Under Reporting of Hazardous Pollutants & Greenhouse Gas in an Overburdened Community

Friends of Toppenish Creek, August 29, 2025

This paper describes under reporting of hazardous air pollutants and greenhouse gas from concentrated animal feeding operations (CAFOs) in the Lower Yakima Valley (LYV) Overburdened and Underserved Community. Under reported hazardous air pollutants include ammonia (a precursor to PM 2.5), hydrogen sulfide, and various volatile organic compounds (precursors to ozone). Under reported emissions exceed reported emissions for this community. We ask, when does under reporting become falsifying information?

WA Ecology's First Report on Overburdened Communities

The WA State Dept. of Ecology (Ecology) issued a report in 2023 entitled, *Air Quality in Overburdened Communities Highly Impacted by Air Pollution: 2023 Report*, available at Improving Air Quality in Overburdened Communities Highly Impacted by Air Pollution: 2023 Report The only mention of dairies in the entire report is on page 95 when Ecology states: "The Lower Yakima Valley is primarily an agricultural community with a high density of dairy farms." But more precisely over a third of all Washington dairy cows are housed in this community on dairies that meet criteria for concentrated animal feeding operations. CAFOs are the major source of air pollution in the LYV, as we will demonstrate.

Ecology described the LYV[1] further in this report, saying:

"The Lower Yakima Valley often experiences elevated levels of PM 2.5 year-round, when compared to the rest of the state. Particulate matter comes from sources like wildfire smoke, silvicultural and prescribed burning, residential and agricultural burning, and agricultural dust." There is no mention of emissions from CAFO dairy pens, corrals, barns, manure compost areas, and manure lagoons.

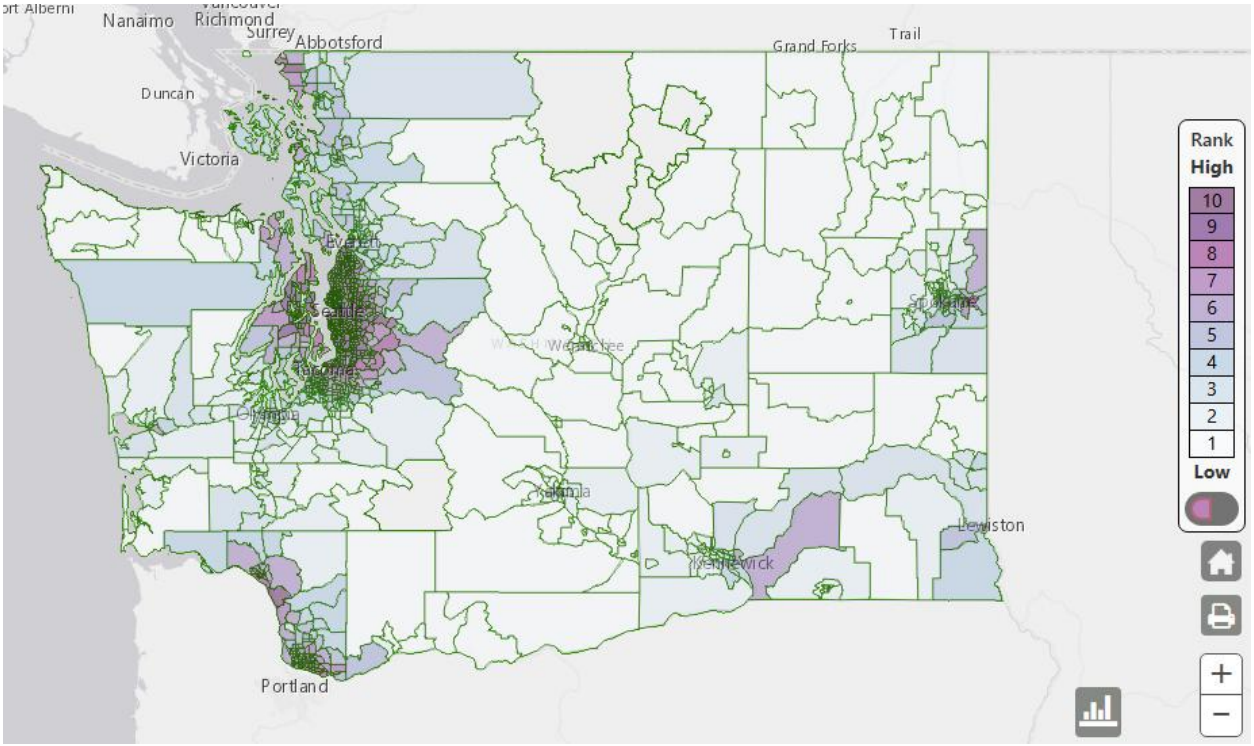
"Additional air quality monitoring sites will be added in 2024, with community engagement." This did not happen.

