

## Seaway Proposed Plan Tough Questions

**1. How can you be sure how much contamination is in the Seaway Landfill when you totally missed the amount of contaminated material in Ashland 2?**

There were surveys done in 1976 (ORNL) 1981 (FBDU), and 1986 ( ). Those investigations pinpointed the geographical locations of the contaminated areas. We did further char in 1998 of Areas A, B, and C, and we altered the volumes, and we are confident that these numbers are correct. A gamma walkover survey was conducted in September 1998 and confirmed the findings of the historical information and previous studies. Generally speaking, throughout our sites, we have found material in areas where we expected to find it. The state regulators have agreed that this is where the rad material is located.

**2. If the material is left in place, how can you guarantee that it will not be disturbed at a later date?**

There are existing controls that are now in place at the Seaway Landfill. The zoning is consistent with the future use that was considered when we developed the proposed plan. The site is also listed on the state registry of inactive hazardous waste disposal sites and state solid waste regulations apply. Accordingly deed notices, deed restrictions and monitoring is required to ensure that the cap and containment system remain effective. Additionally an integral part of our containment remedy is long term monitoring and inspection that will be conducted by the federal government including 5 year reviews under CERCLA.

**3. If you select the leave in place option, you are leaving 10 times the material there than what we had originally heard before was in there. Why would you think that it would be acceptable to leave so much more contamination in place?**

The amount of contamination that entered into the sites has remained the same. Based on improved procedures developed during the Ashland 2 project, we have developed more accurate volume estimating procedures. We have used these updated volume estimates in our calculation of the risks associated with the site, and based on our analysis even considering the more accurate volume we have determine that the containment alternative is protective now and in the future.

**4. Has the international joint commission on water ever been provided with any information on this site?**

We have not identified any impact to groundwater. We made contact with the IJC for the Ashland Sites, and we are in the process of making contact with the IJC regarding Seaway.

- 5. Your material is adding radon to the methane that is being pumped from the landfill. Since the methane gas from the landfill is being pumped instead of being able to vent naturally, the time frame does not allow the radon to decay. Our children go to school down wind from there, what about the radon emissions from the landfill?**

Our material is not adding radon to the methane in the landfill. The current system does not pump gas from the area of the MED waste. (Get DEC's latest response to this). The levels are within the range in soils (USGS). We are also concerned about radon and we wanted to make sure that what we are doing is safe, consequently we conducted extensive evaluation of the radon situation under the containment scenario. We modeled the addition of radon from areas where MED waste is to the passive and active venting systems and found that we will meet the ARARs associated with radon gas. Most likely only passive vents would be needed in the areas where MED waste is located, because there is very little methane in Area A where most of the MED waste is located. The Corps has prepared a tech memo addressing this issue that is available in the admin record.

- 6. Who will be responsible for final closure of the landfill?**

The owner and operator of the facility is responsible for final closure, not the Fed gov't.

- 7. This landfill was not constructed to meet the strict standards that are set for landfills that hold radioactive materials. How can you guarantee that leaving this material where it is will be safe?**

Our remedy will be implemented in such a way that it is protective in the long term. Engineering and Institutional Controls will be utilized, and the site will be monitored to ensure that the controls are in place.

- 8. Does capping meet the commercial/industrial development requirements for risk? What about 50 years from now, if the intended land use changes, are we going to have another Love Canal scenario?**

Yes this remedy does meet the requirements for an industrial/commercial land use and will continue to meet the requirements in 50 years. Regulatory programs have been put in place to prevent a Love Canal scenario. The deed restrictions that will be placed on the landfill require state approval in order to change to containment system.

