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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 21 2000

[REDACTED]
Deputy for Programs and Project Management
U.S. Army Corps of Engineers - Buffalo District
Department of Army
1776 Niagara Street
Buffalo, New York 14207-3199

Dear [REDACTED]:

The U.S. Environmental Protection Agency (EPA) provided to the U.S. Army Corps of Engineers (USACE) on July 25, 2000, preliminary comments (Enclosure A) on the draft Proposed Plan and associated documents for the Formerly Utilized Sites Remedial Action Project (FUSRAP) at the Seaway Landfill. In addition, on August 30, 2000, we provided comments (Enclosure B) on the application of Criterion 6(6) to derive benchmark doses for the Seaway Landfill. Now, please consider these comments as our final comments on the draft proposed plan. We are also in receipt of the handout material you used in your August 8, 2000, video conference briefing with the New York State Department of Environmental Conservation (NYSDEC). Similarly, we will provide our comments, if any.

It is my understanding that [REDACTED], our Division Director for Environmental Planning and Protection has discussed the Seaway matter with your commander, [REDACTED]. Subsequently, [REDACTED] and I have discussed these issues. In an effort to allow the Seaway project to move forward, we propose that we separate out the key issues from those of a technical nature. You have previously indicated to me electronically that our technical inputs have been useful. I'm confident that my staff and yours can work together to clarify, narrow, and hopefully eliminate many of those technical concerns.

You have indicated to me a concern that policy related or key issues would be more appropriately addressed if elevated to "key decision-makers." I agree with this assessment. [REDACTED] and I propose that we, along with you and your Commander, address the following key issues itemized below. From our comments sent on July 25, several issues could be considered at the policy level.

SEA_0715

1. Chemical Constituents in the FUSRAP Waste in the Landfill - The USACE's additional work to identify all the radiological constituents to update the radiological risk is appreciated. Some additional efforts are needed in the chemical area. Although the draft Proposed Plan assumes chemical waste is present, no chemical characterization was performed and the assessment of current and future health risks did not include chemicals. The USACE should evaluate whether the chemicals from the uranium processing and from the landfill will have an impact on the performance of the onsite containment structure and on the fate and transport of FUSRAP contaminants.

2. Groundwater Protection - The USACE conclusion that groundwater is not impacted by MED-contamination is not supported. Because it concludes that groundwater is not impacted, the modeling of radiological risks does not include the groundwater pathway. An analysis of the potential for groundwater contamination now and over a thousand years should be made particularly in light of the USACE preferred alternative of onsite containment. In addition, the surface water pathway should be reexamined in light of elevated uranium detected by NYSDEC in a water sample from Rattlesnake Creek.

3. Information on Design, Maintenance, Institutional Control, and Consequence Analysis for Onsite Containment - There is insufficient information available to allow stakeholders to evaluate the long-term effectiveness of the USACE's preferred alternative of onsite containment. Information is needed on how containment will be designed, how containment integrity and water infiltration may change over time, what type of annual or periodic maintenance will be required, who will perform the maintenance, what activities constitute institutional control, and what the risks are and who will be responsible should containment fail. Each agency defines "Institutional Control" differently. Therefore, the Proposed Plan should be clear on this aspect since a number of entities including the property owner, local planning and zoning, NYSDEC, U.S. Department of Energy (DOE), and USACE are involved in varying degrees.

4. Local Support for the Preferred Alternative of Containment - One of the reasons given in the draft Proposed Plan for eliminating Alternatives 3 and 5 was the local opposition to onsite disposal. This was expressed during the public comment period and public hearing held in 1993 by the DOE on the Remedial Investigation/Feasibility Study (RI/FS) and the proposed decision for a disposal cell in Tonawanda. Although a few of the circumstances are different today, it appears from the testimony and position taken by local elected officials in 1993 (see Enclosure C) that they could not support an onsite disposal cell because there were unaddressed issues with respect to mixed waste, health and safety, and long-term financial commitment; an onsite disposal cell would conflict with redevelopment plans; and onsite disposal would not provide for unrestricted land use. It appears that many of the reasons for the opposition as expressed by the Coalition Against Nuclear Waste in Tonawanda (CANiT) have not been addressed or cannot be achieved with onsite containment. Unless the position of the local officials and the local community has changed, there may not be local support for the USACE's preferred alternative.

At this time, the EPA cannot support the USACE's preferred alternative of onsite containment because of the aforementioned issues. Simply stated, the Seaway Site has, to date, not been categorized sufficiently so as to determine which alternative originally proposed by the DOE and now the basis for your draft Proposed Plan would be effective and protective of public health and the environment.

We recognize from our discussions at all levels with your office, that the USACE - Buffalo District has had to face some formidable challenges in dealing with this matter. First, the technical data characterizing this site which was passed on to the USACE from the DOE were not sufficient. Second, the nearness of the end of the fiscal year presents challenges regarding funding availability and decisions regarding obligation of funds. And finally, as in most cases, the local community has a strong desire to have the waste, especially the radioactive waste, removed from their community as quickly as possible. We sympathize with your position because we do not believe that a preferred alternative that is protective of public health and the environment can be selected by the end of the fiscal year without additional site characterization and analysis. To complete this additional work would extend the time frame under which you have communicated you are operating.

In the end, the biggest "key issue" may be whether it is better to provide the proper characterization and assessment of the site so that an alternative can be selected that will be effective and protective or to move forward and select a remedy on insufficient technical information to utilize available funding. Clearly, the former should result in a better more cost-effective long term solution. The latter will provide an approach that stays within the limits of current financial and time constraints but may require further and greater expenditures in the future. We do not point this out to denigrate the USACE's efforts in this matter. We acknowledge that the Buffalo District has begun to take pains to assure the proper characterization is occurring at other FUSRAP sites such as the Niagara Falls Storage Site and with regard to the groundwater pathway at the Linde Site.

From the foregoing discussion contained herein it is evident that EPA would prefer the USACE to take the former approach and seek to characterize the site adequately so that a final solution can be achieved that is protective. Since this site is not on the National Priority List (NPL), EPA does not have a role in this selection process other than as an advisor. As such, this letter contains our comments to your plan and our advice. We would further advise the USACE that you should have a 60-day comment period no matter when a final proposed plan is released.

EPA recognizes the USACE's lead role in the FUSRAP program. We offer our comments on the Seaway Landfill remediation effort in an effort to share our technical expertise and remediation policy experience. If the USACE wishes to pursue the issues addressed in our comments or other related issues please contact [REDACTED]

[REDACTED] We appreciate the opportunity to provide our comments.

Sincerely,

[REDACTED]
Radiation and Indoor Air Branch

Enclosure A

Enclosure B

Enclosure C



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1886

SEP 21 2000

██████████, ██████████
Deputy for Programs and Project Management
U.S. Army Corps of Engineers - Buffalo District
Department of Army
1776 Niagara Street
Buffalo, New York 14207-3199

Dear ██████████:

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[REDACTED] We appreciate the opportunity to provide our comments.

Sincerely,

[REDACTED]

Radiation and Indoor Air Branch

Enclosure A
Enclosure B
Enclosure C



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

Via Federal Express

JUL 25 2000

[Redacted]

Deputy for Programs and Project Management
U.S. Army Corps of Engineers - Buffalo District
Department of Army
1776 Niagara Street
Buffalo, New York 14207-3199

RE: Feasibility Study Addendum; Technical Memoranda; and draft Proposed Plan for the Seaway Site, Areas A, B and C, Tonawanda, New York

Dear [Redacted]:

The purpose of this letter is to provide you with the preliminary results of my staff's review of the Feasibility Study (FS) Addendum, the Technical Memoranda, and the draft Proposed Plan for the Seaway Site, Areas A, B and C, Tonawanda, New York. These documents were provided to us electronically on June 26, 2000. We appreciate the opportunity to provide input prior to finalization and public release of these documents. We agree that the best way to move forward on site remediation is to do so in a spirit of partnership, as stated in your e-mail message which transmitted these documents to EPA for review and comment.

Although EPA's review is in the preliminary state, my staff and I have identified some major concerns with the USACE's plans for moving forward on this site. I would like to suggest that plans for finalization and public release of the Seaway Site Proposed Plan be deferred until all the major issues have been identified, addressed, and discussed among USACE, NYSDEC and EPA. The major areas of concern at this point are with the preferred remedy's lack of protectiveness, the application of CERCLA's nine remedy selection criteria, and site characterization/risk assessment findings.

EPA's preliminary comments are enclosed.

