

From: [Joel Geier](#)
To: [Coffin Butte Landfill Appeals](#)
Subject: LU-24-027: PFAS emissions in landfill-gas energy projects
Date: Monday, October 20, 2025 4:46:04 PM
Attachments: [BIOGAS pfas letter final.pdf](#)

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Dear Commissioners Wyse, Malone, and Shepherd,

As part of the Republic Services' public-relations campaign you have received multiple letters citing the landfill-gas-driven electrical generators at Coffin Butte Landfill.

I understand that recently (in March, 2025) you also heard a presentation by a representatives of PNGC, proposing to develop a biogas facility at Coffin Butte.

Although sometimes touted as such, landfill gas is not "clean" energy. PFAS ("forever chemicals") which are found in high concentrations in landfill gas are not destroyed in the combustion process. One of the recent meetings by Benton County DSAC included a very informative presentation by Prof. Jennifer Field on this topic.

The attached PDF gives a letter from an Idaho public-interest non-profit, summarizing the issues related to landfill biogas production. This evidence suggests that the existing turbines at Coffin Butte are already spreading PFAS in the environment, and a biogas facility supported by the proposed landfill expansion would just make the problem worse.

A much better path to biogas production would be to divert organic waste from Coffin Butte landfill, and to support the development of separate facilities such as anaerobic digesters. Compared to landfill gas collection systems, these have the advantage that leakage of methane to the environment is minimal, and the resulting gas is less laden with toxins.

By upholding the wise decision of your Planning Commission to deny an expansion, **you might even provide a positive incentive for efforts to divert organic waste from the existing Coffin Butte landfill**, as way to conserve space. That would be a win-win both for Benton County residents and for the planet at large.

Yours sincerely,
Joel Geier
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January 24, 2024

Dear BioGas Development management team:

I am writing you today on behalf of Citizens Allied for Integrity and Accountability (C.A.I.A.), an Idaho all-volunteer, nonpartisan, nonprofit organization which advocates for protecting public health and safety, property rights and natural resources for present and future generations of Idahoans.

We have heard about your plan to distribute landfill gas produced by the Ada County Regional Landfill for domestic use in area residences. We understand that landfill gas is a potent greenhouse gas that must be disposed of in some manner, and agree that its distribution into existing supply lines for heating and cooking is one of the most efficient uses of the energy source.

That said, we also have serious concerns regarding the potential for contaminants to be carried into residences. You may be aware of recent research that found alarmingly high levels of volatile, neutral PFAS in three municipal solid waste landfills¹, as the findings made headlines in the American Chemical Society,² and science³ and industry newsletters.^{4,5}

High Levels of PFAS in Landfill Gas

To briefly illustrate the potential magnitude for harm, consider the presence of a single analyte found among the many types of PFAS in landfill gas: 8:2 FTOH. This volatile fluorotelomer consistently exceeded instrument calibration, so that only a lower limit above 6,000 ng per cubic meter of landfill gas was directly measured, while extrapolation from the fraction of this PFAS from the total fluorine mass measured pointed to levels as high as 740,000 ng per cubic meter.

¹ Landfill Gas: A Major Pathway for Neutral Per- and Polyfluoroalkyl Substance (PFAS) Release Ashley M. Lin, Jake T. Thompson, Jeremy P. Koelmel, Yalan Liu, John A. Bowden, and Timothy G. Townsend. Environmental Science & Technology Letters 2024 11 (7), 730-737

² Some landfill 'burps' contain airborne PFAS, study finds. American Chemical Society. 2024. From <https://www.acs.org/pressroom/presspacs/2024/june/some-landfill-burps-contain-airborne-pfas-study-finds.html>

³ Landfills belch toxic 'forever chemicals' into the air. Science News. 2024. From <https://www.sciencenews.org/article/landfills-toxic-forever-chemicals-pfas>

⁴ PFAS Emissions from U.S. Landfills Pose a Silent Environmental Crisis. 2024. From <https://www.environmentenergyleader.com/stories/pfas-emissions-from-us-landfills-pose-a-silent-environmental-crisis,48301>

⁵ Four Landfill Studies to Follow this Summer. Waste Dive 2024. From <https://www.wastedive.com/news/landfill-roundup-july-pfas-coffin-butte-oregon-brookhaven-new-york-landfill-scs-volusia-florida/723786/>

This is an extraordinarily high concentration of a dangerous chemical. The 8:2 FTOH fluorotelomer is a precursor to PFOA⁶ – either through degradation in the environment, or by metabolism in the body once inhaled.⁷

The authors of the Florida study were not aware of any reason that the three sampled landfills in the study would differ from the typical municipal solid waste landfill in the United States. Boise municipal wastewater has the typical level of PFAS in its effluent, and unless testing proves otherwise, we should also assume that the Ada County Landfill has a PFAS profile typical of municipal solid waste.

Forever Chemicals

PFOA and PFOS are the two types of PFAS recently given hazardous substance designation under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Accordingly, these two PFAS are the most strictly regulated by new legal standards at 4 ng per liter (4 parts per trillion) in drinking water, with the health advisory level for PFOA a remarkable 0.004 ng per liter, making clear that there is no known safe level of consumption of this chemical over a lifetime.

