

Received 9/6/00

**New York State Department of Environmental Conservation**  
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**AUG 31 2000**

[REDACTED]  
U.S. Army Engineering District, Buffalo  
1776 Niagara St.  
Buffalo, NY 14207-3199

Dear [REDACTED]

Re: Seaway Niagara Landfill FUSRAP Site, Areas A, B, and C  
Draft Addendum to the Feasibility Study (June 23, 2000)  
Draft Proposed Plan (June 23, 2000)  
Technical Memorandum: Estimates of Air Quality Impacts of Radon in  
Landfill Gas (June 22, 2000)  
Technical Memorandum: Modeling of Radiological Risks from Residual  
Radioactive Materials Following Implementation of Remedial  
Alternatives (June 2000)  
Technical Memorandum: Application of 10 CFR Part 40, Appendix A,  
Criterion 6(6) and Derivation of Benchmark Doses (July 21, 2000)

Thank you for providing the subject draft documents for our review. All documents except the July 21, 2000 Technical Memorandum were received on June 26, 2000. We received the July 21, 2000 Technical Memorandum on July 24, 2000.

We have carefully reviewed these documents with respect to the nine evaluation criteria in the National Contingency Plan (NCP, 40 CFR 300), and found that only Alternative 2, Complete Excavation with Off-Site Disposal, could meet the two threshold criteria of overall protectiveness of human health and the environment and compliance with federal and State environmental regulations. Thus, the Department concludes, based on the information in these documents and with knowledge of the waste characteristics in the subject site, that Alternative 2 is the State's preferred alternative. We expect it would receive community acceptance as well. Removing the radioactive waste from the landfill will protect the public health and allow for other uses of the site if in the future it is economically feasible to consolidate the remaining waste next to the existing cap, freeing the area nearer the Niagara River for potential future development. This would not be an option if the radioactive material is capped in place.

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The draft Proposed Plan identifies Alternative 6, containment and institutional controls, as the preferred Alternative. The New York State Health Department (NYSDOH) has concluded that this remedy "does not meet CERCLA requirements and cannot be considered protective of the public health." (see enclosed August 29, 2000 letter from the Department of Health). For the reasons stated below and NYSDOH's finding that Alternative 6 fails to protect public health, we find this Alternative to be inconsistent with the NCP.

### **Applicable and Relevant and Appropriate Requirements**

With respect to the proposed remedy, we note that the Corps has not considered as relevant and appropriate requirements almost all of the criteria in 10 CFR 40, Appendix A, *Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material from Ores Processed Primarily for Their Source Material Content* (underlining added). It is true that Appendix A applies to new disposal sites for uranium mill tailings; however, it also applies to mill tailings where milling operations are not active (see section 40.2(b) of 10 CFR 40, *Coverage of inactive tailings sites*). If the radioactive wastes in the Seaway landfill are covered and left in place, the result will be a closed uranium mill tailings pile, to which many of the criteria in Appendix A are clearly relevant and appropriate. We expect that containment meeting the criteria for permanent disposal of uranium mill tailings would entail greater costs than would the 5.5 foot cover now proposed.

However, 10 CFR 40 affects more than the costs of this remedy. Comparison of the closure requirements in 10 CFR 40, Appendix A, with those in 6 NYCRR 360 leads to the conclusion that uranium mill tailings and municipal solid wastes are incompatible waste streams that should not be disposed of in the same landfill. For example, Part 360 requires an engineered cap that is actively maintained for 30 years. The requirement in 10 CFR 40 is for an earthen cover that will be effective, without maintenance, for 1,000 years, to the extent reasonably achievable, and for at least 200 years. Part 360 requires active venting of landfill gases or a gas recovery facility; 10 CFR 40 calls for a barrier to prevent the escape of radon gas through the cover. Each set of requirements is based on the unique nature of the particular waste. It will be extremely difficult, if not impossible, to satisfy both requirements simultaneously. The logical approach is to remove the uranium mill tailings, to avoid the inherent conflicts in the cap design.

Other ARARs are listed in our enclosed comments.

