July 6, 2023

Planning & Community Development
818 East Edison Avenue
Sunnyside, Washington 98944

Dear City of Sunnyside:

This is an appeal of the City of Sunnyside's Mitigated Determination of Non-Significance (MDNS) for a proposed manure bio-digester to be located in the vicinity of 2711 and 334 Sunnyside Mabton Highway. The SEPA Number is SEPA-2022.0200 and the applicant is Sunnyside Renewable Natural Gas (RNG). If this letter is not sufficient, please provide instructions with the proper format and pathway so we can submit our appeal in the prescribed manner.

Friends of Toppenish Creek (FOTC) is a 501 C (3) non-profit group located in Yakima County, mailing address 3142 Signal Peak Road, White Swan, WA. We make this appeal because the proposed SS RNG project will:

1. Increase public expenditures to:
    a. upgrade and maintain state and county roadways used to transport materials to and from the proposed operation.
    b. Incentivize one form of manure management that is arguably more costly than alternative methods.[1, 2]
2. Inflict manure spills on residents who live near the roads traveled by vehicles that transport manure to the proposed operation. Manure spills on public roadways, even on areas where children wait for school busses, are well known to the people who live near concentrated animal feeding operations (CAFOs).
3. Increase air pollution in South Yakima County by potentially increasing the number of milk cows in the area, by increasing air emissions from vehicles that transport materials to and from the proposed operation, by increasing emissions of toxic air pollutants[3] from the proposed operation.
4. Increase risk of explosions and fires at the Port of Sunnyside without ensuring adequate safety precautions. Assurances in the documents we have reviewed are vague and unenforceable. Methane leaks from improperly maintained operations are commonplace and risks increase as time passes and equipment ages.[4] Although the chances of explosions are low, the consequences of explosions when they occur can be deadly.

5. Increase groundwater pollution at the Port of Sunnyside. A LYV GWMA monitoring wells with one of the highest LYV nitrate concentrations is on the Port of Sunnyside.[5] There are insufficient guarantees that stormwater and wastewater from the facility will not leach into the already contaminated aquifer.

The MDNS is premature and incomplete because:

1. Interested parties, such as FOTC, did not receive notice of the proposed SEPA review through public notices in the media, or by notification from agencies that are aware of our concerns.
2. Interested parties, such as FOTC, have not received and have not been able to review relevant documents cited in the MDNS.
3. There is no documentation of conversations with the Yakima Health District, the agency tasked with protection of public health in Yakima County. Without this input it is not possible to know how this project will:
    a. Impact those who live in the immediate vicinity through increases in toxic air pollutants such as ammonia and hydrogen sulfide at the fenceline, and exposure to manure pathogens.
    b. Impact those who live distant from the proposed facility through increases in greenhouse gasses including nitrous oxide, increases in criteria air pollutants including fine particulate matter and ozone, and increases in toxic air pollutants including ammonia and hydrogen sulfide.
4. The SEPA checklist states on page 3/13, "Digestate and other residues produced at the plant will be carefully managed, along with strict wastewater management, emissions management, odor control and other state-of-the art practices." This statement provides insufficient information for the public to evaluate adequacy of the "state-of-the art practices." Those proposed practices must be identified so citizens can evaluate whether all Reasonable Available Control Technology (RACT) will be achieved.[6, 7, 8, 9]
5. The SEPA checklist does not estimate the cumulative impacts when a manure bio-digester is located next to a mushroom factory with known air emissions and odor problems that the Yakima Regional Clean Air Agency (YRCAA) refuses to address.[10]
6. The SEPA checklist states that the digestate lagoon will be lined. The checklist does not state whether this will be a clay liner or a synthetic liner. The checklist does not provide permeability criteria for proposed lagoon liners.
7. The SEPA checklist does not provide parameters for a "gas tight" cover for the digestate lagoon. How much gas will escape from the proposed cover?
8. The SEPA Checklist asks: "What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known?" The application answers this question for construction. What about operation and maintenance? Manure bio-digesters increase conversion of organic nitrogen to ammonia as part of routine

operations.[11] This information is available to the applicants and should have been answered in the SEPA checklist.