Signed: [Redacted]

Radiation and Indoor Air Branch.

c: [Redacted], NYSDEC

Enclosure A

July 24, 2000

**Preliminary Comments on the Seaway FUSRAP Site Draft Documents:
Feasibility Study Addendum, Proposed Plan & Technical Memoranda**

Background:

Oak Ridge National Laboratory conducted initial site surveys and investigations of the four Tonawanda properties in 1976, 1981, and 1986. The Seaway Site was one of four properties comprising the Tonawanda Site which was included in DOE's FUSRAP program in 1988. The U.S. Department of Energy (DOE), through its contractors, conducted surveys and investigations of the Tonawanda Site from 1988 - 1991, the results of which were summarized by DOE in the 1993 RI and FS Reports. DOE issued a Proposed Plan for the Tonawanda Site in 1993. The Proposed Plan recommended that remedial wastes from all four properties be disposed in an engineered on-site disposal facility to be located at Ashland 1, Ashland 2, or Seaway (these sites, together with the Linde Site, comprised the Tonawanda Site). In 1994, DOE suspended the decision-making process on the 1993 Proposed Plan due to community opposition. In October 1997, the responsibility for FUSRAP and the Tonawanda Site was transferred to the US Army Corps of Engineers (USACE). USACE is managing the investigation and remediation of the four Tonawanda properties separately. In 1998, USACE conducted a limited investigation for radionuclide contamination at the Seaway Site.

The three rounds of site surveys and investigations have left a number of significant questions regarding:

- Nature and extent of contamination;
- Waste characteristics;
- Sources of contamination;
- Physical site characteristics; and
- Current and potential risks posed by the Seaway site to human health and the environment.

The USACE *FS Addendum* and the *Proposed Plan* issued in June 2000 are based on the presumption that MED wastes have not commingled with non-MED wastes. This presumption is not supported by the site surveys and investigations performed to date. In addition, there is no assessment of current and potential future impacts to ground water from contaminants; thereby leaving unanswered the question of the total impact to ground water from MED-related and landfill wastes.

The preferred remedy (preferred alternative), as outlined by USACE in the draft *Addendum to the Feasibility Study (FS Addendum)* and draft *Proposed Plan*, consists of containment and institutional controls for the Seaway Site, Areas A, B and C. Two of the six remedial alternatives which were evaluated for Seaway -- Alternative 3 (complete excavation and onsite

disposal) and Alternative 5 (partial excavation and onsite disposal) -- were eliminated from further evaluation in the *FS Addendum* based on community input received by the DOE in 1993 on a previous draft Proposed Plan for the Seaway Site.

CERCLA Section 121 requires that remedies be consistent with the requirements of the NCP. The NCP describes nine specific criteria for use in evaluating and comparing remedial alternatives. Under CERCLA, the selected remedy must provide the best balance of trade-offs among alternatives, measured against the five balancing criteria (short-term effectiveness; long-term effectiveness; reduction of toxicity, mobility or volume; implementability; and cost). Of these criteria, the CERCLA remedy selection process emphasizes long-term effectiveness and reduction of toxicity, mobility, or volume. It has not been sufficiently demonstrated that the preferred remedy, as currently described in the *FS Addendum* and the *Proposed Plan*, provides the best balance among the criteria. The preferred remedy provides for no reduction in the toxicity, mobility or volume of contaminants and two alternatives were eliminated from comparative analysis prematurely based on community input prior to the public comment period. All in all, the nine remedy selection criteria have not been properly applied in the evaluation and comparative analysis of remedial alternatives. Furthermore, it is difficult to gauge the overall effectiveness of the remedial alternatives and preferred remedy because of lack of information on and questions surrounding site characterization and risk assessment.

Because of these concerns EPA recommends that USACE postpone public release of the *Proposed Plan*. Our general review comments on the *FS Addendum*, draft *Proposed Plan* and technical memoranda are categorized below according to the three major areas of concern. Specific comments, which are categorized according to document, follow the general comments.

Site Characterization General Comments:

- (1) No chemical characterization of the solid waste landfill area was performed "*since they are assumed to be present.*" (*FS Addendum*, page 14). The site has RCRA-listed and -characteristic wastes, yet no human health risks from exposure to chemicals was specifically evaluated for the Seaway Site in the *Baseline Risk Assessment (BRA)*. Chemical risks to current site users, future site users, and to site workers during remedial action should be evaluated.
- (2) According to the *Technical Memorandum on Modeling of Radiological Risks from Residual Radioactive Materials Following Implementation of Remedial Alternatives for Seaway Landfill Areas A, B, and C*, the radiological risks were derived assuming a certain ratio exists between Th-230 and each of the other radionuclides (Ra-226, Ac-227, Pa-231, U-234, U-238) also present. Ratios or assumptions of equilibrium were used because only the 1999 reported data set provided complete analyses of all the non-short-lived radionuclides of interest (Ra-226, Ac-227, Th-230, Pa-231, U-234, U-235, U-238). In

some cases, samples collected during the 1970s-1990s were analyzed for two, but rarely more than three, of the radionuclides of interest. Since the dose and risk calculations rely on the analytical data obtained from related sites or from the Seaway site over a span of two decades, additional information is needed to determine if the concentration of the other radionuclides of interest can be reliably estimated, when analytical data are not available, for use in calculating the radiological risks for the Seaway site.

- (3) Ground water has not been adequately characterized. The presence of RCRA characteristic and listed wastes, in drums and other biodegradable containers, poses a likely future threat of release to ground water in the future, if there isn't currently a release. The *FS Addendum* (p. 27) concludes that "ground water at the Seaway Site is not impacted by MED-contamination located in Seaway Areas A, B and C". This is not sufficiently supported in facts. The below statements taken from the *FS Addendum* raise a number of concerns regarding potential impacts to ground water from the Seaway landfill.

"Ground water under unconfined, or water table, conditions, is found within virtually all portions of the landfill." [FS Addendum, page 17]

"Therefore, it is clear that a water table developed in the landfill following deposition of the solid waste and that the solid waste was not deposited into the water table." [FS Addendum, page 17]

"It is clear that the vast majority of the landfill's impact on the area's water resources will manifest itself as pollution of surface water streams emanating from the landfill. The only potential avenue of what would technically be considered as ground water contamination is the migration of leachate into the recent alluvial deposits. This occurrence is the second mechanism by which the impact of the landfill on water resources is felt beyond the property's boundaries." [FS Addendum, page 18]

Remedial Alternatives Screening & Remedy Development General Comments:

- (4) The *FS Addendum* remedial alternatives and the *Proposed Plan*'s preferred remedy are based on the assumption that the wastes are not commingled. If it can not be demonstrated to the contrary, the *FS Addendum* remedial alternatives and the preferred remedy should be based on the reasonable presumption that Manhattan Engineer District (MED) radiological wastes are commingled with RCRA-listed and characteristic wastes at the Seaway Site. It is logical to arrive at this conclusion, and more protective of human health and the environment, given the typical nature of landfill disposal methods and the 50 - 60 year length of time that the landfill was in operation.

The statements below, which were taken from the *FS Addendum* for the Seaway Site, lead to the conclusion of likely commingling of wastes:

"The Seaway Site has been used as a landfill for more than 50-60 years and a wide range of materials have been disposed on the Seaway property." [FS Addendum, page 6]

"...hazardous substances were placed in the landfill that could fail RCRA hazardous waste characteristics tests for several of the D-listed wastes, including metals, organics, acids, and others. The NYSDEC has classified the Niagara Landfill as an inactive hazardous waste disposal site and has reported that confirmed hazardous waste disposal at the site includes unknown quantities of printing inks and solvents." [FS Addendum, page 7]

Table 2-1 of the *FS Addendum* includes the following industrial wastes reported to have been disposed at the Niagara Landfill: spent cleaning solvents, waste oils, pit sludge (steel sealer, graphite, oil resin, and sodium carbonate), Diisocyanate (drummed liquid), mixtures of polyether, polyol, chloroethene & catalysts and other chemicals or wastes with chemical constituents

"No chemical characterization of the solid waste landfill area was performed for non-radiological contaminants in the landfill area since they are presumed to be present." [FS Addendum, page 14]

- (5) The *FS Addendum* should explain the rationale behind, or regulations/policy which govern, the following statement: *"...USACE will not remediate any radioactive or chemical contamination that is not MED-related or is not mixed or commingled with MED-related contamination. Any MED-related materials commingled with chemical hazardous substances could possibly be considered a radioactive mixed waste should the hazardous substance fail the RCRA hazardous waste characteristics tests." [FS Addendum, pages 14 and 15]*

And if it can be demonstrated that there is no commingling of MED with non-MED wastes, the *FS Addendum* and the *Proposed Plan* should describe how the risks or potential risks from non-MED wastes will be addressed, should those risks be determined to be outside the CERCLA risk range.