## Institutional Controls

Alternative 6 relies on “long-term management to ensure that exposure pathways remain blocked. The magnitude of residual risk and exposures to human health and the environment is directly related to the adequacy and reliability of the containment cap and institutional controls” (page 21, draft Proposed Plan). The draft Proposed Plan places great weight on State regulations in 6 NYCRR Parts 360 and 375 to control future use of the site. However, there is no specific provision or mention of institutional controls in 6 NYCRR Part 375. Under Part 375, remediation seeks to reduce, if not eliminate, uncontrolled contamination presence in the environment in order to eliminate adverse consequences associated with that uncontrolled presence. Inherent in the concept of “remediation,” then, is affirmative action to get contamination out of the environment. Thus, and consistent with the United States Environmental Protection Agency’s (USEPA) position as articulated in the NCP, this Department views institutional controls as *supplements* to a remedy that are intended to manage the risk attendant with the residual contamination and not as substitutes for active more permanent response measures (e.g., hot spot removal and disposal, restoration of groundwater to beneficial use) unless those active response measures are determined through the remedy selection process not to be practicable.<sup>1</sup> The question of impracticability has not been established in this matter to any degree that would enable the Department to conclude that active response measures are impracticable to implement in order to eliminate adverse consequences associated with uncontrolled FUSRAP waste presence. 6 NYCRR Part 360 mentions the use of deed restrictions, however, those regulations place requirements on the landowner; they do not give the State the unilateral authority to control the future use of this land. Nor does Part 360 require the landowner to control access to radioactive wastes.

Parts 360 and 375 are directed at managing solid and hazardous waste sites, not radioactive waste disposal sites. In fact, most radioactive materials are prohibited from being disposed of in Part 360 licensed sites. The regulations may change in the future, as technology changes and society gains greater experience with solid and hazardous waste. The land use controls that would be needed to protect the public and the environment from the radiation hazards in the FUSRAP waste must stand alone and be consistent with the institutional controls applied at other uranium mill tailings sites. It is the State’s position that the responsibility for creating and maintaining institutional controls over this federal radioactive waste lies with the Federal Government, if the Federal Government decides to leave the waste in New York State. At a minimum,

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<sup>1</sup>See 40 CFR 300.430(a)(1)(ii)(D).

Section 83 of the Atomic Energy Act is relevant and appropriate. If these uranium mill tailings are to be left in the landfill, we believe the Federal Government must take title to the waste and to the land on which it will be permanently contained and implement any necessary institutional control through deed restrictions at that time. While we are pointing out the need for federal ownership of the Seaway site if FUSRAP wastes remain thereon, we are not recommending this as the preferred remedy. Based on the information provided, to date, we recommend a site cleanup to unrestricted use levels and out-of-State disposal of the FUSRAP wastes.

The draft Proposed Plan provides no details on the controls the Federal Government proposes to implement to ensure that its preferred remedy remains effective. Without a description of the controls, an estimate of their costs, and a commitment from whichever federal agency will implement them, the draft documents do not support a conclusion that institutional controls (and therefore the proposed remedy itself) will be implementable or effective.

### **Partial Excavation Alternatives**

To fully comply with CERCLA and the NCP, the Corps should evaluate other partial excavation alternatives. We are aware of the challenges associated with excavating waste from a landfill, but we have seen it successfully performed. Identifiable sources and/or discreet sources of contaminants are regularly removed from inactive hazardous waste landfills in New York State prior to capping the remaining contaminants in place. At municipal solid waste landfills, wastes have been consolidated as part of site closure. At Seaway, any alternative that involves placing a cap on the landfill will require re-contouring of the waste to provide positive drainage. Therefore, the Corps should reconsider the limit placed on Alternative 4; i.e., that excavation of the radioactive waste would stop whenever solid waste is encountered.

We note that the June 7, 1999 Technical Memorandum, *Synopsis of Volume Calculations for Seaway Sites Areas A, B, and C*, concluded with respect to Area A, "the contaminated material is accessible from the surface . . . 80% of total volume exists within the upper 6 feet" (p. 12). In addition, although 40% of Area A is thought to be covered with solid waste, that layer is estimated to be "up to 10 feet thick." In some areas, it could be far thinner. The FUSRAP waste can be easily located within Area A, thus, removal of most of the FUSRAP waste from Area A appears quite feasible. It may be possible to plan the recontouring that would be needed so that the contaminants in Areas B and C are more accessible. In some cases, the question of accessibility can only be answered in the field, but inaccessibility should not be assumed.

## Cost Estimates

Cost estimates for Alternatives 1, 2, 4, and 6 are presented in Table 6-1 of the draft Addendum to the Feasibility Study and summarized in Table 1 in the draft Proposed Plan. The derivation of the cost estimates is not described in either document, but certainly disposal costs are a major factor for Alternatives 2 and 4.

