should be used. Many of the options presented in the EE/CA used a committed dose equivalent limit of 25mrem/yr, which is an acceptable guideline to use in the cleanup.

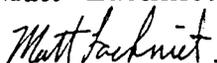
The soil activity levels that would yield this exposure under the guidelines and assumptions of the particular model used varies from 3.6pCi/g to 1080 pCi/g. The level that would provide the least risk to the environment and to the public while still maintaining feasibility would be 25pCi/g. This standard should be used as an ultimate goal of the cleanup, but if absolutely not feasible, a level of 100pCi/g would be the uppermost limit acceptable. Ideally, the cleanup should result in Plutonium levels below the detectable limit (25pCi/g). Finally, calculations that are used to determine rem exposures should be included for public review in applicable documents.

Thank you,

Peter Townsend



Matt Lachniet



August 9, 1994

Jolene Walker  
EG&G Community Relations  
P.O. Box 3000  
OSE 245  
Miamisburg, OH 45343-3000

Re: Response to Request for Public Comment - Operable Unit 4

Dear Ms. Walker:

I must strongly disagree with the preferred alternative to resolving the issue of plutonium and tritium contamination in the former Erie Canal site adjacent to the Mound Facility. My reasoning is stated below:

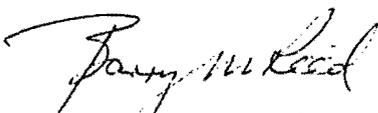
1. I find it outrageous that a request for public comment is requested after a recommended solution has been decided. I would like to think that the stakeholders, to whom such concern is allegedly directed, would be allowed the courtesy of commenting before someone decides what should be done. This is akin to being told that you will have the opportunity to decide if you want to physically keep a freight train from leaving the station but only after it has reached a speed of fifty miles per hour.
2. It would seem implausible that soil, which by everyone's evaluation poses no true hazard to the populace, would be dug up, containerized and transported across a goodly part of the country just so it can be put back in the ground. I believe Alternative 2 provides sufficient control and safeguards at this time without the disruption and potential problems that Alternative 4 introduces. After all, the City of Miamisburg is probably not going to go away very soon and they certainly seem capable of monitoring access to this area (which "... do not present an immediate or imminent threat to public health or the environment ..." [page 1-2 of introduction of EE/CA, OU4]) for the many years that the area will be populated.
3. Spending upwards of \$25,000,000 of the taxpayers' money to move soil (which "... do not present an immediate or imminent threat to public health or the environment ..." [page 1-2 of introduction of EE/CA, OU4]) seems an exorbitant cost. This is especially so when Alternative 2 can be done at ~4% of the cost. Furthermore, knowing how costs of government initiated and controlled programs have a tendency to escalate, it is difficult to believe the estimated <\$25,000,000 cost would be attained. I know that at one time a much higher cost was projected for this activity.
4. Based on the current reluctance of other states to accept out-of-state radioactive waste as well as the difficulty Mound has had with getting its low level waste accepted in Nevada, it seems rather optimistic to believe that a reception site will be readily available when the time comes for the move. If such a site is not available then Alternative 5 would seem to be the only viable solution. Of course that means a few million dollars more, but who's counting at this time.

As you are well aware I worked at Mound at the time of the incident which brought the contamination into the canal and during the subsequent periods of discovery, evaluation, recommendations, hand wringing, finger pointing, blame fixing, etc. I believed then and believe now that the entire incident has been blown way out of proportion. After all these years the "experts" (which "... do not present an immediate or imminent threat to public health or the environment ..." [page 1-2 of introduction of EE/CA, OU4]) agree with me.

It seems ludicrous to take the second most expensive solution to a virtual non-problem in these days of declining funding to the DOE, increasing efforts to reduce federal deficits and the reduction of funds to EG&G to operate the facility. This money could certainly be better spent on projects that truly constitute a health and/or environmental threat to the community. Such is not the case in Miamisburg.

I vote for Alternative 2.

Yours truly,

  
Barry M. Reed  
Stakeholder



JUL 22 1994

Ms. Jolene Walker  
EG&G Community Relations  
P.O. Box 3000  
OSE-245  
Miamisburg, Ohio 45343-0066

Dear Ms. Walker:

The Agency for Toxic Substances and Disease Registry (ATSDR) has received the Mound Plant Operable Unit 4 Removal Action Engineering Evaluation/Cost Analysis (EE/CA) document. We have reviewed it and prepared questions concerning three topics: tritium in water; vegetation disposal; and the environmental impact of removal activities. These questions are general in nature and should only require minor clarification.

The first question concerns tritium in surface waters and two statements in the document:

**"IDENTIFICATION OF REMOVAL ACTION OBJECTIVES, REMOVAL ACTION SCOPE; Section 3.2; p. 3-3**

"The scope of this removal action does not include any surface water or groundwater in the vicinity of the canal. Consequently, the surface waters in the south pond, the canal, and the overflow creek are excluded."