- (6) There is no discussion of which ARARs will be applied to the preferred remedy -- Alternative 6 (containment).
- (7) It has not been sufficiently demonstrated that the remedial alternatives, including the preferred remedy, meet the Attainment of ARARs criteria -- one of two Threshold Criteria which each alternative must meet to get carried forward through comparative analysis:

The ARARs discussion focuses on soil cleanup standards which would be applicable for Alternatives 2 and 4. The NYSDEC has requested, but thus far have not received, the calculations that support the development of the soil cleanup numbers which would be used for Alternative 2 (complete excavation and offsite disposal) and Alternative 4 (partial excavation and offsite disposal). The values stated in the *Proposed Plan* are similar to the ones EPA - Region 2 had issues with in the Linde ROD. Thus EPA likely will have similar issues with the Seaway site soil cleanup criteria. The *FS Addendum* and the *Proposed Plan* should provide a rationale for why meeting a cleanup "guideline" of 40 pCi/g for Th-230 (the number developed by DOE in 1993) will result in complying with the other soil cleanup levels.

The containment structure should meet standards in 10 CFR40, Appendix A as well as the ARAR for radon emissions.

The ARARs should include all the ARARs that will be used at the site during remedial action as well as final cleanup criteria. This will include the rad-NESHAP 10 mrem/yr number as an ARAR.

ARARs for non-MED wastes should be included in the development of remedial alternatives.

Although the *Proposed Plan* lists the maximum contaminant limits in 40 CFR192, Subpart A, for gross alpha, radium and uranium in groundwater as relevant and appropriate, there is no information to support the claim that "existing controls provide sufficient protection to prevent any MED material from adversely impacting the ground water outside of the capped landfill structure."

There needs to be data and analysis that demonstrate the ground water will not be impacted in excess of the MCLs.

- (8) The assertion that the remedy meets the Short Term Effectiveness criteria is not supported (in fact, the *FS Addendum* states that there are "limited" risks to site workers and the community during remedial action, but does not quantify those risks -- this could significantly reduce the short-term effectiveness of the preferred remedy);
- (9) The preferred remedy does not meet one of the primary balancing criteria (Reduction of Toxicity, Mobility, or Volume), as stated through the following statement taken from the *FS Addendum*: "*The preferred remedy does not provide any reduction in toxicity, mobility, or volume of site contaminants through treatment.*" [*FS Addendum*, page 50]
- (10) It has not been sufficiently demonstrated that the preferred remedy meets the implementability criteria -- USACE does not demonstrate who or how the institutional controls will be implemented or enforced over the long period of time that the radionuclides and chemicals will be at the site.
- (11) On page 54 of the *FS Addendum*, two of the remedial alternatives were described as nearly non-implementable based on the presumption that there are no commercial

disposal facilities available to accept excavated materials which contain both radionuclides at "higher concentrations" and RCRA hazardous constituents. This presumption should be supported and a quantitative description of what is considered "higher concentrations". Also, the Envirocare facility in Utah may be an acceptable disposal site.

- (12) Because community acceptance was cited by USACE as the basis for elimination of two alternatives, the Proposed Plan should contain a summary statement on the nature of the community's comments on the 1993 Proposed Plan alternatives, especially their comments on the 1993 Proposed Plan's Preferred Alternative. Section I - *Proposed Plan* and Section 5 - *Summary of Remedial Alternatives* would be logical places to insert a summary statement.
- (13) Community acceptance of the preferred remedy is highly uncertain at this point, considering its containment nature. The community previously expressed opposition to DOE's 1993 plans for leaving waste in-place. It is important for the community to be made aware (at a minimum through the *Proposed Plan*) that containment is not an engineered disposal cell. Containment is essentially leaving the waste in place for an unknown period of time, with an engineered cover and institutional control.
- (14) The *FS Addendum* should carry Alternatives 3 and 5 through the complete evaluation and comparison of alternatives, and the *Proposed Plan* revised accordingly. Alternatives 3 and 5 were eliminated prematurely based on public comments on DOE's 1993 remedial alternatives. Seven years have passed and it is possible that community acceptance has changed, especially when evaluated against the containment nature of the preferred remedy. Alternatives 3 and 5 and the assumptions and information they were based on have changed based on USACE's 1998 re-assessments and investigations at the site. To eliminate alternatives based on a Modifying Criteria's perceived or projected impact is contrary to CERCLA's remedy selection process. Only the two Threshold Criteria can be used to exclude an alternative from comparative analysis.
- (15) Given the complexities of the site, nature of the preferred remedy, and the amount of time that has passed since the public last reviewed and commented on the remedial alternatives, the public may need, and should be given, a 60-day public comment period on the *Proposed Plan*.

Adequacy of Remedy General Comments:

There are a number of significant characterization and remedy development questions, as described in the above comments, which should be addressed before a remedy is selected at the Seaway Site. If necessary, a revised preferred remedy should be developed once those questions

and issues have been adequately addressed. Additionally, there are three major areas which are currently not addressed by the preferred remedy, and which should be addressed by any remedy which is selected for the Seaway Site. These are: (1) how and to whom will the USACE transfer the site to following remedial action; will that organization will be responsible for the long-term (1,000 years) maintenance and monitoring of the site following remedial action; and has that organization committed to the USACE in writing to do so; (2) are there assurances that the NYSDEC will enforce institutional controls throughout the 1,000+ years that the preferred remedy heavily relies upon; and (3) the selected remedy must address the totality of site risks, from both MED wastes and non-MED wastes, either by mitigating those risks through remedial action, or carving out and deferring remediation of the non-MED, non-commingled wastes which pose or could pose unacceptable risks to human health and the environment. As currently written, the *FS Addendum* and the *Proposed Plan* do not address, or even discuss possibilities for how to address, a potentially significant amount of risks.

- (16) The Proposed Plan should discuss what can be expected once containment is in place - currently there is no such discussion. The risk analysis should discuss consequences (risk and mitigation) if institutional controls do not work. Under what conditions will DOE accept the site back? Is there any expectation that some agency in the future will address the waste left in containment? Is containment the permanent solution for this waste?
- (17) USACE should coordinate with DOE prior to release of a preferred remedy and confirm that DOE will take over maintenance of the site and enforcement of institutional controls. It is not known if USACE has had any substantive discussions with DOE on the preferred remedy.
- (18) The Proposed Plan should contain a brief explanation of why USACE will not or can not remediate radioactive or chemical contamination that is not MED-related or is not mixed or commingled with MED-related contamination.
- (19) The Proposed Plan should describe what landfill monitoring requirements the selected remedy will prescribe for the period following the 30-year post-closure period. Will there be no monitoring during the 1,000-year cap maintenance period, after the 30-year post-closure period? If so, state it.
- (20) It is not understood what is meant by "Area A Remove Top 4 ft." Does this mean a remedial action will be performed to remove the top 4 ft of material [which includes the 40% of Area A land area covered with 10 ft of cover]? [see Page 18, Table 7 of *Technical Memorandum, Modeling of Radiological Risks from Residual Radioactive Materials Following Implementation of Remedial Alternatives*:

Likewise, does "Area C Remove Top 4 ft" mean a remedial action will remove the top 4 ft from Area C where the MED waste is supposedly covered with 40 ft of refuse and fill material?

- (21) The *Proposed Plan* and *Technical Memorandum on Modeling of Radiological Risks* focus on the cleanup criterion of 40 pCi/g with the *Proposed Plan* (page 16) also mentioning cleanup criteria for Ra-226 of 5 pCi/g, Th-230 of 15 pCi/g and total U of 605 pCi/g for surface contamination, and Ra-226 of 15 pCi/g, Th-230 of 44 pCi/g and total U of 3039 pCi/g for the subsurface. Unclear is the relationship between the Th-230 criterion of 40 pCi/g and the surface and subsurface criteria. In addition, the cleanup criteria for Ra-226 in the surface and Th-230 in surface and subsurface contamination are not consistent with 40 CFR 192.

The issue remains as to specific cleanup levels/goals for radionuclides (i.e., isotopes of radium, thorium, uranium, actinium, et. al.).

Specific Comments on Each Document:

Proposed Plan - Specific Comments:

- (22) Section 1 - *Proposed Plan*, pages 2 & 3:
The *Proposed Plan* should contain a brief summary of the results of USACE's 1998 investigations and re-assessments of Seaway site conditions. For example, USACE reassessed the volume estimates of radioactively contaminated material present at Seaway and re-evaluated the risks posed by the presence of radioactively contaminated material. Although the findings of these re-assessments were presented in technical memoranda and the *Proposed Plan* directs the reader to specific documents, the *Proposed Plan* should contain a brief summary statement of the findings as they greatly impact the evaluation and comparison of remedial alternatives in the *Proposed Plan*.
- (23) Section 1 - *Proposed Plan*, page 4, last paragraph:
This may be a good place to insert an explanation of why USACE will not or can not remediate radioactive or chemical contamination that is not MED-related or is not mixed or commingled with MED-related contamination.
- (24) Section 2.1.1 - *Site History and Site Conditions*, page 5, first full paragraph:
One sentence is needed on why it was necessary to construct a clay cutoff wall and leachate collection system in 1983.
- (25) Section 2.1.3 - *Contaminants of Concern at Seaway*, page 6, third paragraph:
One sentence is needed on why Thorium-232 is not considered to be MED-related.