Disposal costs depend on the volume of contaminated material to be disposed of. The Corps had previously provided DEC staff with a copy of the June 7, 1999 Technical Memorandum, *Synopsis of Volume Calculations for Seaway Site Ares A, B, and C*, which apparently is the source of the waste disposal volumes presented in the draft Proposed Plan. We note that the authors of that Technical Memorandum described in detail the limitations of the data set and the three-dimensional model used to predict the volumes of contaminated material in the landfill. They concluded, "Based on a review of the modeling interpolation of the available data set and the historical description of the placement of the MED-related residue, it is likely that the in-situ volume estimates, and subsequent excavation and disposal volume estimates, are over estimates" (page 16). It is not apparent whether this over estimation was accounted for in the disposal cost estimates for Alternatives 2 and 4. If no adjustment was made, the cost due to excavation – and therefore the cost difference between excavation and containment – may have been overestimated.

We have other concerns about the comparative costs of the alternatives. According to page 50 of the draft Addendum to the Feasibility Study, operation and maintenance costs were only projected over a thirty-year period. The radioactive wastes in the landfill will require perpetual surveillance. As already mentioned, meeting the relevant and applicable criteria in 10 CFR 40, Appendix A, will also increase costs for the two alternatives that involve capping the waste in the landfill, and thus change the comparative costs of all alternatives.

These issues need to be addressed before the cost-effectiveness of the alternatives can be weighed as required under CERCLA and the NCP. We request an opportunity to review the revised cost estimates when they are available.

We have received a copy of the July 25, 2000 comments of the USEPA on these documents. We concur with the USEPA's comments, particularly their recommendation that the proposed plan be revised before it is released for public review.

[REDACTED]

Our detailed comments and the comments of the NYSDOH are enclosed. If you have any questions, please call me. If a meeting to discuss technical issues would be helpful, please contact [REDACTED] arrange it.

Thank you for the opportunity to review these documents.

Sincerely

[REDACTED]

Director  
Division of Solid & Hazardous Materials

Enclosures

cc: w/encls. - [REDACTED], USEPA  
[REDACTED], NYSDOH  
[REDACTED] NYSDOH

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### **New York State Department of Environmental Conservation Division of Solid & Hazardous Materials**

#### **Comments on Draft Documents for Seaway Niagara Landfill FUSRAP Site Areas A, B, and C**

August 31, 2000

Re: Draft Addendum to the Feasibility Study (June 23, 2000)

Draft Proposed Plan (June 23, 2000)

Technical Memorandum: Estimates of Air Quality Impacts of Radon in Landfill Gas  
(June 22, 2000)

Technical Memorandum: Modeling of Radiological Risks from Residual Radioactive  
Materials Following Implementation of Remedial Alternatives (June 2000)

Technical Memorandum: Application of 10 CFR Part 40, Appendix A, Criterion 6(6)  
and Derivation of Benchmark Doses (July 21, 2000)

#### **GENERAL COMMENTS**

- (1) In 1994, the State's position on the remediation of the Tonawanda FUSRAP sites was that, wherever possible, the sites should be cleaned up to a level whereby the dose to the maximally exposed member of the general public, per conservative modeling, will be less than 10 mrem/yr (DEC TAGM 4003); and that the waste materials be disposed of in an out-of-state DOE or commercial disposal site. Where attaining the 10 mrem/yr is not possible, a restricted use should be placed on the site until eventual remediation can meet TAGM 4003 cleanup levels. (Re: letter from DEC Commissioner Jorling to DOE Assistant Secretary Tara O'Toole, dated January 26, 1994.)
- (2) U-238 has a half-life of  $4.5 \times 10^8$  years, Ra-226 one of 1,599 years, and Th-230 one of  $8.0 \times 10^4$  years. These extremely long periods of radiological risk necessitate a very conservative approach to resolving their disposal.

- (3) Per amendments to Part 380 which became effective on July 31, 2000, no radioactive materials from the remediation of the Seaway site, above background concentrations, may be disposed of in solid waste or hazardous waste disposal facilities in New York State.