9. The SEPA checklist does not quantify the amount of ammonia, hydrogen sulfide, volatile organic compounds, and particulate matter that will be released into the atmosphere during on farm production of the manure that will be processed to extract RNG.
10. The SEPA checklist does not quantify the amount of nitrogen oxides (NOx) that will be released into the atmosphere during transport of manure to the facility and transport of digestate from the facility.
11. The SEPA checklist does not quantify the amount of ammonia, hydrogen sulfide, volatile organic compounds, and particulate matter released into the atmosphere by digestate from the operation, both at the site and after transport offsite.
12. Regarding air emissions the SEPA checklist states: "Background concentrations will be accounted for in the Air Permit." The area surrounding the Port of Sunnyside already has problems with air emissions and odor. Using the current air quality as a baseline is not the same as defining a baseline with healthy air. Adding emissions from a manure bio-digester could push air quality at the fenceline above standards for human health.
13. The SEPA checklist states on page 4, "These emissions quantities are being refined currently as part of the Clean Air Permit Application with Yakima County." This is likely incorrect. To the best of our knowledge an application for an air quality permit has been withdrawn and has not been resubmitted. The public cannot form an opinion about air quality risks without the information in an up to date air quality permit application.
14. There are many unanswered questions, such as:
    a. Will manure transported to the digester be covered or open to the air?
    b. What size and type of trucks will transport cellulosic materials and manure?
    c. What is the anticipated weight of each incoming truckload?
    d. Will the SS RNG ask for an overweight exemption?
    e. Will truck drivers possess Commercial Drivers Licenses (CDLs) or will the SS RNG use the agricultural exemption for drivers who transport agriculture goods?
    f. What air monitoring will be installed?
    g. Which air emissions will be monitored?
    h. What is the predicted composition of the tail gas that is vented to the atmosphere?
    i. Will there be fenceline monitoring to provide early warning if leaks pose a danger to neighbors?
    j. What system will be in place to detect significant methane leaks within the plant at the earliest moments?
    k. Why is there only one flare, as opposed to five flares in earlier plans?
    l. What emergency management and firefighting protocols will be in place? [12, 13]
    m. What equipment, training, alarms, will be used to address potentially dangerous levels of methane, hydrogen sulfide, and other air contaminants on the site?

n. How long will the digesters operate in the mesophilic range? How long will the digesters operate in the thermophilic range? This makes a difference in how many pathogens are destroyed by digestion.
o. How will settled solids be removed from the digesters, and what is the planned process?
p. How much digestate will be stored on site at any given time?
q. How will the solid fraction of digestate be stored prior to transport?
r. How will liquid digestate be transported off site?
s. Which rules, regulations and permitting apply to the proposed lagoon?
t. What are the anticipated emissions from the solid fraction of digestate and how will they be managed?
u. Will liquid and solid digestate transported away from the project be covered or open to air?
v. How will dairies store digestate during winter months when they cannot apply it to fields as fertilizer?
w. Are there any requirements in place that ensure digestate will be applied to fields at agronomic rates?
x. Will the facility have sufficient insurance to compensate the families of workers who might be injured or die in a fire or explosion on the facility?
y. What protocols will be in place to ensure proper maintenance as the equipment ages?[14]
z. Will the proposed RNG facility digest the carcasses of unwanted farm animals?
aa. Who will monitor the facility to ensure that daily operations are conducted in a safe manner, and how will they do this?
bb. Will this SEPA review be used when the Yakima Regional Clean Air Agency decides whether to issue an air quality permit? If so, the early determination of mitigated non-significance makes it difficult to meet the requirements for public involvement for issuing an air permit.
cc. Each of these questions must be answered before the public has enough information to provide input. Therefore an Environmental Impact Statement is needed.