- (26) Section 2.1.3 - *Contaminants of Concern at Seaway*, page 6, last paragraph:
This may be another good place to insert an explanation of why USACE will not or can not remediate radioactive or chemical contamination that is not MED-related or is not mixed or commingled with MED-related contamination.
- (27) Section 2.1.4 - *Landfill Closure Conditions*, page 7:
One sentence is needed on the overall conclusions of the annual and quarterly monitoring conducted pursuant to the Environmental Monitoring Plan (EMP) for the Niagara Landfill. The summary statement should answer the question of "Do operations at the facility impact ground water and/or surface water quality?"
- (28) Section 2.2 - *Environmental Conditions at the Seaway Site*, last sentence:
What is a "transient individual"? Is this a human or an animal?
- (29) Section 2.3.2.1 - *NYSDEC Solid Waste Regulations*:
This section should describe what happens, or what the regulations envision happening, to landfill monitoring activities after the 30-year post-closure period? Will there be no monitoring during the 1,000-year cap maintenance period, after the 30-year post-closure period?
- (30) Section 3.1 - *Radiological Health Risk*:
This section should quantify average and reasonable maximum exposure risks under a No Action Alternative for both current-use and future-use scenarios.
- (31) Section 3.2 - *Chemical Health Risk*:
The last sentence of this section states: "No chemical data were developed in the RI (BNI 1993) for the Seaway Site itself and human risks for chemicals were not specifically evaluated for the Seaway Site in the BRA." This is confusing when compared to the statement contained in the first paragraph of Section 3.2, which states: "The 1993 BRA also evaluated cancer and chemical toxicity risks." Does the first sentence mean that the chemical risks were evaluated for the Tonawanda sites as a whole, but not individually for each site, such as the Seaway Site? Please provide a clarification.
- (32) Section 8 - *Seaway Site Areas A, B and C - Preferred Alternative*, second paragraph:
The purpose of CERCLA's remedy review requirement is to ensure that, for sites where contaminants remain on-site post-remedial action, above health-based levels, the remedy remains protective of human health and the environment. Section 8 states that the purpose of the review is to "ensure that institutional controls are effective and that operations and maintenance are conducted in accordance with the plan." A review of institutional controls and O & M can be a part of the overall protectiveness review, but Section 8 should be revised to state that remedy reviews shall be conducted every 5 years from the initiation of remedial action to review the remedy's protection of human health and the environment.

In the second paragraph, what is "appropriate funding" as it relates to long-term funding of O & M of the capped areas to ensure cap integrity?

FS Addendum - Specific Comments:

- (33) Section 6.2 - *Protection of Human Health and the Environment:*
This paragraph states "...the estimated risks for alternatives involving capping assume that the cap is maintained for 1,000 years." Who or what organization has agreed to, or is reasonably assumed to undertake, cap maintenance over the 1,000 year period?

Technical Memorandum, Modeling of Radiological Risks from Residual Radioactive Materials Following Implementation of Remedial Alternatives for Seaway Landfill Areas A, B and C, Tonawanda, New York - Specific Comments:

- (34) Section 1.2 - *Scope*, page 4, first paragraph:
In 1997, DOE developed a soil cleanup level for thorium-230, 40 pCi/g. Were cleanup levels or preliminary remediation goals derived for the other radiological contaminants (radium, uranium, et. al)?
- (35) Section 2.1 - *Data Evaluation*, page 5, second paragraph:
The 1998 investigation of the Seaway Site by USACE analyzed soil samples for all the radionuclides of concern, but the samples were acquired from the top 8 feet in Area B and top 4 feet in Area C. What was the purpose of this sampling, since the waste materials are presumed to be below 40 feet of refuse and fill material?

Since FUSRAP waste was placed in Areas A, B and C in the 1970s and some of it covered by landfill activities, it would be helpful to have a figure that provides a current profile of the Seaway site, illustrating the location of the FUSRAP waste with respect to the surface, fill and debris layers, groundwater table, geologic layers, and the waterfront area.

- (36) Section 2.1 - *Data Evaluation*, page 5, third paragraph:
Is it an empirical coincidence that the actinium is in near equilibrium with radium-226, or is it that, given the types of processing that took place, radium-226 can be predicted to exist in some reliable correlation to the actinium?

Does the correlation exist primarily for protactinium-231 (with the actinium-227 in secular equilibrium) or does the process somehow preferentially isolate actinium?

How was the high concentrations of Ac-227 (Pa-231?) handled at Ashland 1? Did the cleanup goals/criteria address this?

- (37) Section 2.1 - *Data Evaluation*, page 6, first incomplete paragraph:
Please provide the reference or information on other sites where the concentration of Ac-227 in waste material was approximately equal to the concentration of Ra-226.

With the high Ac-227 eliminated as an outlier, the document concludes that the Ac-227 concentration is 1.02 that of the Ra-226 concentration and assumes equilibrium with parent nuclide, Pa-231. What is the basis for this assumption of equilibrium (see Pa-231 comment, above)?

How do the Ac-226:Ra-226 and Sc-227:Pa-231 ratios derived compare with the ratios for the 1999 data for the top 8 and 4 feet of Areas B and C, respectively?

- (38) Section 2.1 - *Data Evaluation*, page 8, Table 2:
If the waste is under 40 feet of refuse and fill, discuss why some samples from "Area C Upper 4 ft (Remove upper 4 ft)" have elevated Ac-227, Pa-231, Th-230, U-234, U-235, and U-238?
- (39) Section 2.2 - *Exposure Assessment*, page 10:
The document indicated that the groundwater pathway is not evaluated because (1) it is eliminated by leachate collection system in the landfill and (2) the MED material is highly insoluble, thus immobile. This statement assumes leachate collection will continue for 1000 years. There should be an analysis performed to determine what the dose will be if leachate collection does not continue.

More information is needed to support the statement that the MED material is highly insoluble.

- (40) Section 2.2.2 - *Excavation*, page 13, :
What is meant by excavation to an average of 40 pCi/g Th-230 (e.g., How will the averaging be done? Over what area? Over what depth?)?

What is to be gained by excavating to an average of 40 pCi/g vs. the excavation of "everything exceeding 40 pCi/g?"

- (41) Section 2.3 - *Results*, page 19, Table 8:
Identify which alternatives listed in the table are also the alternatives discussed in the proposed plan.
- (42) Section 2.3.3 - *Radon*, page 21, second paragraph:
What is the basis for the Rn-222 scaling factors of 6.45 and 4.17 applied to Areas A and Areas B and C?

- (43) Section 2.3.3 - *Radon*, page 22-25, Tables 9 and 10:
Since the Th-232 isotope is not a radionuclide of concern at this site, what is the source of the Rn-220 (thoron) flux of 75 pCi/m²-s? A typical thoron diffusion rate should be less than 1.4 pCi/m²- s, the average background Rn-222 diffusion rate. If elevated Rn-220 flux exists, the ARAR is the same as for radon-222.
- (44) Section 3 - *Uncertainties*, page 26:
This section discusses the uncertainty in the assumptions that Th-230 = (20.188) * (Ra-226) and Ac- 227 = (1.02) * (Ra-226). The section does not, however, indicate how these uncertainties affect the dose and risk estimates set forth in the document.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 REGION 2
 290 BROADWAY
 NEW YORK, NY 10007-1866

AUG 30 2000

██████████ e B. ██████████, ██████████
 ██████████ y ██████████ ██████████ Project Management
 U.S. Army Corps of Engineers - Buffalo District
 Department of Army
 1776 Niagara Street
 Buffalo, New York 14207-3199

Dear ██████████ ██████████:

This memorandum is intended to transmit the comments of the EPA Region 2 office concerning *Technical Memorandum. Application of 10 CFR Part 40, Appendix A, Criterion 6(6) and Derivation of Benchmark Doses for the Seaway Landfill Areas A, B, and C, Tonowanda, New York, July 21, 2000*, as submitted for review by your office.

The subject document is intended to present the development of potential cleanup goals for site specific contaminants found at the Formerly Utilized Sites Remedial Action Program (FUSRAP) Seaway site. The cleanup goals are developed using 10 CFR Part 40 Appendix A, I, Criterion 6(6) [henceforth Criterion 6(6)] as a guideline for developing site specific cleanup goals for contaminants of concern on site.

While the document is clear in its intent, we find the underlying assumptions for the use of Criterion 6(6) to be flawed. In addition, my office has determined that the use of the benchmark dose criterion has many flaws in its application in this document. Our major concerns follow.

Elimination of the Surface Water Pathway As An Exposure Pathway

Section 2.2 (*Exposure Pathways*) of the document eliminated the surface water pathway because *"There is no surface water (ponds or streams) within the site boundaries. Thus the surface water consumption and fish ingestion pathways are considered to be incomplete."* We feel that the surface water pathway was incorrectly eliminated given the existence of drainage swales on the Seaway site and the recent results of water sampling by the New York State Department of Environmental Conservation which detected 10 pCi/l of uranium in Rattlesnake Creek - an indication that uranium is leaching into Rattlesnake Creek from Seaway or one of the other FUSRAP sites in the area. Exposure pathways are not necessarily confined to site boundaries; thus, the surface water pathway should be included in the exposure assessment at Seaway.