### **COMMENTS ON THE PREFERRED ALTERNATIVE**

The preferred alternative identified in the draft Proposed Plan is Alternative 6, Containment. The draft Proposed Plan explains that this, "... would involve grading and consolidation of MED-contaminated materials, as required, and capping of Area A, B, and C with a landfill cover at least 4 to 5 1/2 feet thick. This alternative would also include ensuring institutional controls are in place to prevent future access to and disturbance of the contained waste" (draft Proposed Plan, page 18).

### **Applicable, Relevant and Appropriate Requirements (ARARs)**

The draft documents identify only two federal regulations as ARARs for the preferred alternative. The following are ARARs and should be addressed in the revised documents.

- (4) Atomic Energy Act, Section 83. Section 83 of the Atomic Energy Act (AEA) is relevant and appropriate. It requires ownership of uranium mill tailings piles to be transferred to the Federal Government or the state (at the state's option) once the pile has been closed (42 USC 2113). The Federal Government should take possession of this uranium mill tailings pile, if it is to be left in New York State.
- (5) 10 CFR 40.28, *General license for custody and long-term care of uranium or thorium by-product materials disposal sites*. The substantive requirements in this regulation are relevant and appropriate for the Seaway site. A long-term surveillance plan, meeting the requirements of sections 40.28(b)(1) - (5) should be developed, submitted to the State for concurrence, and implemented in accordance with section 40.28 (c). Notifications to the United States Nuclear Regulatory Commission (NRC) required in this section should instead be sent to the state.
- (6) 10 CFR 40, Appendix A – We agree that 40 CFR 192 is a relevant and appropriate requirement, "... based on the similarity of uranium processing activities at Linde and the resulting radionuclides found in the waste eventually transported to Seaway, to that of uranium mill sites where the regulation is applicable" (draft Proposed Plan, page 14).

However, we disagree with the conclusion, presented in the draft Addendum to the Feasibility Study, that most of the standards in 10 CFR 40, Appendix A, are not relevant and appropriate. 10 CFR 40, Appendix A is the regulation adopted by the NRC to implement the standards promulgated by the United States Environmental Protection Agency (EPA) in 40 CFR 192.

The draft Addendum to the Feasibility Study incorrectly concludes, "... most of the standards in 10 CFR 40 Appendix A pertain to the siting, construction, and closure of



new tailings piles, a different circumstance than what is present at the Seaway Site” (draft Addendum to Feasibility Study, page 38). It is true that Appendix A includes siting and construction criteria for new tailings piles, but Section 40.2(b) of 10 CFR 40, *Coverage of inactive tailings sites*, refers to mill tailings at sites where milling operations are no longer active, and states, “The criteria in Appendix A of this part will be applied to such sites.” If the radioactive wastes in the Seaway landfill are covered and left in place, the result will be a closed uranium mill tailings pile, to which many of the criteria in Appendix A are clearly relevant and appropriate.

The following criteria are relevant and appropriate for the closure and long-term surveillance of a uranium mill tailings disposal site in New York State. It does not appear that the Corps has fully addressed these criteria, nor accounted for the cost of meeting them in the cost estimate for the preferred alternative. Those two steps should be taken and the results presented in a revised Feasibility Study and Proposed Plan.

Criterion 1 presents the general goal in siting and designing mill tailings sites, which is the “. . . permanent isolation of tailings and associated contaminants by minimizing disturbance and dispersion by natural forces, and to do so **without ongoing maintenance.**” The site features described in Criterion 1 are relevant and appropriate for “judging the adequacy of existing sites” (see 10 CFR 40, Appendix A, Criterion 1, first paragraph). The Seaway site should be evaluated against those site features before a decision is made to leave the uranium mill tailings in place.

Criterion 2 calls for disposing of small waste volumes at existing large mill tailings disposal sites, to avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations. The Seaway site is small, compared to other existing uranium mill tailings sites; therefore, this requirement is relevant and appropriate. Leaving the wastes in Tonawanda will result in long-term surveillance obligations for the Federal Government, which should be weighed against the costs of removing the waste to a uranium mill tailings disposal facility.

Criterion 3 states, “The ‘prime option’ for disposal of tailings is placement below grade . . . .” The Seaway site should be evaluated against this goal, when considering the suitability of the site for permanent disposal of this radioactive waste.

Criterion 4 presents six design criteria, regarding upstream catchment areas, topographic features, cover slopes (the minimum being 5h:1v), the need for a self-sustaining vegetative cover, seismic stability of the site, and promotion of deposition on the cover. These should be considered for application to the containment proposed for Seaway.