The Danger

Regarding the volatile precursor found in landfill gas, a study of occupational exposure of 8:2 FTOH found that an upper concentration of the airborne chemical at 92,000 ng per cubic meter (described as ‘extremely high’) was correlated with high, persistent levels of blood concentrations of PFOA as much as 400 times higher (up to 635 ng/mL) in exposed workers than the general population.⁸

The potential for significant harm from PFOA blood contamination starts at much lower concentrations:

⁶ Huang MC, et al. Toxicokinetics of 8:2 fluorotelomer alcohol (8:2-FTOH) in male and female Hsd:Sprague Dawley SD rats after intravenous and gavage administration. *Toxicol Rep.* 2019 Aug 20;6:924-932

⁷ Titaley, Ivan. (2024). Chemical transformation, exposure assessment, and policy implications of fluorotelomer alcohol partitioning from consumer products to the indoor and outdoor environment—from production to end-of-life. *Environmental Science: Advances.* 3. 1364-1384.

⁸ Nilsson H, Kärman A, Rotander A, van Bavel B, Lindström G, Westberg H. Biotransformation of fluorotelomer compound to perfluorocarboxylates in humans. *Environ Int.* 2013 Jan;51:8-12.

“Overall, the available evidence indicates that PFOA exposure is likely to cause hepatic, immunological, cardiovascular, and developmental effects in humans, given sufficient exposure conditions (e.g., at measured levels in humans as low as 1.1 to 5.2 ng/mL.”⁹

The Potential Magnitude of Exposure

If an average household consumes 200 therms per month of natural gas during the winter, and landfill gas contains the upper concentration of this fluorotelomer, and if their entire heating and cooking used this gas undiluted without PFAS removed, the amount of this single type of PFAS entering their home could be on the order of a gram per month. And because household appliances do not operate at temperatures approaching the high combustion temperature of these stable chemicals, much of the ‘forever chemical’ may remain in the home. This would be a stunning level of a metabolic precursor to a hazardous substance with a drinking water health advisory given in *quadrillionths* of a gram.

This form of PFAS – 8:2 FTOH – is just one of many PFAS found in landfill gas – notably 6:2 FTOH was also found in high concentrations, and is also considered one of the more dangerous volatile PFAS precursors¹⁰ that has been phased out in food packaging¹¹. On the other hand, the landfill gas will likely be diluted, and, with luck, the treatment system already used to remove hydrogen sulfide may remove a significant portion of the PFAS as well.

But it is not our intent to calculate the full extent of the hazard here– rather it is to call attention to the high level of risk inherent in distributing landfill gas into area residences.

An Opportunity

While we want to make the risks clear, we do not want to stop there. The problem of landfill gas, both as a potent contributor to climate change, and as a carrier of large amounts of toxic PFAS, already exists. The current collection and flaring of landfill gas converts the methane to carbon dioxide without capturing the energy, and while the combustion engines do produce electricity, neither system prevents the dispersion of ‘forever chemicals’ into the Treasure Valley,

⁹ Human Health Toxicity Assessment for Perfluorooctanoic Acid (PFOA) and Related Salts. EPA.gov 2024. From <https://www.epa.gov/sdwa/human-health-toxicity-assessment-perfluorooctanoic-acid-pfoa>

¹⁰ Rice PA et al. Evaluating the toxicokinetics of some metabolites of a C6 polyfluorinated compound, 6:2 fluorotelomer alcohol in pregnant and nonpregnant rats after oral exposure to the parent compound. Food Chem Toxicol. 2024 Jan;183:114333.

¹¹ FDA Announces the Voluntary Phase-Out by Industry of Certain PFAS Used in Food Packaging. FDA.gov 2020. From <https://www.fda.gov/food/hfp-constituent-updates/fda-announces-voluntary-phase-out-industry-certain-pfas-used-food-packaging>

as neither the flare or engines are hot enough to significantly combust the carbon-fluorine bonds of PFAS.¹²

Regulatory agencies have been caught flat-footed by the presence of high levels of PFAS in landfill gas, and are unlikely to be able to respond in a timely manner with common sense.

C.A.I.A. understands that your intent to collect and distribute cleaned landfill gas may be the best solution – and a win for all – if the product is consistently monitored for PFAS, and any additional filtration system or more frequent cycling of media is used as necessary to remove it. It may be that the activated carbon in the hydrogen sulfide cleaning system already achieves much of the goal, and we certainly hope that it will, but hope alone is not enough. Dealing with the problem of this potential magnitude will be a challenge.

We hope that your company will agree that providing Ada County a full solution to this challenge is also an opportunity. It is certain that the biogas industry will need to address these CERCLA designated hazardous liabilities – and doing so sooner rather than later will be in everyone's best interest.

If your company will monitor PFAS in a transparent way, even while not yet legally required, and take the steps necessary to neutralize the threat to residential consumers, you could become a true pioneer and leader in the field. Moreover, you would be capturing a very problematic contaminant at a point source, and preventing it from dispersing into the environment as it does today. And finally, as you know, you would be doing this along with efficiently utilizing the energy in waste-produced gas, preventing it from contributing to climate change, even while providing a revenue source for the county landfill operations. That would be a remarkable outcome.

We look forward to your response.

Warmest regards,

Shelley Brock
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¹² “Interim Guidance on the Destruction and Disposal of Perfluoroalkyl and Polyfluoroalkyl Substances and Materials Containing Perfluoroalkyl and Polyfluoroalkyl Substances— Version 2” EPA.gov. 2024. From <https://www.epa.gov/system/files/documents/2024-04/2024-interim-guidance-on-pfas-destruction-and-disposal.pdf>