15. The SEPA Checklist states on page 9, "The project will generate direct and indirect tax revenue of approximately $6 million annually to support schools and other community services." But there is no detail. Meanwhile, this project is eligible for tax exemptions under RCW 82.34, RCW and RCW 82.08. The public needs better information.

Here are important facts related to risks and benefits from the proposed Sunnyside Renewable Natural Gas bio-digester.

1. According to the EPA[15] manure management is responsible for 8% of U.S. methane production and enteric fermentation is responsible for 25%. This means that for every ton

of methane processed by anaerobic digestion, three tons are emitted into the atmosphere by the animals and escape capture.

   a. Addition of a few thousand cows to the approximately 90,000 already in the area will likely increase methane emissions by enteric fermentation to a point where increased enteric emissions cancel out any proposed benefits from manure digestion.
   b. Reduction in methane emissions equal to those touted for manure digesters could be achieved at lower cost by not storing cow manure in lagoons, by promoting alternative methods of manure management.

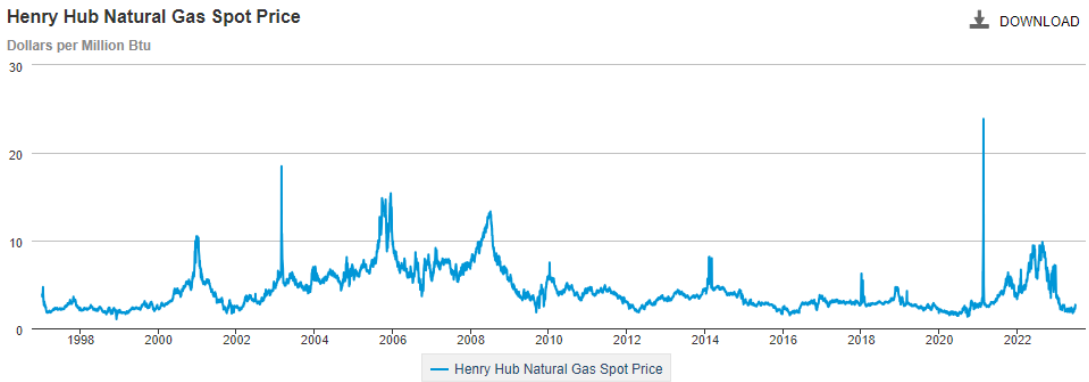
2. Some experts point out that farmers may enjoy more profits from processing manure methane than from the sale of milk. Hoards Dairyman [16] says:

   a. *The profit generated by manure and energy is a new dynamic for dairy farms. A common arrangement is for a third party to invest in the digester and form an agreement with one or more dairy farms for a supply of manure. These contracts can be for 10 to 15 years or longer and pay $80 to $100 per cow per year or more. For a 3,500-cow dairy, that means $350,000 per year or 40 cents per hundredweight based on an 80 pound per day tank average*.
   b. This may be good for some (but not all) dairies, but officials should conduct a comprehensive Environmental Impact Statement to evaluate associated costs in water pollution and air pollution and human health when the number of cows increases.

3. Manure bio-digesters increase emission of some air pollutants. Manure bio-digesters produce and release carbon dioxide, a greenhouse gas. Manure bio-digesters convert organic nitrogen into ammonia and release it into the ambient air.[1, 2]
4. Proponents of alternative manure management argue that, compared to anaerobic digestion, manure solids separation provides a larger reduction in greenhouse gas emissions at lower costs. California research[1] says:

   > *While digestate left after anaerobic digestion is more stable than the original manure feedstock, it can still produce methane and other gaseous emissions from the biological decomposition of residual nutrients. Holly et al. reported that mesophilic anaerobic digestion reduces the emissions of CH_4 but increases the emissions of both NH_3 and N_2O during the storage of digestate. They found that solid–liquid separation, using a screw press, was more effective in reducing the emissions of methane than anaerobic digestion due to the low performance of the digester. Compared with storing raw manure, the reduction of methane emissions from storage was 25%, 46%, and 68% for the anaerobic digestion alone, solid separation alone, and anaerobic digestion followed by solid–liquid separation.*