Criterion 5 addresses protection of groundwater during closure operations and is relevant and appropriate for the conduct of the preferred alternative.

Criterion 6, paragraphs 1 through 5 describe the need for a cover which provides reasonable assurance of control of radiological hazards to be effective for 1,000 years, to

the extent reasonably achievable, and in any case, for at least 200 years. The cover also must limit the release of radon from the tailings. The specifics of a radon barrier are described, along with testing requirements once the radon barrier is in place. These are relevant and appropriate for the Seaway site, particularly because the production of radon by radioactive decay will increase over time.

Criterion 11 addresses the transfer of title to the Federal Government following closure of a uranium mill tailings pile. This transfer should take place at Seaway, if the preferred alternative is implemented.

Criterion 12 calls for the government custodial agency to conduct annual inspections of the disposal site. We expect the Federal Government to meet this obligation if the waste is left in the landfill.

Criterion 13 lists the hazardous constituents of uranium mill tailings. This should be reviewed for relevance to the uranium mill tailings at the Seaway site.

- (7) 6 NYCRR Part 360 - Solid Waste Management Facility Regulations.
- (8) Environmental Conservation Law. The State Environmental Conservation Law is applicable, relevant, and appropriate to this remedial action.
- (9) State Regulations. The following State Regulations may be applicable or relevant and appropriate to the preferred remedy, depending on the details and the types of waste encountered during the remedial action:

6 NYCRR Part 375 - Inactive Hazardous Waste Disposal Site Remedial Program

6 NYCRR Part 370 - Hazardous Waste Management System: General

6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes

6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for, Generators, Transporters and Facilities

6 NYCRR Part 376 - Land Disposal Restrictions

6 NYCRR Subpart 373-1 -Hazardous Waste Treatment, Storage and Disposal Facility Permitting Requirements

6 NYCRR Subpart 373-2 - Final Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities

6 NYCRR Subpart 373-3 -Interim Status Standards for Owners and Operators of Hazardous Waste Facilities

6 NYCRR Part 380 - Rules and Regulations for the Prevention and Control of Environmental Pollution from Radioactive Materials

6 NYCRR Part 702.15(a), (b), (c), (d), (e) & (f)

6 NYCRR Part 700-706 - NYSDEC Water Quality Regulations for Surface Waters and Groundwater

6 NYCRR Part 750-757 - Implementation of NPDES Program in NYS

6 NYCRR Part 608 - Use and Protection of Waters

6 NYCRR Part 200 (200.6) - General Provisions

6 NYCRR Part 211 (211.1) - General Prohibitions

6 NYCRR Part 364 - Waste Transporter Permits

Environmental Conservation Law Article 23, Title 27, Land Reclamation Law and 6 NYCRR Parts 420 - 426 (may apply to mining clay for the cover)

10 NYCRR Part 5 -Drinking Water Supplies

10 NYCRR Part 170 - Water Supply Sources

19 NYCRR Part 600 - Department of State, Waterfront Revitalization and Coastal Resources Act Regulations

#### Community Acceptance

- (10) On page 1 of the draft Proposed Plan, it is stated that “The 1993 preferred alternative for Seaway Areas A, B, and C has been revised based on the following: input from the community . . . .” We note that CANiT testimony by County Legislator [REDACTED] in 1993 concluded, “. . . unrestricted land use should be a primary goal recognizing the important potential of waterfront development to the future of the community. It is inevitable that the answer to the Tonawanda waste problem is to have the material removed to a licensed disposal site.” (Re: statement by County Legislator [REDACTED] at DOE public meeting, dated December 1, 1993.) Likewise, Former Erie County DEP Commissioner [REDACTED], presenting the CANiT position at the December 1, 1993 public meeting, stated that the DOE's proposed onsite disposal alternative “is in conflict with redevelopment plans for the Town of Tonawanda for redevelopment of its waterfront in coordination with the Horizons Waterfront Commission.”

How were these statements of record considered in selecting containment as the preferred alternative?

### Institutional Controls

- (11) The draft Proposed Plan discusses the land use restrictions that exist on this property due to its status as a closed municipal landfill regulated under 6 NYCRR Part 360 and as a Class 4 Site on the State's Registry of Inactive Hazardous Waste Disposal Sites. The draft Proposed Plan concludes,

"Thus, the Seaway Site is subject to substantial institutional controls by the NYSDEC, under its solid waste regulation, including the control of activities which would disturb the integrity of the landfill components that are in place and requirement for a plan for post-closure use, which is subject to NYSDEC approval (draft PP, p. 9).