9. (Bauer) Has your company concluded that there is no FUSRAP or MED waste, located in the upper portion of the landfill, behind sections A, B & C and farthest from the river? What reports were used to reach this conclusion? The Seaway Site was investigated by the DOE and the results summarized and documented in the 1993 Remedial Investigation report for the Tonawanda Site. Based on their review of the historical information and field surveys, the DOE concluded that only the areas now known as Areas A, B, C, and D are contaminated with MED-related materials. Based on these results, the FUSRAP was to address only Seaway Areas A, B, C, and D. Area D is being addressed with the remediation of Ashland 1 and was included in the Record of Decision for the Ashland Sites. USACE did additional investigations in 1998 (Gamma Walkover), and the results confirmed the earlier information relating to Areas A, B, and C, and that is that there is contamination in Areas A, and C, that was detectable, and no evidence of contamination outside of those areas was found.

10. I am having a really hard time believing that only Areas A, B, and C contain radioactive material. Do you honestly expect us to accept DOE's conclusion that the only contaminated areas are A, B, and C. If I'm not mistaken, the DOE grossly underestimated the amount of contamination at Ashland 2. Has the Corps even looked at the historical information or field surveys that the DOE used to come to this conclusion? When you started working on the Ashland 1 site, you changed the estimated amount of contamination based on the lesson you learned from DOE's contamination estimate at Ashland 2. Why wouldn't you use the same lesson learned and apply it to Seaway. I think that you should at least look into the possibility that other areas of the landfill may contain radioactive material. I really don't want to be going through all of these arguments years down the road, when some document turns up that says radioactive material was dumped all over the landfill. Answers 1 and 3. Even if there was MED material in other areas of the landfill, those areas are already capped, so it is still protective.

11. [REDACTED] Given that the Niagara River is close to the landfill, hydraulics and leaching will be a fact as well as earthquakes. A fence does not contain hydraulics, how will it impact the river, and what will the environmental impact be on the population?

There is a leachate collection system in place, so hydraulics and leachate are contained. There is also 40 feet of clay protecting the groundwater. The MED waste is not leachable. The remedy we are proposing is a cap to further eliminate concerns of leaching. The MED waste does not pose an instantaneous risk to people, it presents a chronic, long term exposure risk. Should an earthquake occur, there would be ample opportunity to re contain the waste.

12. [REDACTED] The process used was a chemical process, is there a possibility of a chemical reaction with the garbage?

No, the existence of garbage with the residues could not produce the aggressive chemical leaching process that was originally used to remove the uranium.

**13. [REDACTED] I find it humorous that you are saying that the radon that is coming out of the landfill is all natural. Where is the radon from your material?**

What has been measured to date of the methane gas, is gas that has been collected from areas that do not include MED waste. And those levels based on DEC responses are consistent with other landfills, and are also consistent with concentrations in soil gas (per USGS). The radon from the MED waste is also being emitted, but the modeling shows that it is not in any concentrations that exceed any standards.

**14. [REDACTED] I find it hard to believe that if there is a permeable cap on the landfill, and there is garbage under the cap, gases and fluids will not find a way to come out.**

That is correct, gasses and fluids are being produced in this landfill. The gases are being dealt with as part of the collection system, and the fluids are being addressed as part of the leachate system.

**15. [REDACTED] The Dept of Health has done a study on gas storage wells, the radon from the landfill is high compared to the threat that you explain, why the anomaly?**

We don't feel that the radon levels are high, they seem to be indicative of natural soil gas levels.

**16. Look at DEC sample data of individual wells, wells with the highest level are highest in elevation along the spine. This seems to indicate that methane is a carrier.**

Yes, methane is acting as a carrier, the levels measured however, are within the range typically found in soil gas (USGS).

**17. Is Area A under the cap?**

No, not under the current cap.

**18. I watched a bulldozer push stuff all over the landfill for 20 years. I don't see how contamination could stay only in areas A, B, + C.**

All of the evidence that we have shows the material is only in Areas A, B, and C.

**19. [REDACTED] Institutional Controls – who does what, and who is left with the 200 year responsibility?**

The State puts in the deed restrictions, and the federal government monitors to make sure the remedy remains in place. The various government bodies are left with the responsibility.

**20. [REDACTED] How long do you have to figure out what the institutional controls could be?**

We anticipate having institutional controls in place at the time the remedy is complete, and they will be reviewed every 5 years. Institutional controls will become more defined as the process continues.