5. Almost all LYV dairies already have some form of manure solids separation. The SS RNG proposal does not describe changes that must occur on LYV dairies to produce the slurry required to feed the proposed digester.
6. The plan calls for up to 140 round trips per day by heavy duty trucks hauling manure and cellulosic material to the facility and trucking digestate back to the farms. To understand the total impact of an RNG operation officials must conduct an Environmental Impact Statement that calculates the amount of diesel fuel burned by the trucks and the amount of NOx and other emissions produced by transport. NOx combines with volatile organic compounds to produce ozone, a criteria pollutant that is not mentioned in the SS RNG SEPA checklist.
7. In the spring of 2022 Monitoring Well PS-MW-9, LYV-PS-031, located on the Port of Sunnyside property, had nitrate levels at 84 mg/L according to Ecology's Environmental Information Management Data Base.[5]
8. By FOTC calculations it takes 21,855,360 m^3 of methane to produce 800,000 MMBTU of RNG.[17] And it takes about 50,000 milk cows to produce this much manure methane if each cow produces 125 lbs of manure a day.[18] It takes over 59,000 milk cows to achieve 950,000 MMBTU of RNG.
9. Economic data provided in the SEPA checklist only looks at current numbers. But the price of natural gas fluctuates widely over time.[19]
    a. Between 1994 and 2023 the spot price for natural gas ranged from $1.44 per MMBTU (Dec. 7, 1998) to $23,86 per MMBTU (Feb. 16, 2021).
    b. Between 2000 and 2023 the spot price for natural gas ranged from $1.74 per MMBTU (March 2, 2020) to $23,86 per MMBTU (Feb. 16, 2021).



10. What are the implications for the Port of Sunnyside if profits from natural gas decline and the operation is no longer viable?
11. Under Washington's Climate Commitment Act, "Offset projects include things such as reforestation, planting trees in urban areas, and capturing methane on dairy farms. And because greenhouse gas emissions affect the entire atmosphere, even projects in another country can help us fight climate change here in Washington." [20] Profits from selling

offset credits will decline over time. Offsets are not a reliable source of income for bio-manure RNG facilities in the long term.

12. Mismanagement of biogas facilities happens.[21]

    The U.S. Environmental Protection Agency (EPA) and Nebraska Department of Environment and Energy conducted multiple inspections of the Big Ox Energy facility in 2017 and 2018. The agencies found that the facility was releasing hazardous amounts of biomass and biogas. On at least 16 occasions between 2017 and 2019, biomass released from the digesters went over the sides of the facility's roof and onto the ground where it mixed with stormwater, resulting in discharges to adjacent properties and into nearby water bodies. In 2018, a facility malfunction resulted in 80,000 gallons of biomass overflowing from the digesters. These discharges resulted in emissions of biogas, an extremely hazardous substance. Air monitoring conducted by EPA determined that the facility was emitting methane at levels that were flammable and hydrogen sulfide in amounts that could result in injury or death from inhalation.

    Violations included:

    - *Failure to design and maintain a safe facility*
    - *Improper maintenance of digesters*
    - *Failure to control accidental releases of extremely hazardous substances*
    - *Violations of air emission standards*
    - *Causing the Sioux City wastewater treatment plant to exceed water quality limits*
    - *Failure to comply with EPA- and state-issued compliance orders*
    - *Unauthorized discharges into local water bodies*
    - *Failure to comply with air and water permits*

The Friends of Toppenish Creek ask officials not to rush to approval of this project that would change the landscape of South Yakima County for years to come. Please be careful and thoughtful when making these decisions.

Thank you for considering our concerns.