"In summary, inclusion of the Seaway Site on the New York State Registry subjects it to a comprehensive set of institutional controls enforceable by NYSDEC (draft PP, page 10)."

New York State does implement a comprehensive and effective program to manage closed municipal landfills and inactive hazardous waste disposal sites. The goal of the inactive hazardous waste disposal site program is to restore any particular site "to pre-disposal conditions, to the extent feasible and authorized by law. At a minimum, the remedy selected shall eliminate or mitigate all significant threats to the public health and the environment . . . through the proper application of scientific and engineering principles." See 6 NYCRR § 375-1.10(b). Institutional controls are considered supplements to those scientific and engineering principles and not as substitutes. Institutional controls place requirements on the landowner; they do not give the State the unilateral authority to control the future use of this land. Nor is the landowner responsible for controlling access to these radioactive wastes. It is the responsibility of the Federal Government to create and maintain any institutional controls that are required to protect the public from the radiation hazards from this federal waste, whether or not any of those federal controls are redundant with State requirements. Over time, the State's approach to the long-term management of closed solid and hazardous waste landfills may change, as the landfills age and technical advances occur. For example, in-situ treatments could be developed which would allow use of the land for certain purposes in the future. The State regulations cited in the Proposed Plan will undoubtedly be revised, as we gain knowledge and experience with municipal and hazardous waste sites. Any restrictions the Federal Government relies upon to protect the public from the federal radioactive waste in the Seaway landfill must be controls specifically created and maintained for the long-term containment of such radioactive wastes. These restrictions, and the federal agency that will be responsible for them, must be clearly spelled out before the effectiveness of the preferred alternative can be assessed.

At a minimum, the Federal Government should take title to the land and the radioactive waste, in conformance with Section 83 of the Atomic Energy Act.

#### Cover Design

- (12) Neither the draft addendum to the Feasibility Study nor the draft Proposed Plan describes the design of the cover to be placed on the waste, except that it would be from 4 to 5 ½ feet thick. We note that the Technical Memorandum on Radiological Risks assumed a cover design meeting 6 NYCRR Part 360 for the purpose of estimating radiation doses from the various alternatives, but it is acknowledged in that document that the actual cover design may differ. The 4-foot minimum thickness may be related to the sensitivity runs done with RESRAD assuming a uniform erosion rate of .0001, but this is not made clear in the Feasibility Study or the Proposed Plan. The long-term effectiveness of a cover is not demonstrated by assuming a constant erosion rate and adding enough cover material so that a certain thickness is left at the end of 1,000 years. The factors that affect the integrity of a cover system are more complex than an assumed constant rate of erosion. The draft addendum to the Feasibility Study should be expanded to describe the design of the intended cover and the basis for each design feature.
- (13) In assessing the ability to implement the proposed remedy, the draft Addendum to the Feasibility Study should compare the closure requirements in Part 360 with those in 10 CFR 40, Appendix A. Many of them conflict, leading to a conclusion that municipal solid waste landfills are not the appropriate disposal site for uranium mill tailings. If the Corps believes that the two sets of requirements can be accommodated in the same landfill, this should be thoroughly explained in the draft Addendum to the Feasibility Study. The document should identify which requirements in each regulation the proposed closure will meet and the protection they will provide. The document should also identify those requirements that cannot be met, explain why not, and explain the effects of not meeting these criteria.

#### **TECHNICAL MEMORANDUM: MODELING OF RADIOLOGICAL RISKS FROM RESIDUAL RADIOACTIVE MATERIALS FOLLOWING IMPLEMENTATION OF REMEDIAL ALTERNATIVES (JUNE 2000)**

- (14) On page 4 of the Radiological Risk Technical Memorandum, the exposure scenarios used to evaluate the risks from residual radioactive material are discussed. It is stated that commercial or industrial use was evaluated as a "conservative plausible future use." The Technical Memorandum should explain why commercial or industrial use is considered conservative. This site would only be developed for industrial or commercial use if the land use controls fail. If the land use controls fail, then the conservative land use scenario is residential. In addition, if the land use controls fail, the conservative assumption would be that the cover has not been maintained and has been removed prior to construction of the residence. This scenario should be evaluated in the assessment of radiological risks from residual radioactive materials.