The Use of 40 CFR 192 as a Relevant and Appropriate Regulation

Because of the interrelationship between the standards under 40 CFR Part 192 and those under Criterion 6(6), the radium benchmark approach should only be considered after 40 CFR Part 192. The Uranium Mill Tailings Radiation Control Act (UMTRCA), has been determined to be an

Enclosure B

applicable or relevant and appropriate requirement (ARAR) for use at Seaway. It has been acknowledged that the UMTRCA rule is not applicable at the Seaway site since the waste products predate 1978. UMTRCA may still be considered by some to be relevant and appropriate for use at Seaway, however.

The uranium mill tailings standard was developed for the remediation of inactive uranium processing sites. This would appear to make the standard relevant for use at the Seaway landfill site. Under normal circumstances it may. However, according to *Technical Memorandum, Modeling of Radiological Risks from Residual Radioactive Materials Following Implementation of Remedial Alternatives for Seaway Landfill Areas A, B, and C, Tonowanda, New York, June, 2000*, "actinium-227 is present at much higher concentrations than would normally be expected" in the Ashland I waste products disposed at Seaway. The elevated levels of actinium-227 are present in equilibrium with protactinium-231 in the Seaway wastes, as modeled by your office.

Actinium-227 and protactinium-231 are both decay products in the uranium-235 decay series. The UMTRCA standard was developed with a markedly different waste product in mind. The standard was designed taking into account the residual radioactivity from the uranium-238 decay series: thorium-230, radium-226 and radon-222.¹

UMTRCA acknowledges the presence of uranium-235 decay products in uranium mill tailings, but they are assumed to be present in insignificant quantities. Within the tailings "there are also radioactive materials from two other decay processes in uranium ore [in addition to those of the uranium-238 decay series], the uranium-235 series and the thorium-232 series, *but these are present in much smaller amounts, and we have concluded that it is not necessary to include them in our analysis [emphasis added].*"²

This is clearly not the case in the uranium process waste materials disposed of at Seaway. Your *Technical Memorandum, Modeling of Radiological Risks from Residual Radioactive Materials Following Implementation of Remedial Alternatives for Seaway Landfill Areas A, B, and C, Tonowanda, New York, June 2000* indicates that uranium-235 decay product concentrations are "high enough to contribute significantly to dose."

The same technical memorandum also indicates that "radium was sometimes recovered as well as uranium, further distorting the natural relative abundances in the uranium chain." This is further proof that any action for dealing with the Ashland I wastes at Seaway would be inappropriately addressed by the UMTRCA standard.

It is the view of our office that these points argue against the use of UMTRCA as an appropriate requirement at Seaway. The materials disposed there are clearly not the waste products

¹Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites (40 CFR 192), Volume I, Chapter 3, Section 3.1.

²Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites (40 CFR 192), Volume I, Page 15.

envisioned when 40 CFR 192 was drafted and adopted.

If 40 CFR 192 is not an ARAR at Seaway, then what of Criterion 6(6)?

The Criterion 6(6) rule is a supplement to the radium standards of 40 CFR 192. Therefore, when the standards under EPA's UMTRCA rule are not relevant and appropriate regulations, Criterion 6(6) is not relevant and appropriate.

Using the Benchmark Dose Criteria for Surface Soils

If the majority of radiological risks posed by contaminants of concern at a site in soil and structures are the same as those existing at Nuclear Regulatory Commission (NRC) uranium/thorium mills and uranium recovery facilities, then the Criterion 6(6) rules benchmark dose limits may be a relevant and appropriate requirement for those contaminants: radium-226, radium-228, thorium-230, thorium-232, uranium-234 and/or uranium-238.³

The Criterion 6(6) technical memorandum submitted by your office includes benchmark doses for actinium-227, protactinium-231, thorium-230, thorium-232 and total uranium in soil. As stated earlier, the use of Criterion 6(6) implies that UMTRCA is relevant and appropriate for use at Seaway. If this is the case, the combined levels of thorium-230 and thorium-232 should be limited to the same concentration as their radium progeny. To meet a permanent clean-up objective for radium at 5 pCi/g, there needs to be reasonable assurance that thorium-230 (parent of radium-226) and thorium-232 (parent of radium-228) will be cleaned up to the same concentrations. Therefore, whenever the 5 pCi/g and/or 15 pCi/g standards for radium are used as relevant and appropriate requirements at sites with thorium contamination, the same soil standards apply to the combined thorium contamination. So, in this case, it is inappropriate to use radium benchmark doses to develop thorium cleanup goals.

The values shown in Appendix A of the technical memorandum indicate benchmark soil concentrations for thorium-230 which range from 15 pCi/g to 44 pCi/g and thorium-232 levels which range from 3.5 pCi/g to 9.6 pCi/g. In all cases the thorium levels should be combined (Th-230 + Th-232) and should be equal to the radium clean-up level.⁴

Further, it is inappropriate to use Criterion 6(6) to develop soil cleanup goals or standards for actinium-227 and/or protactinium-231, as you have done. Again, these contaminants were not addressed or envisioned by the UMTRCA rule, which Criterion 6(6) supplements.

³For further information regarding this EPA determination, see the memorandum from Stephen D. Luftig titled: "Remediation Goals for Radioactively Contaminated CERCLA Sites Using the Benchmark Dose Cleanup Criteria in 10 CFR 40 Appendix A, I, Criterion 6(6)" (OSWER Directive No. 9200.4-35P).

⁴For further information regarding this EPA determination, see the memorandum from Stephen D. Luftig titled: "Use of Soil Cleanup Criteria in 40 CFR Part 192 as Remediation Goals for CERCLA sites" (OSWER Directive No. 9200.4-25).

Using the Benchmark Dose Criteria for Subsurface Soils

The 15 pCi/g radium-226 clean-up criterion for subsurface soil as found in Subpart B of UMTRCA is not a health-based standard, but was developed for use as a tool for locating and remediating discrete deposits of high activity tailings in subsurface locations at mill sites and vicinity properties. The criterion for subsurface soil was originally proposed as 5 pCi/g. The criterion in the final rule was changed, *not* because of a reassessment of the level of contamination that would present a threat to public health and the environment, but rather in order to reduce the cost to the Department of Energy (DOE) of locating buried tailings. EPA analysis found that by cleaning up the high activity waste located using the 15 pCi/g finding tool, DOE would achieve essentially the same degree of cleanup as originally proposed under the 5 pCi/g criterion.⁴

With this in mind, the UMTRCA subsurface clean-up level for radium-226 is not an appropriate soil concentration for benchmarking dose levels for other radionuclide contamination and should *never* be used as such. Our office strongly disagrees with the use of the 15 pCi/g radium cleanup level as a basis for benchmarking. Since the NRC's UMTRCA radium standards in 10 CFR 40 are intended as conforming standards to EPA's UMTRCA standards under 40 CFR 192, when conducting a dose assessment to show compliance with the Criterion 6(6) rule as a relevant and appropriate requirement, a concentration of 5 pCi/g should be used as the radium benchmark level for dose calculations.³

Conclusions

We have raised serious technical issues related to the Criterion 6(6) technical memorandum submitted by your office. We believe these issues invalidate your analysis and hence the radionuclide clean up levels you have derived and proposed for this site. Notwithstanding this, we do not feel that the issues are insurmountable. I am confident that our technical staffs will be able to reach an agreement concerning cleanup goals for the Ashland wastes at Seaway if you desire.

Should you wish to discuss these technical issues further, please contact [redacted] (212-637-[redacted]) or [redacted] ([redacted])

Sincerely,

[redacted signature]

[redacted name]

Radiation and Indoor Air Branch

cc: [REDACTED] h C. [REDACTED], Director
USEPA-2, Division of Environmental Planning and Protection

[REDACTED] R. [REDACTED], Commander
USACE, Buffalo District

[REDACTED] s. [REDACTED], Director
NYS DEC, Bureau of Radiation and Hazardous Site Management

[REDACTED] [REDACTED], [REDACTED], Director
NYS DOH, Bureau of Environmental Radiation Protection

THE U.S. DEPARTMENT OF ENERGY
FORMERLY UTILIZED SITES
REMEDIAL ACTION PROGRAM
(FUSRAP)

PUBLIC MEETING

Wednesday, December 1, 1993, 7:30 p.m.
Kenmore East High School
350 Fries Road, Tonawanda, New York 14150

Testimony to be Submitted by

██████████ D. M. ██████████ COMMISSIONER
ERIE COUNTY DEPARTMENT OF ENVIRONMENT AND PLANNING
and
CHAIR, COALITION AGAINST NUCLEAR MATERIALS IN TONAWANDA (CANIT)
95 Franklin Street, Buffalo, New York 14202
716-858-6716

Enclosure C

1. INTRODUCTION

WHEN DOE'S PLAN TO MOVE COLONIE WASTE TO TONAWANDA BE E
KNOWN, IN EARLY 1988, ONE AFTER ANOTHER, ELECTED OFFICIALS FOUND
THEMSELVES IN STRONG OPPOSITION. THE LANDMARK PUBLIC HEARING,
WHICH I AM SURE DOE WILL LONG REMEMBER, WAS HELD IN THIS TOWN.
THE COALITION AGAINST NUCLEAR MATERIALS IN TONAWANDA (CANIT) WAS
THEN FORMED AS A BIPARTISAN, ALL GOVERNMENT LEVEL, GROUP OF
ELECTED OFFICIALS. AS THE COMMISSIONER OF ENVIRONMENT AND
PLANNING, I WAS ASKED TO SERVE AS CHAIR.