21. [REDACTED] If you are talking about 1,600 years, can you reasonably expect the government to be responsible for the institutional controls?

It is reasonable to expect that the government will continue to exist and exert whatever controls are appropriate.

22. [REDACTED] This will be called a nuclear garbage dump. Do you know what the impact will be on the people in this community? What the environmental impact will be? What perception it will bring to businesses, and what the quality of life will be like in this area?

Implementing the remedy on the MED waste is a positive step to ensuring protectiveness to the community. This is already a solid waste landfill, the presence of rad materials does not present any more of a stigma for the community. This site was identified 20 years ago, now it's being brought to closure.

23. [REDACTED] The wording of the partial excavation alternative needs to be more clearly defined or it will haunt you and me.

24. [REDACTED] If the rad waste is in areas A, B + C only, what accounts for the hot radon readings that NY State found on the back section?

The levels that were measured by DEC in the back section, have been determined by DEC to be consistent with other landfills. The levels are also consistent with levels of Radon in natural soil gas.

25. [REDACTED] Has anyone taken air samples to measure radon gas concentrations above background level, in areas A, B, and C? If so how do these measurements compare to those taken in the large portion of the landfill, behind sections A, B, and C, and farthest from the river? Also, how do these measurements compare to others, taken at landfills around the U.S., that are known, not to contain radioactive wastes, either FUSRAP or MED, or man-made from the production of commercial or consumer products?

No we haven't, and we are not aware of any radon sampling done in the Seaway Areas A, B, and C as part of FUSRAP activities.

We have addressed these issues in two tech memos, that are available in the admin record.

As far as comparing any results to landfills that contain no radioactive materials that are MED-related or man-made as in consumer products, USACE is not aware of any typical landfills that would not have consumer products in them that contain radioactive materials.

26. Describe what will be necessary for closure of the site.

If you mean closure of the landfill, the owner/operator is responsible for closure of the landfill pursuant to the state solid waste landfill regulations. For closure of the FUSRAP site, we need to implement the remedy that is described in the ROD, and that closure does not mean closing the site under the state's solid waste landfill regulations.

**27. Referring to the picture that you showed us that illustrates Seaway A in red and Seaway Area C in yellow, can you give us a more quantitative statement regarding the levels of radioactive contamination? For example, this area is 10 times less safe. All they have to do is take these “safe” limits and look forward into the future about seven generations and see how much damage has been done.**

Yes, see slide.

**28. Could you discuss what you mean by background levels of radiation?**

Background refers to typical naturally occurring levels in the Tonawanda area where man-made radioactive material has not been placed. These are the levels you would normally expect to find in your background.

**29. Will any attempts be made to estimate the additional radon that is coming out of the flare from your material?**

Yes, and those results can be found in the technical memorandum.

**30. Where is all that radon going to go? That radium is producing radon.**

The radon decays into its breakdown products and diffuses in the soils, it does not make its way up to the surface.

**31. Despite the fact that the NRC guideline is not a law, it would be more protective. Is there any reason why you couldn't clean up to a stricter guideline at other sites? If you use NRC guidelines would it then be unsafe to leave material in Seaway?**

It is not a law, the NRC has promulgated its position and we are following NRC regulations.

**32. Is the cap that might be going on Seaway, the same quality cap that is already on other areas of the landfill?**

Yes.

**33. If you cap in place, will you monitor the site? How long will you monitor the site? What will you test for?**

Yes. We will monitor the site as long as necessary. Our testing process will include inspecting the cap for disturbances, and document review to ensure that institutional controls are in place and still functioning. We will also review any test data from the ongoing post closure monitoring at the site.

**34. What is the cost difference for partial excavation vs. capping? If it is only a couple of million dollars, how can you justify leaving it there, when you could remove it? You keep telling us that it would be more dangerous and you do not want to disturb the garbage. What about all this precise excavation we keep hearing about at Ashland 1 and 2? Couldn't you employ the same technique to safely remove the material from the landfill?**

The site is safe as it is being used currently. To be conservative we assumed more active use of the site, and our remedy is protective under those very conservative scenarios. Partial removal wouldn't make the site any safer. Capping is fully protective of human health and the environment.