- (15) In Section 2.1.3, page 6, of the draft Proposed Plan, it is stated, "... a wide range of chemical contaminants are expected to exist in the filled area. Waste reported to have been disposed at the landfill ranges from garbage to industrial sludges, solvents, and other wastes." The commingling of chemical and radioactive wastes will enhance the mobility of the radioactive wastes and reduce the ion exchange capabilities of the soils. The Corps needs to properly analyze this situation and factor it into its environmental pathway analyses and dose assessments.
- (16) In Section 2.2, *Exposure Assessment* of the Radiological Risk Technical Memorandum, (page 10) it is stated, "Groundwater is not evaluated because the pathway is eliminated by the leachate collection system in the landfill and because the MED material is highly insoluble." Unless the Federal Government is committing to maintain and operate the leachate collection system for as long as it is needed, it is not valid to assume that the groundwater pathway is eliminated by the leachate collection system. The landfill operator is required to maintain and operate the leachate collection system for 30 years; the operator is not at all obligated to protect the groundwater from radioactive contamination resulting from these federal radioactive wastes. In addition, relying on a leachate collection system to protect the groundwater is not consistent with the criteria for closed uranium mill tailings sites in 10 CFR 40, Appendix A.

**TECHNICAL MEMORANDUM: APPLICATION OF 10 CFR PART 40, APPENDIX A, CRITERION 6(6) AND DERIVATION OF BENCHMARK DOSES (JULY 21, 2000)**

- (17) This technical memorandum is similar to the analysis the Corps performed to derive the uranium cleanup criteria at Linde, with which this Department did not concur, for reasons explained in detail in the Linde record. We believe the Corps has misunderstood this ARAR. We have no further comments on this Technical Memorandum, absent its review by the NRC and written confirmation from the NRC that this Technical Memorandum has correctly applied the NRC regulation, in conformance with all applicable NRC procedures and policies.

**TECHNICAL MEMORANDUM: ESTIMATES OF AIR QUALITY IMPACTS OF RADON IN LANDFILL GAS (JUNE 22, 2000)**

- (18) While evaluating the releases of radon gas under the active system is necessary, in recent conversations with Browning Ferris Industries, personnel informed this Department that their plans for the landfill is to turn the system into a passive system because of the relatively low methane production rate.
- (19) On page 28, in section 6.1.1, *Gas Vent Construction Assumptions*, the second paragraph states, "The vents are assumed to be 10 ft above the surface of the capped area." The basis for this assumption should be explained. The vents now installed in the landfill extend to about 4 feet above grade. Unless the Corps has firm plans to install 10-foot vents, the current height should be used in the modeling.

- (20) On page 28, it is stated that the assumed 10-foot vent outlets would be 50 feet above the property line because the FUSRAP area has been filled to a height of 40 feet. The latter statement is not supported by the description of the FUSRAP area in the other documents. Area A, which is about 9 acres in size, is covered with up to 10 feet of waste, and only over about 40% of the area. Areas B and C, which do include 40 feet of waste, encompass only about 3 acres. Therefore, most of the FUSRAP area has not been filled to a height of 40 feet.
- (21) On page 28, it is further stated that it was conservatively assumed that the vents are only 10 feet high. However, the most impacted person would be standing on the ground near the vent (see comment 22 regarding the appropriate distance from the vent), which is likely to be only 4 feet high.
- (22) In Section 6.1.3, *Modeling Details and Results*, the last sentence of the third paragraph states, "This assessment showed that at a receptor distance (in this case, the property line) of 80 m (260 ft), the 0.5 pCi/L impact limit could be met." According to 40 CFR 192.01(d), "*Disposal site* means the region within the smallest perimeter of residual radioactive material (excluding cover materials) following completion of control activities." Therefore, the receptor would be located at the edge of the waste, not at the property line, and closer than 260 feet. Depending on the arrangement of the wells, this distance could be on the order of 100 - 150 feet. Therefore, DEC would like to see additional modeling performed for a receptor 100 feet away from a vent which is 4 feet high.

## **INFORMATION REQUEST**

Please provide copies of the records referred to on p.5, Section 2.1.2 whereby 8,000 tons of residues were spread over roughly two-thirds of the property (Haist) and "testing indicated the site met standards at the time for release."