Executive Director
Friends of Toppenish Creek

3142 Signal Peak Road
White Swan, WA 98952

[1] El Mashad, Hamed M., et al. "Anaerobic Digestion and Alternative Manure Management Technologies for Methane Emissions Mitigation on Californian Dairies." *Atmosphere* 14.1 (2023): 120. https://www.mdpi.com/2073-4433/14/1/120

[2] Holly, Michael A., et al. "Greenhouse gas and ammonia emissions from digested and separated dairy manure during storage and after land application." *Agriculture, Ecosystems & Environment* 239 (2017): 410-419. https://www.sciencedirect.com/science/article/pii/S0167880917300701

[3] WAC 173-460

[4] U.S. Public Interest Research Group, 2022. Methane Gas Leaks at https://pirg.org/resources/methane-gas-leaks/

A gas pipeline incident occurs somewhere in the U.S. approximately every 40 hours. From 2010 through nearly the end of 2021, almost 2,600 pipeline incidents related to the release of gas occurred in the United States that were serious enough to be reported to the federal government, 328 of which resulted in explosions. Those explosions and fires killed 122 people and injured 603.

[5] WA Ecology. Environmental Information Management Data Base. Study ID – MRED0005 https://apps.ecology.wa.gov/eim/search/Groundwater/GWSearch.aspx?SearchType=Groundwater&State=newsearch&Section=all

[6] Since the Yakima Regional Clean Air Agency does not regulate emissions from dairies it is difficult to imagine a scenario in which Reasonable Available Control Technology (RACT) is required for digestate management.

[7] See RCW 70A.15.1005

[8] See RCW 70A.15.1070

[9] See RCW 70A.15.2230

[10] From a citizen complaint to YRCAA on July 22, 2021:

Description alleged violation: CP says that Ostrom Mushroom facility is causing extremely bad "rotting" odors.

Findings: I parked in the parking lot for about 10 minutes and did not smell any "rotting odors". Odor level 1 – no odors present.

Actions Taken: RL-4 Ostrom Mushrooms is an agricultural entity and thus is exempt from odor and dust complaints as stated in RCW 70A.15.4530

[11] Livestock and Poultry Environmental Learning Community. Transformation and Agronomic Use of Nutrients From Digester Effluent. 2019. https://lpelc.org/transformation-and-agronomic-use-of-nutrients-from-digester-effluent/

[12] National Library of Medicine. Methane. https://www.ncbi.nlm.nih.gov/books/NBK208285/ Methane is flammable and explosive at concentrations between 5% and 15% at room temperature in the presence of oxygen.

[13] Frontier. Methane Gas Leaks. 2022. https://frontiergroup.org/resources/methane-gas-leaks/#:~:text=From%202010%20through%20nearly%20the,122%20people%20and%20injured%20603

[14] The Detroit News. An old problem: Aging pipes lead to deadly explosions. 2018. https://www.detroitnews.com/story/news/nation/2018/09/14/old-problem-aging-pipes-lead-deadly-explosions/37821387/

[15] U.S. Environmental Protection Agency. Overview of Greenhouse Gasses. https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

[16] Hoards Dairyman. Energy revenue could be a game changer for dairy farms. 2021.

[17] Learn Metrics. Natural Gas MMBTU to m^3 and m^3 to MMBTU Calculator at https://learnmetrics.com/mmbtu-to-m3-m3-to-mmbtu/