**"ANALYSIS OF REMOVAL ACTION ALTERNATIVES, ALTERNATIVE 4; Section 5-5; p. 5-13.**

"Water generated during excavation and treatment that is tritium-contaminated will be disposed."

- Q: What is "water generated during excavation"? Is it water from dewatering soil? Rinse water? Surface water? Other?
- Q: How much tritium constitutes "tritium-contaminated" water? Detectable?
- Q: Will water be tested for tritium? Which water?
- Q: How will tritium-contaminated water be disposed?

RECOMMENDED REMOVAL ACTION ALTERNATIVE, RECOMMENDED  
ALTERNATIVE; Section 7.2; p. 7-2.

The second topic of inquiry concerns the following statement:

"Chip all trees and shrubbery and stockpile on-site along  
with all sod and clean soil."

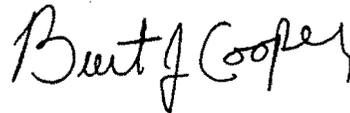
Q: Will trees, shrubbery, and (particularly) sod be tested for  
plutonium or tritium? Since Mound regularly reports trace  
quantities of plutonium in grass and root crops in the annual  
environmental monitoring reports, will there be monitoring to  
determine whether vegetation should be rejected from the clean  
fill?

The last question is a physical science question which your  
plutonium chemists may know the answer to:

Q: Will the process of excavation and dewatering the soils  
contribute to dissolution of plutonium from soil and  
sediments into surface water?

Thank you for the opportunity to review this document. Please  
telephone me at (404) 639-6068 if you have any questions.

Sincerely yours,



 William H. Taylor, Ph.D.  
Chemist, Energy Section B  
Federal Facilities Assessment  
Branch, Division of Health  
Assessment and Consultation

cc:  
Mr. Arthur W. Kleinrath

31 July 94

TO: EG&G Mound Applied Technologies  
CERCLA Public Comment  
PO Box 3000  
Miamisburg, OH 45343-3000

FROM: Jeff Fisher  
MESH Technical Advisor  
7470 Sheelin Ct.  
Dayton, OH 45415

SUBJECT: EE/CA OU-4 Public Comment (July 18, 1994)  
Clean-up of the canal

Below are my comments on establishing the remediation or "clean" standards for the canal that is contaminated with chemicals and radioactive Pu-238 and tritium.

#### GENERAL

1. I am pleased that the process for setting clean-up standards for the soil in the canal area includes the public. However, the comment period is less than 30 days. This allows too little time for distribution of the information, discussion and response by the public. Can commentary be accepted beyond 9 August, 1994?
2. I am impressed with the prior risk assessment efforts that DOE has funded to determine soil clean-up levels for plutonium. I believe that these efforts will help in establishing more "realistic" risk assessment methodology for soil clean-up levels. DOE's documents should be published in the peer reviewed literature in order to help transition the technology to the private sector and offer a basis for regulatory evaluation of the proposed methodologies.
3. I was unable to critically evaluate the document because many of the cited documents are not available in the CERCLA reading room. This is a considerable problem because the authors summarize the findings of other reports (several internal DOE documents) and offer limited evaluations of the citations. Without the cited publications, I am forced to either accept the EE/CA author's interpretations or spend several weeks trying to obtain the cited documents (beyond the public comment period). I propose that whenever a position paper of the sort is given to the public for comment that the references be available for review (preferably included as exhibits to the primary document).

4. Future land use of the entire canal (north and south) must be evaluated before clean-up levels are established. A review of the current use would suggest that there are two land uses, a defined recreational area and a heavily vegetated area open to the public, but not developed. Future land use of the undeveloped portion of the canal area must be clarified.

#### SPECIFIC

1. In the ARAR section, provide Pu-238 and H-3 clean-up levels using the slope factors (and exposure assumptions) provided in the U.S.EPA Health Effects Assessment Summary Tables (HEAST). This will provide an evaluation of health risks using toxicity values that have been reviewed and accepted by U.S.EPA. Most clean-up levels provided in this section were taken from DOE sponsored projects.
2. Add citizens as recognized stakeholders in establishing the clean-up levels in the canal. Please provide an "intended process" for decision making on establishing clean-up levels for the canal. It is unclear how citizen comments will be used. A process that is mutually acceptable needs to be developed.
3. Expand the report to include off-site (canal) contamination that occurred in the residential area as a result of the 1969 accident and heavy rainfall. If no sampling was undertaken, state so. If sampling was completed provide a summary of the data and cite reference. Provide more commentary on the amount of sediment that was washed from Mound into the Canal area. Explain why Pu-238 was found so deep in the soil at the canal.
4. Include map(s) to show nature and extent of contamination of the canal. It is important to produce a stand alone document describing the canal investigation, risk assessment and proposed remediation. Include the results from recent sampling (SAIC) and the Roger's study. Provide schematics of areas that would be excavated, relative to the known contamination.
5. SAIC individuals responsible for this report and the new sampling data should be available to answer questions. Based on a recent meeting on the canal clean-up at the Mound (chaired by Art Kleinrath), there appear to be inconsistencies between answers to questions raised at the meeting and information provided in this document. For example, my impression was that no thought had been given to the volume of soil that may need to be excavated and the associated costs. However, this report suggests that these issues have been addressed.