WE ALL FELT THAT OUR BEST, IF NOT ONLY, HOPE OF SUCCESS IN
DEALING WITH DOE WAS BY EDUCATING OURSELVES AND BY DEVELOPING AND
MAINTAINING A UNITED POSITION.

CANIT'S GOALS WERE TO PREVENT DOE FROM SHIPPING NUCLEAR
MATERIAL FROM COLONIE, NEW YORK (NEAR ALBANY) TO TONAWANDA, TO
HAVE DOE REMOVE EXISTING NUCLEAR MATERIAL FROM FOUR (4) SITES IN
TONAWANDA, IF FEASIBLE, AND OVERSEE ALL ASPECTS OF DOE'S WORK SO
AS TO PROTECT LOCAL RESIDENTS.

MY STATEMENT TONIGHT REPRESENTS THE POSITION OF CANIT. MANY
OF THE ELECTED OFFICIALS WHO ARE CANIT MEMBERS WILL ALSO BE
SPEAKING FOR THEMSELVES.

CANIT INCLUDES THE FOLLOWING MEMBERS:

HON. DENNIS T. GORSKI
ERIE COUNTY EXECUTIVE

HON. CARL J. CALABRESE
SUPERVISOR, TOWN OF TONAWANDA
AND HIS PREDECESSOR
FORMER SUPERVISOR RONALD MOLINE

HON. ALICE A. ROTH
MAYOR, CITY OF TONAWANDA
AND HER PREDECESSOR
THE LATE MAYOR DAVID MILLER

HON. JOHN J. LaFALCE, M.C.
32ND DISTRICT

HON. MARY LOU RATH
STATE SENATOR - 60TH DISTRICT
AND HER PREDECESSOR
FORMER SENATOR JOHN B. SHEFFER II

HON. ROBIN SCHIMMINGER
ASSEMBLY MEMBER - 140TH DISTRICT

HON. LEONARD R. LENIHAN
COUNTY LEGISLATOR - 11TH DISTRICT

HON. CHARLES M. SWANICK
COUNTY LEGISLATOR - 10TH DISTRICT

HON. JOHN B. DALY
STATE SENATOR - 61ST DISTRICT

HON. SAM HOYT
ASSEMBLY MEMBER - 144TH DISTRICT
AND HIS PREDECESSOR
THE LATE ASSEMBLY MEMBER WILLIAM B. HOYT

HON. RICHARD R. ANDERSON
ASSEMBLY MEMBER - 142ND DISTRICT

HON. JAMES H. PAX
SUPERVISOR, TOWN OF GRAND ISLAND
AND HIS PREDECESSOR
FORMER SUPERVISOR MARTIN PRAST

HON. JAMES MCGINNIS
MAYOR, CITY OF NORTH TONAWANDA
AND HIS PREDECESSOR
ASSEMBLY MEMBER ELIZABETH HOFFMAN

2. HISTORY

COLONIE WASTE

THE FIRST ISSUE FACED BY CANIT WAS THE IMMEDIATE THREAT OF NUCLEAR MATERIAL BEING BROUGHT TO TONAWANDA FROM COLONIE, NEW YORK. DOE WAS IN THE PROCESS OF REMEDIATING A SITUATION IN COLONIE OF A MORE IMMEDIATE HEALTH RISK THAN WE FACE HERE. WHILE WE WANTED TO SEE THE COLONIE SITUATION REMEDIATED, WE DID NOT WANT THE SOLUTION TO COME AT OUR EXPENSE. AT THE INSISTENCE OF CONGRESSMAN JOHN J. LaFALCE, CONGRESS PROHIBITED THE DOE FROM STUDYING OR MOVING ANY NUCLEAR WASTE FROM WITHIN THE STATE OF NEW YORK TO THE TOWN OF TONAWANDA. THE FIRST VICTORY FOR CANIT WAS NOT PERMITTING THE COLONIE WASTE TO BE BROUGHT TO WESTERN NEW YORK.

SEAWAY SITE INCLUDED IN RI/FS

THE ORIGINAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) FOR THE TONAWANDA PROJECT EXCLUDED THE SEAWAY LANDFILL FROM THE FULL ENVIRONMENTAL REVIEW PROCESS. THE SEAWAY MATERIAL WAS, IN ALL RESPECTS, SIMILAR TO THE OTHER FUSRAP WASTES IN TONAWANDA, CANIT REQUESTED THAT DOE TREAT ALL FOUR SITES TOGETHER AND NOT ALLOW FOR A SEPARATE, EXPEDITED, PROCESS AT THE SEAWAY SITE. ON DECEMBER 11, 1989, THE DOE ISSUED A NOTICE IN THE FEDERAL REGISTER INDICATING THAT DOE WAS CONSIDERING ADDING

THE SEAWAY SITE TO THE COMPREHENSIVE ENVIRONMENTAL REVIEW AND ANALYSIS PROCESS WHICH WAS THEN UNDERWAY FOR THE ASHLAND 1, ASHLAND 2 AND LINDE SITES. THEREAFTER, DOE CONCLUDED THAT THE SEAWAY SITE BE INCLUDED IN THE RI/FS PROCESS THAT IS NOW UNDERWAY AND IS THE SUBJECT OF THIS HEARING. IT WAS IMPERATIVE THAT SEAWAY BE ADDED TO THE OTHER THREE (3) SITES IF WE WERE TO OBTAIN A SINGLE, COMPREHENSIVE SOLUTION.

BFI RELOCATION PLAN

IN 1991, A PROPOSAL BY BFI TO RELOCATE THE RADIOACTIVE MATERIAL FROM THE SEAWAY LANDFILL TO A NEWLY CONSTRUCTED TEMPORARY STORAGE CELL WAS UNDER CONSIDERATION. THE REASON BFI WANTED TO REMOVE THE RADIOACTIVE MATERIAL FROM THE SEAWAY LANDFILL INTO A SEPARATE CELL WAS TO MAKE ADDITIONAL SPACE AVAILABLE IN ITS LANDFILL FOR THE DISPOSAL OF SOLID WASTE. KNOWING THAT THE ENVIRONMENTAL REMEDIAL INVESTIGATION/FEASIBILITY STUDY PROCESS FOR REMEDIATING THE FOUR SITES HAD NOT BEEN COMPLETED AT THAT TIME, CANIT OPPOSED THE MOVEMENT OF ANY RADIOACTIVE MATERIAL. CANIT SOUGHT TO ENSURE THAT AN OBJECTIVE ENVIRONMENTAL ANALYSIS BE PERFORMED BEFORE ANY WASTE WAS REMOVED AND RELOCATED. UNFORTUNATELY, U.S. DOE DID NOT HAVE REGULATORY JURISDICTION TO PREVENT THIS ACTION. AFTER DISCUSSION WITH CANIT, THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION CONCLUDED THAT IT HAD JURISDICTION OVER THIS ISSUE. DEC INFORMED BFI THAT A REVIEW PROCESS WOULD BE NECESSARY BEFORE

RELOCATION COULD PROCEED. BFI THEN WITHDREW ITS PROPOSAL. IT IS BECAUSE OF THE DILIGENCE OF CANIT THAT RADIOACTIVE MATERIAL WAS NOT REMOVED FROM THE SEAWAY LANDFILL AND REMAINS AS ONE OF THE FOUR (4) SITES NOW TO BE REMEDIATED BY THE DOE.

CANIT HAS HAD A STRING OF IMPORTANT SUCCESSES IN PROTECTING THE ENVIRONMENT, AND IN INSURING THAT THE DOE PROCESS IS FAIR AND COMPLETE. THE COLONIE WASTE CANNOT COME HERE BY LAW THANKS TO CONGRESSMAN LAFALCE. THE SEAWAY SITE IS INCLUDED IN THIS REVIEW PROCESS AND WE PREVENTED THE SEAWAY MATERIALS FROM BEING REMOVED PREMATURELY. WE HAVE DEVELOPED AN EXPERTISE AND EXPERIENCE IN DEALING WITH THESE COMPLEX ISSUES. AS WE PROCEED INTO THIS NEXT PHASE OF REVIEW, IT IS IMPORTANT TO REMEMBER THAT, IN EACH OF THESE LAST THREE BATTLES, WE STARTED BY HAVING TO PROD, IF NOT FORCE ACTION BY DOE. ONLY THROUGH OUR WORK HAVE WE BEEN ABLE TO OBTAIN THESE RESULTS.