"Four facilities in or nearby Lower Yakima Valley emitted a total of 78,625 MT CO2e in 2020 and 72,205 MT CO2e in 2021." The report ignored the fact that there is so much methane in the LYV ambient air that investors are prepared to put up millions of dollars to build a manure methane bio-digester to refine the methane into renewable natural gas.[2]

[1] For some the LYV is the 273 square mile LYV Groundwater Management Area. In this paper the LYV is the 157 square mile overburdened community in Ecology's 2023 report. The Yakama Reservation is not included.
[2] Sunnyside RNG Turning Waste into Biofuel. Sunnyside RNG - Pacific Ag

Washington Health Disparities Mapping

The WA State Dept. of Health (DOH) maintains Health Disparities Maps for the State that were created with help from the University of Washington. These maps describe health exposures and risks across the state for a variety of scenarios. One map describes risks from exposure to Toxic Releases from Facilities:



WA State Dept. of Health. Toxic Releases from Facilities. [Information by Location | Washington Tracking Network (WTN)]

What are Toxic Releases? DOH used the Environmental Protection Agency (EPA) Toxic Release Inventory (TRI) Program Risk Screening Environmental Indicator (RSEI) to populate this map.

The RSEI in turn used data reported under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Emergency Planning and Community Right-to-Know Act (EPCRA) for TRI analysis.[3]

[3] Risk-Screening Environmental Indicators (RSEI) Model. [Risk-Screening Environmental Indicators (RSEI) Model | US EPA]

Thus, Washington's Health Disparities map for toxic releases is based solely on toxic emissions that are reported by mandate pursuant to CERCLA and EPCRA.

As you can see, the map indicates low levels of toxic releases in the LYV. This is in error because so many hazardous air pollutants in the LYV are not reported.

Mandated Reporting Under Federal Law

CERCLA and EPCRA require reporting of releases of hazardous substances that meet or exceed reportable quantities within a 24-hour period. There are nearly eight hundred chemicals on the lists. Ammonia and hydrogen sulfide, plus VOCs, along with many herbicides and pesticides are on the EPCRA list.[4, 5]

"On March 23, 2018, President Trump signed the Consolidated Appropriations Act (Omnibus Bill) signed into law. Title XI of Division S of the Omnibus Bill, known as the Fair Agricultural Reporting Method Act (FARM Act), amended CERCLA section 103(e) to exempt air emissions from animal waste at a farm from reporting under CERCLA."[6]

Due to the interconnectedness of the two, the EPA modified the Code of Federal Regulations(CFR) for both CERCLA and EPCRA to conform with the requirements in the FARM Act. "On June 4, 2019, EPA signed a final rule to amend the emergency release notification regulations under EPCRA. This amendment added a reporting exemption for air emissions from animal waste at farms. On February 14, 2022, the D.C. District Court granted EPA's motion to remand the final rule without vacatur. The court decision kept the EPCRA reporting exemption in place for all farms while EPA considers next steps." [6]

Consequently, CAFOs do not report air emissions and these emissions are not part of the calculation of air pollution in overburdened communities. Because these emissions are not reported they are not part of the estimates of toxic air pollution in communities with animal agriculture.

Does this make a difference? Yes, it does.

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[4] 40 CFR Ch 1 Sub Ch J part 372 (2025) available at eCFR :: 40 CFR Part 372 -- Toxic Chemical Release Reporting: Community Right-to-Know

[5] 40 CFR Ch 1, Sub Ch J part 355 available at eCFR :: 40 CFR Part 355 -- Emergency Planning and Notification

[6] CERCLA and EPCRA Reporting Requirements for Air Releases of Hazardous Substances from Animal Waste at Farms. CERCLA and EPCRA Reporting Requirements for Air Releases of Hazardous Substances from Animal Waste at Farms | US EPA

Quantifying Emissions from CAFOs

For years the EPA has been in and out of court, trying to get a handle on emissions from animal agriculture.

In 2002 the National Academy of Sciences called on the EPA to develop methodologies for estimating emissions from CAFOs.

In 2005 the EPA offered immunity from prosecution under the Clean Air Act (CAA) to CAFOs that agreed to participate in a voluntary research study, the National Air Emissions Monitoring Study or NAEMS) that would gather data to support a methodology.[7] After twenty years that study is still unfinished. However, some of the gathered data is publicly available.