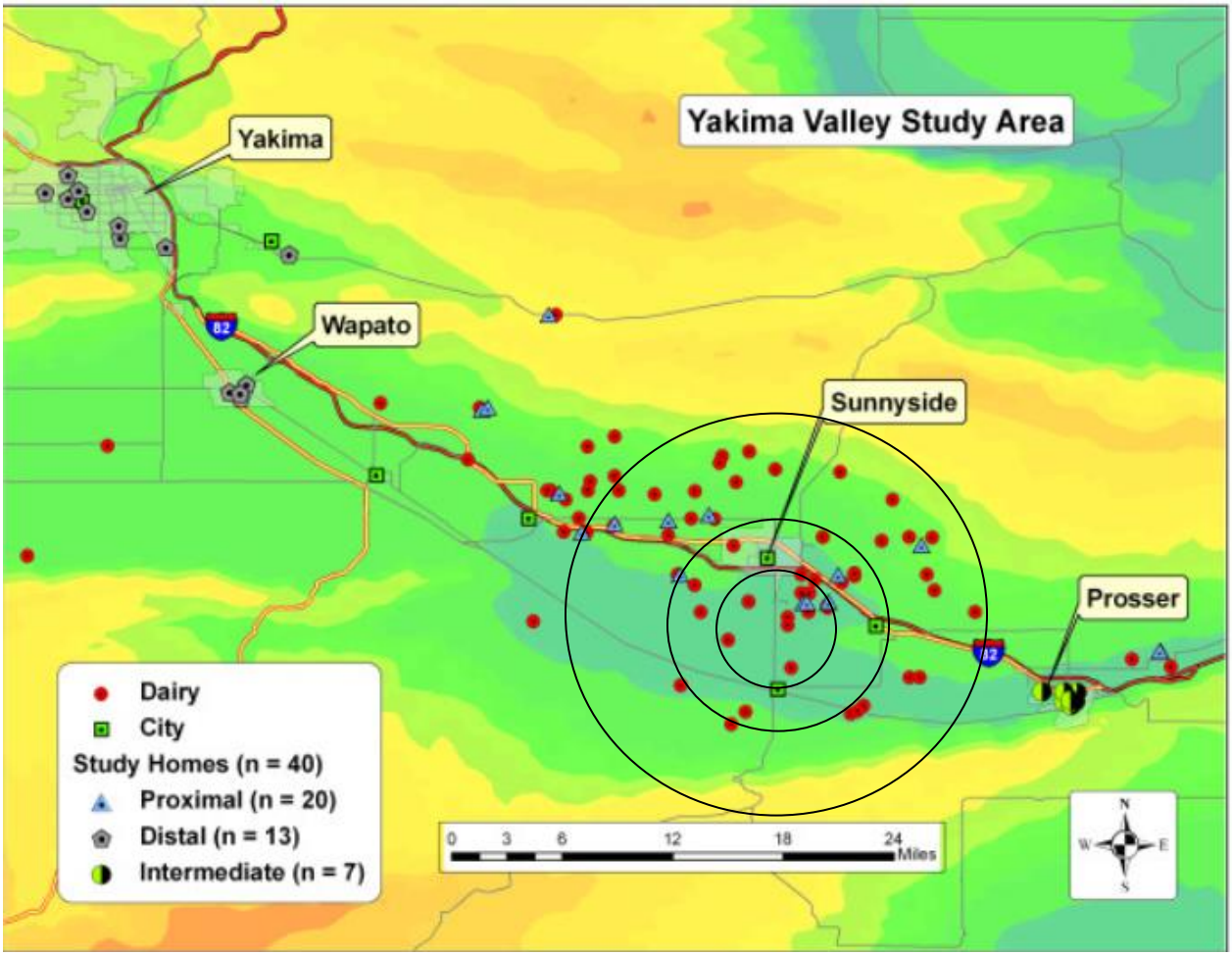
[18] Pennsylvania State University. Biogas from Manure. 2023. https://extension.psu.edu/biogas-from-manure

[19] U.S. Energy Information Administration. Natural Gas. 2023. https://www.eia.gov/dnav/ng/hist/rngwhhdd.htm

[20] WA State Dept. of Ecology. Cap and Invest Offsets. 2023. https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Cap-and-invest/Offsets

[21] U.S. Environmental Protection Agency. Federal government, State of Nebraska Fine Big Ox Energy and NLC Energy Venture 30 LLC $1.1 Million for Violations of Multiple Environmental Laws. 2021. https://www.epa.gov/newsreleases/federal-government-state-nebraska-fine-big-ox-energy-and-nlc-energy-venture-30-llc-11

Appendix 1



8 Dairies within 6 miles of the facility

11 Dairies between 6 and 12 miles from the facility

24 Dairies between 12 and 24 miles from the facility