3. CANIT GOALS

FROM ITS FORMATION, CANIT HAS HAD A GOAL TO HAVE THE RADIOACTIVE MATERIALS REMOVED FROM THE TOWN OF TONAWANDA. THIS GOAL, HOWEVER, WAS TEMPERED BY THREE CONCERNS.

THE FIRST INVOLVED HEALTH AND SAFETY CONCERNS. CANIT, FROM THE START, FELT IT COULD NOT FAVOR A SOLUTION THAT SIGNIFICANTLY

INCREASED THE RISK FROM RADIATION EXPOSURE TO EITHER THE RESIDENTS OF TONAWANDA OR THE RESIDENTS OF ANY OTHER PART OF THE NATION. IF THERE WAS A SIGNIFICANT RADIATION HEALTH RISK FROM REMOVAL ACTIVITIES THAT DID NOT EXIST FROM KEEPING THE WASTE IN THE TOWN, OUR SUPPORT FOR OUR PREFERRED ALTERNATIVE WOULD HAVE TO BE REVISED.

THE SECOND CONCERN INVOLVED WHERE THE MATERIAL WOULD GO. WE FELT THAT WE DID NOT WANT TO TRANSFER OUR PROBLEM TO SOME OTHER PART OF THE COUNTRY THAT DID NOT WANT TO PROVIDE ASSISTANCE AND, OF COURSE, WE WANTED TO BE SURE THAT THE WASTE WOULD BE PROPERLY HANDLED AND STORED PERMANENTLY AND SAFELY AT THE NEW LOCATION.

FINALLY, WE WANTED TO SELECT A SOLUTION THAT WAS FEASIBLE AND THAT WAS FAIR TO FEDERAL TAXPAYERS. WE ARE ALL MINDFUL OF THE FINANCIAL CHALLENGES THAT ARE FACING THE NATION AND WE DID NOT FEEL THAT WE COULD SUPPORT A SOLUTION THAT THE NATION COULD NOT AFFORD IF LESS COSTLY SOLUTIONS COULD BE FOUND THAT WOULD PROTECT THE HEALTH AND SAFETY OF LOCAL RESIDENTS.

HAPPILY, AT LEAST FROM OUR PERSPECTIVE, EACH OF THESE THREE CONCERNS HAS BEEN RESOLVED IN SUCH A WAY THAT WOULD ALLOW FOR REMOVAL OF THE WASTE FROM THE TOWN.

HEALTH AND SAFETY

FOR ALL OF US, HEALTH AND SAFETY CONCERNS COME FIRST. WHILE AT OTHER PARTS OF OUR TESTIMONY, PARTICULARLY IN THE TESTIMONY OF DR. MARTIN HAAS, WE WILL REFER TO HEALTH AND SAFETY CONCERNS NOT YET ADDRESSED OR NOT ADDRESSED FULLY, MY COMMENT NOW IS INTENDED TO COMPARE THE HEALTH AND SAFETY CONCERNS FROM ON-SITE VERSUS OFF-SITE DISPOSAL. THE ISSUES RAISED BY DR. HAAS WILL HAVE TO BE ADDRESSED EITHER WAY.

WE DO BELIEVE THAT A PROPERLY DESIGNED, OPERATED AND MAINTAINED CELL, IN EITHER TONAWANDA OR AT SOME OTHER LOCATION IN THE COUNTRY, WILL IN NORMAL CIRCUMSTANCES BE ABLE TO CONTAIN THE RADIATION AND THUS PREVENT IT FROM COMING INTO CONTACT WITH HUMANS OR THE ENVIRONMENT. HOWEVER, WE DO NOT BELIEVE DOE HAS PROPERLY ANALYZED THE CONSEQUENCES OF THE FAILURE OF THE CONTAINMENT CELL IF IT IS LOCATED IN TONAWANDA. A CELL MIGHT FAIL THROUGH IMPROPER DESIGN, IMPROPER MAINTENANCE OR THROUGH AN ACT OF GOD. AS WE HAVE DISCOVERED, UNFORTUNATELY THE HARD WAY AT LOVE CANAL, CELLS CAN BECOME INEFFECTIVE AS A RESULT OF FAULTY DESIGN OR THROUGH THE IMPROPER ACTIONS OF HUMANS WHO, A GENERATION LATER, "FORGOT" WHAT WAS BURIED IN THEIR MIDST. ACTS OF GOD SUCH AS EARTHQUAKES, FLOODS, PLANE CRASHES EVEN GLACIERS (REMEMBER THIS WASTE WILL REMAIN HAZARDOUS FOR 4.5 BILLION YEARS) COULD CAUSE EVEN A PROPERLY DESIGNED AND MAINTAINED CELL TO BREACH. THE FEASIBILITY STUDY (P. 5-109) STATES:

"THE PARTIAL EXCAVATION AND ON-SITE DISPOSAL FACILITY IN ALTERNATIVE 5 WOULD PROVIDE A LOW TO MODERATE LEVEL OF PROTECTION OF LOCAL GEOLOGY AND SOILS. IN ADDITION TO THE CONTAMINANTS LEFT IN PLACE, SOME POTENTIAL RISK OF CONTAINMENT FAILURE WOULD BE ASSOCIATED WITH AN ON-SITE DISPOSAL FACILITY."

THUS, DOE RECOGNIZES THE RISK OF A CELL FAILURE, BUT DOES NOT THEN COMPARE THE POTENTIAL FOR HUMAN EXPOSURE AT THE LARGELY UNPOPULATED UTAH SITE TO THE HEAVILY POPULATED TONAWANDA SITE. NOR DOES IT RECOGNIZE THE POTENTIAL IMPACT ON THE NIAGARA RIVER, A DRINKING WATER SOURCE FOR MILLIONS OF PEOPLE IN THE U.S. AND CANADA.

THE UNITED STATES AND CANADA HAVE, BY TREATY AND THROUGH THE ACTIONS OF THE INTERNATIONAL JOINT COMMISSION, PLEDGED TO TAKE EXTRAORDINARY ACTIONS TO PROTECT THE WATERS OF THE GREAT LAKES. THIS PRECIOUS RESOURCE CONTAINS ONE FIFTH OF ALL THE FRESH WATER IN THE WORLD. THE ON-SITE STORAGE FACILITY BEING CONTEMPLATED BY DOE WOULD BE WITHIN SIGHT OF THE NIAGARA RIVER. WE HAVE CONCLUDED THAT DOE HAS NOT ADEQUATELY CONSIDERED THE IMPACT OF THESE RESOURCES FROM A CELL FAILURE.

WE HAVE REVIEWED THE COMPARATIVE RISK FROM REMOVAL TO ON-SITE DISPOSAL.

BASED UPON DOE'S ESTIMATES, WE BELIEVE THE RISK FROM EXCAVATION IS THE SAME IF THE WASTE STAYS IN TONAWANDA OR IS MOVED OFF SITE. THE ONLY ADDITIONAL RISK THAT IS CAUSED BY REMOVAL IS THE RISK OF EXPOSURE DURING TRANSPORTATION TO THE OTHER SITE. WHILE WE BELIEVE DOE OVERSTATES THIS RISK, BY ALL MEASURES IT IS QUITE SMALL. ACCORDING TO THE FEASIBILITY STUDY, THE TRANSPORTATION RISKS ARE NOT DEPENDENT ON THE TYPE OF WASTE SHIPPED (RADIOACTIVE VS. NON-RADIOACTIVE), BUT RATHER ON THE METHOD OF TRANSPORTATION EMPLOYED (RAIL OR TRUCK) AND ON THE DISTANCE TRAVELED TO HAUL THE MATERIAL.

FOR A COMPARISON BETWEEN THE OFF-SITE VERSUS ON-SITE TRANSPORTATION RISKS, THE PROBABILITY FOR AN ACCIDENT ARE COMPARABLE, AND IN ALL CASES INVOLVE LESS THAN ONE HALF OF ONE FATALITY FROM A TRAFFIC ACCIDENT DURING WASTE MOVEMENT.