In developing our partial and complete removal scenarios we included precise excavation and other lessons learned from the Ashland projects to maximize efficiency.

**35. The Niagara Landfill is the only site where capping will not contain the emission of deadly radon gas. Radon gas, from the FUSRAP materials, is blown by the prevailing south-westerly winds over the city of Tonawanda. Since FUSRAP material was mixed with methane producing garbage in the landfill (in violation of federal guidelines) and since methane from the garbage in the landfill must be vented, the City of Tonawanda General Environmental Control Board has determined that the only way to prevent radon emission is to remove the radium that is producing the radon gas.**

We share your concerns regarding radon, and its impact to the community. To ensure that we are being protective we completed the tech memo that is available in the admin record.

**36. [REDACTED] If cleanup solutions #2 were implemented, does your company conclude that sections A, B, and C could be designated "unrestricted use"? Would this designation be suitable for growing crops? Would fencing and hazardous waste danger signs need to be posted around the entire landfill?**

Cleanup using Alternative 2, Complete Excavation with Off-site Disposal, would provide for a site with no further radiological restrictions. From a radiological perspective, this designation would not prohibit a future user from growing crops on the site. Neither fencing or signage would be necessary for the residual MED-related radiological materials, however, they may be needed for the other Non-MED wastes remaining in the landfill.

**37. [REDACTED] If cleanup solution #6 were implemented, would the 5' cap to cover sections A, B, and C be vented or not vented?**

These areas may or may not need to be vented. This is dependent on what other materials were disposed in those areas and whether methane gas production is likely. BFI and NYSDEC will make the determination as to what needs to be vented. If venting is required, it could be passive venting (i.e., not connected to an active venting system where air is pulled out through a stack using an exhaust fan) or active.

**38. Here it is the year 2000, and we are back to fighting the battle we fought with the DOE in 1993. We were opposed to 1993 Proposed Plan which included the disposal of wastes from Tonawanda Site properties in an on-site cell to be located at Ashland 1, 2 or Seaway. Now you are proposing to leave radioactive material in the Seaway Landfill. We do not want the material to stay here. You've cleaned up Ashland 2 and are in the process of cleaning up Ashland 1 and Linde. I just don't understand why you would think that we would go for leaving the material in the landfill. We did not put it there, you did, and we want it taken out. You aren't going to be here 200 years from now, but our children's children will be. And they shouldn't have to worry about your problem. You have the ability to take at least some of the material out. I know that you will not be able to get it all out, but removing some of the material is better than removing none.**

**39. The City of Tonawanda Board of Education is concerned that the following statements in the NYSDEC fact sheet can not be proven according to generally accepted scientific standards of confidence...**

**"the NYSDEC found that gas does not contain concentrations (175 to 194 picocuries) of radon higher than should be expected from any landfill" is not true. The concentration of the radon in the landfill is higher than any other landfill the NYSDEC has measured in NYS and even higher than radon concentration in natural gas underground storage.**

**"...the flare also has the effect of reducing concentration of the radon. This is because the air and the gas expand when they are heated." Since the heated radon soon cools to ambient temperature, which is well below the original temperature of the radon as it enters the flare, the net temperature change is one of cooling. The effect of this net cooling causes the gas to contract and causes the concentration of radon to increase, and does not have the effect of reducing the concentration of radon as stated by the NYSDEC when expansion or contraction due only temperature change is considered. The threat of the radon to humans will be at the ambient temperature not at the flare temperature (1,680F), because no one resides in the flare.**

**The DEC has determined that the radon levels at the site are typical of other landfills. Our modeling shows that there won't be any release in the future.**

**What about the greater than 1,000 years theme.**

**The purpose of 5 year review is to determine if the remedy is adequate. If we find that it's not we will reopen the ROD and do a different remedy.**