One of the dairy study sites was in the Yakima Valley[8], so we have a reasonable estimate of toxic emissions per cow in our communities. The research team gathered data from two LYV dairy barns, Barn 2 with 600 cows and Barn 4 with 700 cows.[9] Here are the results from those measurements:

Ammonia

Barn 2: 56.5 g/day/cow

Barn 4: 56.5 g/day/cow

56.5 g/day/cow average

Hydrogen Sulfide

Barn 2: 1.08 g/day/cow

Barn 4: 1.15 g/d/cow

1.12 g/day/cow average

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[7] Animal Feeding Operations Consent Agreement and Final Order. Federal Register :: Animal Feeding Operations Consent Agreement and Final Order

[8] Emissions Data from Two Dairy Freestall Barns in Washington – National Air Emissions Monitoring Study available at ASAE_Journal | US EPA ARCHIVE DOCUMENT

[9] This study did not assess emissions from manure lagoons. Data from lagoons is classified separately under emissions from manure management which is part of the EPA estimates in the next section of this paper.

Volatile Organic Compounds

Barn 2: 86.67 g/day/cow

Barn 4: 145.71 g/day/cow

116.19 g/day/cow average

PM 2.5

Barn 2: 5.25 g/day/cow

Barn 4: 1.90 g/day/cow

3.58 g/day/cow average

PM 10

Barn 2: 6.94 g/day/cow

Barn 4: 10.0 g/day/cow

8.47 g/day/cow average

Estimating Greenhouse Gas Emissions from CAFOs

The EPA also provides modeled estimates of methane emissions per cow so states can report annual emissions of greenhouse gases without collecting air samples.[10]

Methane in Washington State

Manure Management 43,041,000,000 g/year for 275,000 cows = 428.80 g/day/cow

Enteric Fermentation 150.9 kg/cow per year = 410.96 g/day/cow

Methane Total 839.76 g/cow/day[11]

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[10] Environmental Protection Agency Models for Washington State available at State Inventory and Projection Tool | US EPA

[11] Methane is the simplest volatile organic compound. It is our understanding that the EPA measures and assesses methane separately from more complex VOCs. See Petition for Rulemaking to Remove Methane and Ethane from "Negligibly Reactive" Volatile Organic Compounds List available at Petition to List Methane and Ethane as VOCs

When we estimate emissions from 100,000 milk cows[10] in Yakima County in Metric Tons and Tons Per Year using EPA models and NAEMS data we find:

Pollutant	Metric Tons/yr	Tons/yr
Methane*	30,651	33,716
Ammonia **	2,062	2,270
Hydrogen Sulfide **	41	45
VOCs**	4,241	4,665
PM 2.5**	131	144
PM 10**	309	340
* Environmental Protection Agency Models for Washington State available at State Inventory and Projection Tool | US EPA		
** Emissions Data from Two Dairy Freestall Barns in Washington – National Air Emissions Monitoring Study available at ASAE_Journal | US EPA ARCHIVE DOCUMENT		

Actual Greenhouse Gas Emissions in the LYV

As noted above, using EPA methodologies, the 100,000 milk cows[12] in the LYV emit 30,651 metric tons of methane per year. This equates to 858,228 $MTCO_2e$.

In Ecology's 2023 report Table 11 lists GHG emissions reported in 2021within or near each overburdened community highly impacted by air pollution:

Spokane & Spokane Valley	434,028 MT CO_2e
Tri-Cities to Wallula	1,418,691 MT CO_2e
East Yakima	25,554 MT CO_2e
Lower Yakima Valley	72,205 MT CO_2e
Moxee Valley	169,687 MT CO_2e
Mattawa	N/A
George & West Grant County	N/A
Ellensburg	12,824 MT CO_2e
Wenatchee & East Wenatchee	27,413 MT CO_2e
Everett	67,481 MT CO_2e
North Seattle & Shoreline	N/A
South Seattle	774,207 MT CO_2e
South King County	63,505 MT CO_2e
Northeast Puyallup	39,423 MT CO_2e

[12] In 2024 two large dairy CAFOs closed thus reducing the number of milk cows in the LYV to approximately 85,000

South & East Tacoma	1,286,290 MT CO_2e
Vancouver	782,861 MT CO_2e

If methane emissions from dairy cows were included in the calculations, the LYV number would be 930,433 and the LYV would have the third highest greenhouse gas emissions among all overburdened communities, including communities with heavy industry.

If officials do not acknowledge and document 92% of the greenhouse gas emissions in a sampling area, this is close to scientific fraud.

Conclusion

Emissions of greenhouse gases in Ecology's 2023 report entitled, *Air Quality in Overburdened Communities Highly Impacted by Air Pollution* are under reported so badly that the report is useless with respect to the LYV and global warming.

There are unrecognized cumulative impacts due to undocumented high levels of ammonia, hydrogen sulfide and VOCs in the ambient air that severely impact public health in the LYV where people are economically and educationally oppressed.

DOH says that Toxic Emission Releases in the LYV are low, while scientifically collected data says that LYV dairy cows send over 2,000 tons of ammonia into the ambient air every year.

Who will stand up for the people who breathe this air?

Sincerely,

Executive Director, FOTC

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