ALTERNATE SITE

WITH REGARD TO THE SECOND CONCERN, WE ARE NOW SATISFIED THAT THERE IS A SAFE LOCATION AVAILABLE TO RECEIVE OUR FUSRAP WASTES THAT IS WILLING, IF NOT EAGER, TO ACCEPT THEM. THE AVAILABILITY OF THIS COMMERCIAL SITE, WHICH IS LICENSED AND OPERATING, CAME TO OUR ATTENTION AS THE RESULT OF THE WORK OF CANIT MEMBERS. DOE NEVER DISCLOSED TO US THAT THIS SITE WAS OPEN, KNOWN TO THEM, AND

IN THE PROCESS OF OBTAINING A LICENSE CHANGE THAT WOULD ALLOW IT TO ACCEPT FUSRAP WASTE. THE SITE, IN CLIVE, UTAH, IS OPERATED BY LARGE, FINANCIALLY SECURE COMPANIES, HAS BEEN OPERATING PURSUANT TO FEDERAL LICENSE, AND IS FAR REMOVED FROM THE POPULATION DENSITIES THAT EXIST IN TONAWANDA.

IN ADDITION TO BEING AVAILABLE AND WILLING TO TAKE THE TONAWANDA WASTE, WE LEARNED THAT THE UTAH SITE WOULD TAKE THE WASTE AT A PRICE SIGNIFICANTLY BELOW THE COST BEING PROJECTED BY DOE FOR A COMMERCIAL OPERATION. WHEN WE ADVISED DOE OF THE COST QUOTES WE WERE RECEIVING, DOE REVISED ITS PROJECTIONS FOR COMMERCIAL OFF-SITE DISPOSAL FROM MORE THAN \$230 MILLION TO APPROXIMATELY \$201 MILLION.

FUNDING

WITH REGARD TO THE THIRD CONCERN, WE BELIEVE, BASED UPON INFORMATION PROVIDED TO US BY DOE, THAT THERE MAY BE SUFFICIENT FUNDS MADE AVAILABLE TO THE FUSRAP EFFORT TO PAY THE HIGHER COSTS INVOLVED IN OFF-SITE DISPOSAL. WE HAVE BEEN QUITE CONCERNED, AND DID A GREAT DEAL OF SOUL SEARCHING, TO TRY TO FIND THE PROPER ANSWER TO THIS QUESTION. WE FEARED THAT, SHOULD WE INSIST UPON A SOLUTION THAT COULD NOT BE AFFORDED, THE WASTE MIGHT REMAIN IN ITS CURRENT UNCONTAINED STATUS INDEFINITELY. AFTER ALL, THE WASTE HAS BEEN IN OUR MIDST FOR ALMOST 50 YEARS, PERHAPS THE FEDERAL GOVERNMENT, UNABLE TO AFFORD OUR PREFERRED SOLUTION,

WOULD ALLOW THE WASTE TO STAY EVEN LONGER.

WE HAVE SATISFIED OURSELVES THAT THE CONGRESSIONAL MANDATE TO DOE IS WITHOUT CONDITION. DOE MUST PROCEED TO CLEAN-UP THESE SITES WITHIN THE FUNDING MADE AVAILABLE BY CONGRESS.

IN ORDER TO ANALYZE THE LIKELIHOOD THAT CONGRESS WOULD PROVIDE SUFFICIENT FUNDING FOR REMOVAL, ON OCTOBER 19, 1993, WE WROTE TO DOE WITH A SERIES OF QUESTIONS, INCLUDING A REQUEST FOR A "DOE BUDGET FORECAST FOR FUSRAP". ON NOVEMBER 5, 1993, DOE RESPONDED TO OUR LETTER. THE DOE RESPONSE WAS A SURPRISE IN A NUMBER OF WAYS. PERHAPS OF MOST INTEREST WAS TABLE 1, WHICH WAS A "BASELINE RESOURCE PLAN" FOR DOE FUSRAP EFFORTS. THIS PLAN SHOWED A TOTAL PLANNED EXPENDITURE OF \$2.5 BILLION FROM 1994 (INCLUDING CERTAIN PRIOR YEAR EXPENDITURES) TO 2016 FOR ALL FUSRAP SITES. IT ALSO SHOWED A PLANNED EXPENDITURE OF \$197 MILLION FOR THE TONAWANDA FUSRAP EFFORTS. THE TONAWANDA SITE, INCLUDING ALL FOUR LOCATIONS, HAS APPROXIMATELY 18% BY VOLUME OF THE TOTAL FUSRAP WASTE IN THE ENTIRE COUNTRY. THE DOE ALLOCATION PLAN DATED APRIL OF 1992, ONLY OFFERS US APPROXIMATELY 8% OF THE TOTAL NATIONAL RESOURCES. IF WE WERE TO ACCEPT THE DOE RECOMMENDED SOLUTION OF ON-SITE DISPOSAL, WE WOULD ONLY BE OFFERED APPROXIMATELY 2% OF THE TOTAL PROGRAM RESOURCES. IF THE \$2.5 BILLION FIGURE IS AN ACCURATE PREDICTION OF THE TOTAL PROGRAM SIZE (AND, OF COURSE, DOE IS IN THE BEST POSITION TO KNOW), THEN ALL WE WANT IS THE AMOUNT NEEDED TO PROCEED WITH OUR

PREFERRED ALTERNATIVE, OFF-SITE REMOVAL. DOE ESTIMATES THAT THIS ALTERNATIVE WILL COST \$201 MILLION. THIS IS LESS THAN OUR PERCENTAGE SHARE OF THE WASTE WOULD YIELD.

WHILE DOE HAS SINCE INDICATED THAT THE INFORMATION WHICH IT PROVIDED ON NOVEMBER 5, 1993, AS SHOWN ON TABLE 1, IS DATED, HAD A \$10 MILLION MATHEMATICAL ERROR, AND WILL BE REVISED WITH REGARD TO THE AMOUNT PROJECTED FOR TONAWANDA, OR THAT THE \$197 MILLION SHOWN ON TABLE 1 REALLY ONLY EQUALS \$84 MILLION, DOE HAS NOT INDICATED THAT THE \$2.5 BILLION TOTAL PROGRAM SIZE HAS BEEN REDUCED. SO LONG AS DOE CONTINUES TO PROJECT THIS AMOUNT FOR THE TOTAL PROGRAM, WE WILL INSIST ON OUR FAIR SHARE, AT LEAST TO THE EXTENT NEEDED TO HAVE THE WASTE REMOVED FROM TONAWANDA.

4. CANIT POSITION

ON NOVEMBER 23, 1993, THE CANIT EXECUTIVE COMMITTEE UNANIMOUSLY VOTED NOT TO SUPPORT THE DOE RECOMMENDED DECISION WHICH CALLED FOR ON-SITE DISPOSAL OF THE FUSRAP WASTE IN TONAWANDA. THE REASONS FOR THIS ARE AS FOLLOWS:

- THE REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) DOES NOT ADEQUATELY ADDRESS A NUMBER OF HEALTH RELATED ISSUES, INCLUDING THE POTENTIAL FOR RADON CONTAMINATION AND THE POSSIBLE CONTAMINATION OF CREEKS AND SEWERS;

- THE RI/FS DOES NOT ADEQUATELY DEAL WITH THE QUESTIONS OF MIXED WASTE (MIXED WITH RADIOACTIVE WASTE MIXED WITH OTHER HAZARDOUS WASTES, SUCH AS CHEMICAL WASTES);
- THE DOE HAS NOT ADEQUATELY ADDRESSED CONCERNS RAISED BY CANIT REGARDING THE FINANCIAL RESOURCES THAT MIGHT BE MADE AVAILABLE FOR EACH OF THE ALTERNATIVES. FROM THE INFORMATION PROVIDED BY DOE, WE CANNOT ADEQUATELY DETERMINE IF THERE WILL BE ENOUGH MONEY MADE AVAILABLE FOR OUR PREFERRED ALTERNATIVE TO MOVE THE WASTE OUT OF TONAWANDA;
- THE DOE'S PROPOSED ALTERNATIVE IS IN CONFLICT WITH REDEVELOPMENT PLANS FOR THE TOWN OF TONAWANDA FOR REDEVELOPMENT OF ITS WATERFRONT IN COORDINATION WITH THE HORIZONS WATERFRONT COMMISSION. IN ADDITION, THE PROPOSED DOE PLAN FAILS TO ACCURATELY STATE THE CURRENT ZONING FOR THE SITE;
- THE DOE'S PROPOSED ALTERNATIVE WILL NOT PROVIDE FOR UNRESTRICTED LAND USE, WHICH WAS A STATED GOAL OF THE PROGRAM. ONLY IF THE LAND IS COMPLETELY CLEAN WOULD "UNRESTRICTED USE" WOULD BE ALLOWED.

5. CONCLUSION

IN CONCLUSION, FOR ALL THE REASONS STATED, CANIT CANNOT SUPPORT THE RECOMMENDED DECISION OF DOE TO DEVELOP AN ON-SITE DISPOSAL FACILITY FOR THE TONAWANDA FUSRAP WASTES. WE URGE DOE TO GIVE THE PROPER WEIGHT TO THE OPINION OF CANIT AS A RECORD OF DECISION IS DEVELOPED.