6. For risk assessment and clean-up consideration, two recently published documents describing low dose potency (risks) for radionuclides need to be included in this report. The documents are: (1) ICRP (Publication 60), "Recommendations of the International Commission on Radiological Protection" (1990), Pergamon Press and (2) Committee on the Biological Effects of Ionizing Radiation (BIER V), National Research Council, National Academy of Science, "Health Effects of Exposure to Low Levels of Ionizing Radiation" (1990).

Aside from the uncertainties of the exposure assumptions used in risk assessment of radionuclides, I believe that the potency of radionuclides needs to be carefully accounted for using the most up-to-date information, such as the documents mentioned above.

7. Deviation from a risk based clean-up level of 1 in 1 million ( $10^{-6}$ ) requires the acceptance of the public and should be based on land use. Also, the use of alternative methodologies in the calculation of risk (eg., exposure assumptions), other than those employed by the U.S.EPA, need to be accepted by the public.

8. Health risks for children playing in Outfall 002 water and sediment need to be addressed as part of the clean-up plan. This area is accessible to the public. Please note that Outfall 001 water should be included in the risk assessment process also.

9. A tritium clean-up level should be established. Although soil concentrations may not exceed the anticipated clean-up level (which is not stated), there may be an impact on the groundwater. The mobility of tritium in the environment differs from Pu- 228.

10. Adequate information was not provided in this report to determine the extent of contamination and the degree of hazard associated with the non-radiological contamination of the site. SAIC should expand this section and provide supporting data. Although there are no regulatory toxicity values for some chemicals, toxicity can and should be evaluated. Depending on the chemicals present, it may be important to develop toxicity values, in the same manner as Plutonium-238. Lead levels in soil near the road and railroad should be determined.

11. Without the cited literature, I can not evaluate Table A.1 (page A-9). A more detailed description of how the calculations (normalization) were conducted is required for evaluation. My first impression is that the comparisons are inappropriate.



State of Ohio Environmental Protection Agency

**Southwest District Office**

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FAX (513) 285-6404

George V. Voinovich  
Governor

August 17, 1994

RE: US DOE MOUND  
OU4 EA/CA  
MIAMI ERIE CANAL  
MONTGOMERY COUNTY

Mr. Arthur Kleinrath  
US DOE  
Dayton Area Office  
P.O. Box 66  
1 Mound Road  
Miamisburg, Ohio 45343-0066

Dear Mr. Kleinrath:

The Ohio Environmental Protection Agency (Ohio EPA) would like to express its support for the Operable Unit 4 Canal Engineering Analysis/Cost Analysis which selects excavation of plutonium contaminated sediment/soils in the Miami Erie Canal, located west of the Mound Plant. As you know, we are also participating in the stakeholder discussions regarding clean up levels and logistics. The Ohio EPA's ultimate goal is to be protective of human life and the environment. The levels of plutonium in the canal (up to 4,560 pCi/g) are well above the Department of Energy (DOE) Mound Plant's As Low As Reasonably Achievable (ALARA) level of 25 pCi/g, and also above the Mound's Demolition and Decommission (D&D) level of 100 pCi/g. In addition, these levels far exceed residential risk based levels calculated in accordance with US EPA Risk Assessment Guidance for Superfund.

We are aware that this position contradicts the Ohio EPA's 1974 letter concurring with the study that indicates there is minimal risk at the canal. Based on the current understanding of Risk Assessment Methodology, Ohio EPA believes our previous position on the canal is no longer applicable. In the future, should DOE decide to reference the Ohio EPA 1974 concurrence, DOE should also reference this letter stating our current position.

Mr. Kleinrath  
August 17, 1994  
Page 2

Please feel free to call Brian Nickel or me at (513) 285-6468 if you have any questions.

Sincerely,



Graham Mitchell,  
Chief, Office of Federal Facilities Oversight

cc: Donald R. Schregardus, Director Ohio EPA  
Tom Winston, Ohio EPA/SWDO  
Harvey Brugger, ODH/CO  
Brian Nickel, OFFO/SWDO

Bill Taylor, ATSDR  
Larry Kirkman, DOE  
Jolene Walker, EG&G Mound  
Diane Spencer, USEPA