

April 28, 2021

To the Permit Manager,

The Southwest Pennsylvania Environmental Health Project (EHP) is a public health organization that provides frontline communities with air and health monitoring, data and research interpretation, and guidance related to shale gas development. We are becoming increasingly concerned about the role of municipal landfills in the UOGD waste stream. Our comments here are specifically aimed at Permit #PA0263664 for the Tri-County Landfill.

We believe that a commitment to public health would mean preventing, halting or mitigating the risks to the community by preventing or reducing exposure to air and water contamination from oil and gas waste. That waste can include (among others) radioactive elements (Radon and Radium-226), metals, VOCs, and brine salts.

Radium-226 dissolves easily in water and is brought to the surface in produced water as part of the liquid waste that returns to the surface with the gas. The decay process gives off unstable atoms in the form of alpha, beta, and gamma radiation. Alpha and beta particles are dangerous when inhaled or ingested. Radioactive compounds with longer half-lives will remain in the body causing cell abnormalities. They can cause cancer in organs or bones.<sup>1</sup> Radium-226 is known to cause lymphomas, leukemia, and bone cancer. Its structure is similar to calcium and the body easily incorporates it into bone tissue. Unstable byproducts of Radium include Polonium-210 and lead-210, which are also carcinogenic. Accepting waste that includes such material, is a legitimate risk that community members fear.

Current federal and state regulations and their implementation are not strong enough to ensure the safety of those in the area. The only way to truly protect the public from radioactive waste is to completely isolate and contain it, and this can't effectively be done at a municipal landfill. Liners, Covers, and Leachate Pipes: The equipment at landfills used to contain waste are not suitable for harmful products. Covers and liners can wear out after years of use, and runoff pipes can clog and cause backups of toxic liquids. In addition, according to the "Subtitle D Rule" of the Hazardous and Solid Waste

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<sup>1</sup> "17.3: Types Of Radioactivity: Alpha, Beta, And Gamma Decay". Chemistry Libretexts, 2018, [https://chem.libretexts.org/Bookshelves/Introductory\\_Chemistry/Map%3A\\_Introductory\\_Chemistry\\_\(Tro\)/17%3A\\_Radioactivity\\_and\\_Nuclear\\_Chemistry/17.03%3A\\_Types\\_of\\_Radioactivity%3A\\_Alpha%2C\\_Beta%2C\\_and\\_Gamma\\_Decay](https://chem.libretexts.org/Bookshelves/Introductory_Chemistry/Map%3A_Introductory_Chemistry_(Tro)/17%3A_Radioactivity_and_Nuclear_Chemistry/17.03%3A_Types_of_Radioactivity%3A_Alpha%2C_Beta%2C_and_Gamma_Decay). Accessed 15 Feb 2019.

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Amendments of 1984, companies are only required to maintain inactive landfills for thirty years after closure. This regulation was made despite the EPA's knowledge that landfill liners, covers, and leachate pipes, were only meant to last a few decades at most.<sup>2</sup>

We understand that each PA landfill is equipped with a drive-through radiation detector for waste entering the site; however, these detectors only detect gamma radiation, not alpha or beta radiation. Because of this, substances that emit alpha and beta radiation can enter landfills and may eventually enter the environment. When radiation levels are high, further laboratory testing can be done, but these methods can give false readings when levels of salt and organic compounds are present, as is the case with waste from shale gas.<sup>3</sup> Monitoring leachate, in particular, would have to be a top priority.

Before a permit is granted for the Tri-County Landfill National Pollutant Discharge Elimination System, a number of questions should be answered. These include:

- What radioactive compounds will be accepted and what is the possible accrual of radioactive material over time?
- What other toxics will be brought in as UOGD waste?
- Can containment plans be truly protective?
- Can discharge plans be truly protective?
- What soil and water monitoring plans can be put in place to ensure that risks are not introduced?
- Will a thorough study of potential harm from flaring be conducted?
- Given the risks introduced by oil and gas waste, is the site at a health-protective distance from homes, schools, elderly care facilities and workplaces?
- Have chronic and episodic exposure risks to children been addressed? Have health risks to adults been addressed?

Until these questions can be adequately answered in a way that protects the residents in the area, as well as those further out who may experience downstream exposures, we urge you not to authorize permit #PA0263664.

Sincerely,

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<sup>2</sup> "Landfill Leachate, Landfill Groundwater Contamination, Impacts Of Landfill Groundwater." beyondlandfilling.org, 2019, <http://www.beyondlandfilling.org/landfill-groundwater-impacts.html>.

<sup>3</sup> Ibid.