



Jean Mendoza

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Renewable Natural Gas

November 4, 2022

Dear Yakima Regional Clean Air Agency Directors,

At your November board meeting please discuss plans for construction of digesters in the Lower Yakima Valley (LYV) that propose refining manure biogas into renewable natural gas (RNG). The Yakima Regional Clean Air Agency (YRCAA) has a mandate to educate the people of Yakima County regarding air pollution and to protect the people of Yakima County from air pollution.

Things We Know:

- The 90,000 milk cows in the LYV produce enough methane to make it profitable for investors to plan construction of million dollar manure digesters in our neighborhoods.
- For the past several decades this volume of methane has been released into the ambient air in the LYV untreated.
- For every ton of methane that digesters can capture and process, three tons of methane from cows will be released into the air untreated.¹
- Methane is not toxic to people unless there is so much methane that it displaces oxygen and causes asphyxia.²
- When manure is stored in anaerobic lagoons, microbes convert volatile organic compounds (VOCs) in the manure into methane.
- There are aerobic microbes and anaerobic microbes in manure. Aerobic microbes feed on VOCs in the presence of oxygen while anaerobic microbes only function in the absence of oxygen.
- Manure that is managed in the presence of oxygen does not produce the methane that proposed digesters plan to capture.
- Hydrogen sulfide and ammonia are hazardous air pollutants that damage human health in proportion to the concentration of these compounds in the air we breathe.
- Hydrogen sulfide in manure biogas must be scrubbed from the biogas to deliver the refined RNG.
- Manure digesters produce additional ammonia as a by-product during manure digestion. Warmer temperatures equal more ammonia.
- VOCs and methane are precursors to ozone, a criteria air pollutant.
- "Breathing ground-level ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ozone also can reduce

lung function and inflame the lining of the lungs. Repeated exposure may permanently scar lung tissue.”³

· “Ozone causes considerable damage to plants around the world, including agricultural crops and plants in natural ecosystems. Ozone damages plants by entering leaf openings called stomata and oxidizing (burning) plant tissue during respiration. This damages the plant leaves and causes reduced survival.”^{3, 4}

· The digestate from manure digesters also emits air pollutants.

Questions:

· Planners predict there will be 105 round trips a day at one proposed facility to deliver manure and remove digestate. How will this impact air quality and traffic patterns?

· Who will pay for maintenance of the roads to handle this traffic?

· Will the manure delivered by trucks be covered?

· Can regulators require fence-line monitoring of air quality around digesters to protect neighbors from gas leaks?

· What safety rules can be required to address leaks within the facilities?

· Can regulators require air monitoring similar to ammonia monitoring at cold storage facilities?

· Can regulators require development of plans to deal with potential methane explosions?

· Can permits be issued contingent upon robust insurance policies that will cover injury and death in the event of leaks or explosions?

· How will officials monitor manure digesters for compliance with safety rules?

· How will the YRCAA measure downstream emissions from storage, management, and transport of digestate?

· Does the YRCAA know how much methane is emitted into the atmosphere every year from LYV milk cows? How much hydrogen sulfide? How much ammonia? How much VOC?

· Ozone is a criteria pollutant. Does the YRCAA monitor ozone in the LYV? Does the YRCAA use models to estimate how much ozone is in the LYV air? If so, does the YRCAA take periodic measurements to make sure the models are accurate?

· How does the YRCAA assess the impact of methane, ozone, and other pollutants on human health in the LYV?

· How does the YRCAA assess the impact of methane, ozone, and other pollutants on plant health in the LYV?

· Does the YRCAA have the resources and adequate staff to complete a robust Environmental Impact Statement (EIS) for proposed manure digesters?

· Does a robust EIS require input from someone with expertise in human health? In plant and animal health?

- How will the YRCAA inform the public about risks and benefits from manure digesters?
- The WA Climate Commitment Act (CCA) requires expenditure of a certain percentage of green energy monies in overburdened communities. Do manure digesters qualify?
- In the October 2022 YRCAA Board Packet there is a statement on page 52/58 saying, “the HEAL Act is not applicable to the YRCAA and the latter is statutorily prohibited from voluntarily adopting its requirements.” This statement is most likely incorrect. Who provided this advice to the YRCAA?
- Will the permitted digesters in the LYV be required to cover their manure lagoons?
- Will the permitted digesters in the LYV use dead calves as feedstock?

Thank you in advance for looking at the risks, benefits, and air impacts of manure digesters in the LYV.

Jean Mendoza

¹ U.S. Methane Emissions Reduction Plan, Page 11 <https://www.whitehouse.gov/wp-content/uploads/2021/11/US-Methane-Emissions-Reduction-Action-Plan-1.pdf>

² Methane (CH₄) Agri-Facts.

[https://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/agdex9038/\\$file/729-2.pdf?OpenElement&fbclid=IwAR1kqzolBzj46xk1fyTuQULkl3dsQYdDI8LIcnVLbVhEPQ33Hlycl7v_c](https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex9038/$file/729-2.pdf?OpenElement&fbclid=IwAR1kqzolBzj46xk1fyTuQULkl3dsQYdDI8LIcnVLbVhEPQ33Hlycl7v_c)

³ Iowa Department of Natural Resources. <https://www.iowadnr.gov/Environmental-Protection/Air-Quality/Air-Pollutants/Effects-Ozone#:~:text=Breathing%20ground%2Dlevel%20ozone%20can,may%20permanently%20scar%20lung%20tissue>

⁴ National Park Service. <https://www.nps.gov/subjects/air/nature-ozone.htm#:~:text=Ozone%20causes%20considerable%20damage%20to,leaves%20and%20causes%20reduced%20survival>