

Testimony of  
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**PENNSYLVANIA WASTE INDUSTRIES ASSOCIATION**

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The Pennsylvania Senate Environmental Resources and Energy Committee

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**Mr. O'Donnell:**

Good morning Senator White, members of the Environmental Resources and Energy Committee, ladies and gentlemen.

My name is Tim O'Donnell. I am general manager of Modern Landfill in York. I am here today in my capacity as president of the Pennsylvania Waste Industries Association. As most of you know, the PWIA represents private-sector solid waste haulers, recyclers, and landfill operators in Pennsylvania. We are the state affiliate of the National Solid Wastes Management Association.

We are pleased to be here today to provide the waste industry perspective on the issue of radioactive material in the waste stream.

Before I introduce Bill Belanger, whom we have asked to provide information on our behalf, let me emphasize that PWIA members and their employees are just as interested in this issue as your committee, the Department of Environmental Protection, and the public at large. We take very seriously our responsibility to dispose of our society's municipal waste in an efficient, economical, and—most importantly—SAFE manner. We have said many times before and now say again that we see ourselves as effective stewards of the environment. We are governed by laws and stringent regulations, and we are committed as businesses and citizens of the Commonwealth to do our jobs in a way that protects and preserves our environment.

As you know, the state amended the solid waste regulations in December 2000, requiring municipal waste landfills to develop approved radiation monitoring plans that include established procedures and the installation of equipment to detect and safely manage radioactive materials that might be present in the waste stream. Our members follow these procedures and interact with the Department of Environmental Protection in a cooperative manner. Our members work hard on a daily basis to live up to their responsibility to protect and preserve our environment. They also work equally hard to protect the health and safety of employees and our communities across this state.

I would now like to introduce Mr. Belanger, who held the position of senior health physicist with the radiation program in Region Three of the United States Environmental Protection Agency from 1981 to 2002. Mr. Belanger is a registered professional engineer. He holds a Bachelor of Science Degree in engineering from Swarthmore College and a Master's Degree in systems and biomedical engineering from the University of Pennsylvania. He is now affiliated with Porter Consultants, Inc. As an expert on the topic of radiation, he is here in his capacity as a consultant to the PWIA.

Mr. Belanger. ...

**Mr. Belanger:**

Thank you, Mr. O'Donnell. Good morning, Senator White, members of the committee, ladies and gentlemen.

As you are aware, the Pennsylvania Department of Environmental Protection recently studied Pennsylvania landfills for the presence of tritium and found that it occurs above background level in the leachate of nearly all such facilities. This finding produced a widespread response around the state, including concern about whether there might be

any potential impact on drinking water. I understand that this issue is generally what has prompted this hearing today.

Let me start, then, by giving you some background on radiation at municipal waste landfills generally, before addressing tritium, specifically. As Mr. O'Donnell mentioned, since December 2000, DEP regulations have required landfill operators to monitor incoming waste for the presence of radioactivity. The regulation is designed to ensure that we have systematic and effective plans in place that protect health and safety. Pursuant to these plans, landfills are required to install detection equipment that scans incoming waste vehicles and sounds an alarm if radiation is present. If a vehicle sets off the alarm, the landfill operator is required to direct the vehicle to a designated area and to identify the type of radioactive material involved. If the material is from the "natural environment" or from an unregulated consumer item or a short-lived radioactive material related to a medical procedure, it may be disposed of at the landfill. This is what DEP calls a Level One Scenario, meeting acceptable DEP regulations for disposal. If the material turns out to be something from another type of source and of a more serious nature, it becomes what DEP terms a Level Two Scenario. In the Level Two Scenario, the landfill operator must contact DEP immediately. DEP will send a health physicist to the scene to identify the material and see that it is either returned to the point of origin or sent to a facility licensed to accept radioactive waste. The waste industry has been cooperating with DEP and fully complying with these regulations governing the monitoring of incoming waste. As reflected in a recent study conducted by DEP, and by my own personal experience, radioactive materials are being dealt with in a safe and responsible manner by the waste industry.

The only radionuclide that seems less controlled at this time is tritium. The challenge with tritium, a radioactive isotope of hydrogen, is that it emits the weakest form of beta radiation—too weak to register on a landfill’s radiation detector and therefore impossible to detect as the material passes by a landfill radiation monitor or any other field instrument. As part of my work with Porter Consultants, Inc., and our combined experience over the last 10 years covering the issue of radiation at landfills, we have responded to hundreds of landfill radiation alarms, none of which has ever been triggered by a tritium source.

So where does the tritium in the waste come from? It is generally believed that debris from renovated or demolished commercial buildings often contains improperly handled or discarded self-luminescent exit signs. These signs contain tritium. Certainly, tritium also is found in a variety of consumer products, such as watches, compasses, instrument dials, and so forth. In addition, tritium is produced naturally in the upper atmosphere and exists as fallout from nuclear weapons testing dating from the 1950s and 1960s. However, these secondary materials and environmental sources do not appear to account for a significant component of the tritium levels measured in landfill leachate. As such, both federal and state agencies have determined that the dominant source for the tritium found in Pennsylvania landfills comes from improperly discarded exit signs. I fully concur with this conclusion.

It is important to understand that external exposure to tritium does not pose a hazard because the weak radiation from it cannot even penetrate the dead outer layer of our skin—although ingestion or inhalation at high concentrations obviously is not desirable. Also, the chance of inhalation of dangerous quantities of tritium from

evaporation of landfill leachate, for example, is remote, and the acceptable concentration of tritium in drinking water is as much as 20,000 picocuries per liter, according to the Environmental Protection Agency (40 CFR 141.16). Note that this drinking water standard applies at the tap, such that any treated wastewater discharge from a landfill to a stream would be greatly diluted before reaching any potential water user. The Department of Environmental Protection has assured the public that, based on its recent study, there is no immediate or long-term threat to public health and safety arising from the presence of tritium in landfill leachate at the tested and measured concentrations.

Let me tell you as straightforwardly as I can that the issue of radioactive material in the waste stream is an evolving topic, since the great majority of buildings with tritium signs have yet to be renovated or demolished. As such, the potential for higher levels of tritium in the future gives us reason to act today, and we are presented at this time with a unique opportunity to nip a potential problem in the bud. Not acting now would cause us to miss that opportunity. Tritium is not a significant problem at this point, and with education and proper enforcement, it need not become one.

The education and enforcement of which I speak refers to ensuring the proper disposal of tritium signs by their owners. Tritium signs are regulated by the NRC—the Nuclear Regulatory Commission, a federal agency. Thus, the formal jurisdiction for addressing this issue lies with the NRC. However, DEP and the waste industry can play important roles in increasing awareness of the precautions that need to be taken and the proper disposal procedures involved.

Those involved with building maintenance or with the renovation or demolition of older buildings may not be aware that exit signs contain radioactive material. Exit signs

destined for disposal are supposed to be returned to the manufacturer or sent to a waste site specifically designated to receive radioactive materials. This may not be well known either. The NRC, in cooperation with the DEP and the waste industry, must do a better job of educating the public.

The only way we can effectively address the tritium issue is to take action before the material enters the waste stream. What can be done after it's in the landfill is extremely limited. We are better off focusing our efforts on making sure that exit signs containing tritium are properly disposed.

The NRC needs to make sure devices containing tritium bear highly visible warning labels with instructions for proper disposal. All of us need to ratchet up the effort to create public awareness of what the proper procedures are and whom to contact for help. The NRC has already begun this process with enhanced controls over generally licensed radioactive materials, but it is difficult for the commission alone to track exit signs in thousands of buildings.

As a consultant to the waste industry, I am well aware that the industry is ready to do its part. The industry can spread the word to its customers. The industry is anxious to work and cooperate with the DEP and the NRC to improve the current situation. But industry must look to the NRC and the DEP to take the lead, and hopes your committee can use its influence to convey that message.

Thank you for giving us this opportunity to speak. I will be happy to take any questions you may have.