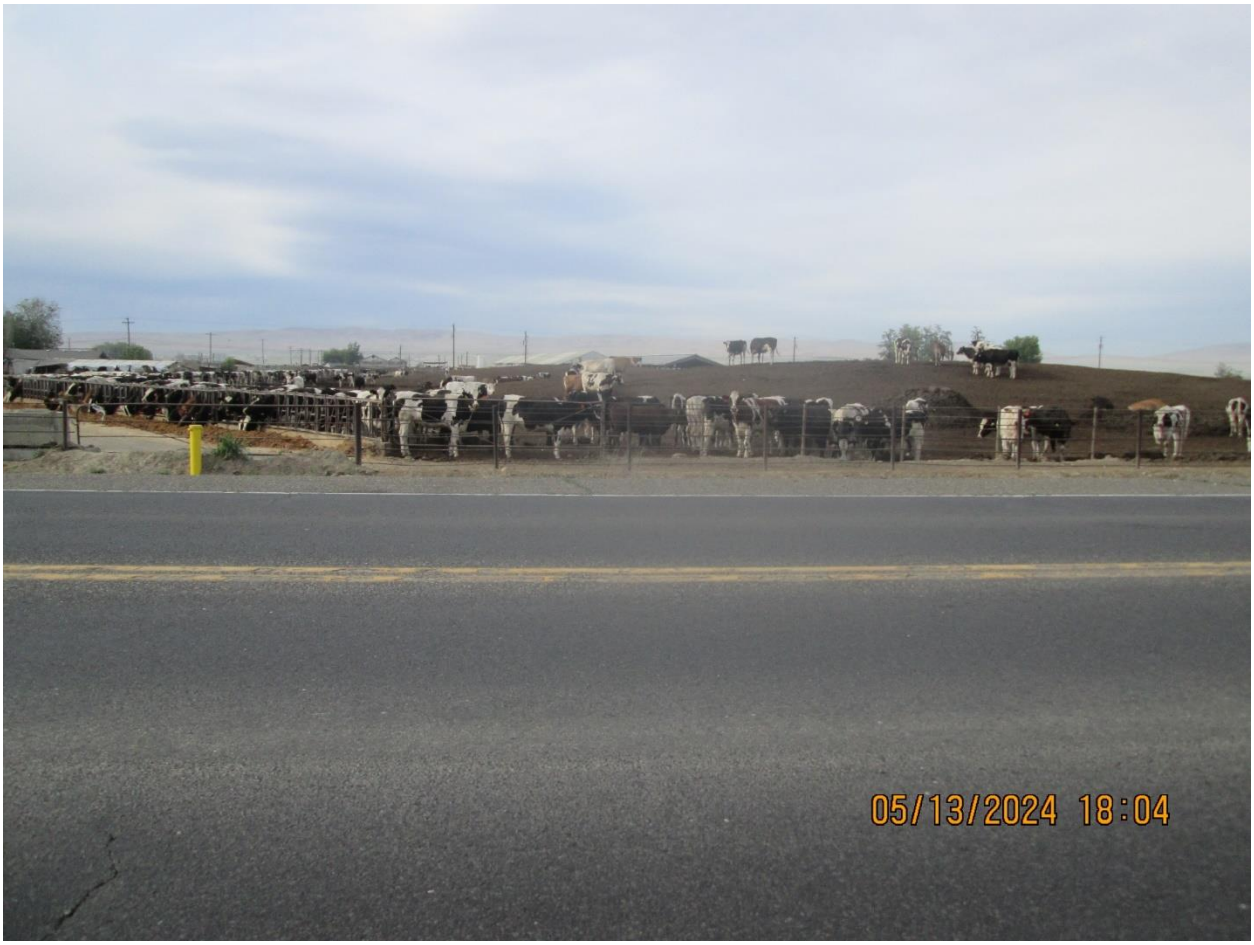
Manure Management in Pens and Corrals

Friends of Toppenish Creek – June 2024



Cows stand on top of packed, stockpiled manure in pens in the Lower Yakima Valley

A myth that impedes progress in effective regulation of animal agriculture is the idea that whatever industry does is an acceptable practice. Seventy years ago few people would have found it acceptable to store animal manure in million gallon lagoons next to people's homes. Bit by bit that practice has wormed its way into everyday life in rural America. Today many people consider this "normal". Is confining animals on top of manure next?

Not too long ago CAFO owners routinely removed manure from pens and corrals. That practice is now changing as operators simply pile up the manure in the center of the lots and let it accumulate for years. In this short paper Friends of Toppenish Creek will attempt to describe what is happening in the Yakima Valley and summarize the few regulatory actions in place.

Best Management Practices for Pens and Corrals

Washington law requires the WA State Dept. of Ecology (Ecology) to approve best management practices (BMPs) regarding discharges to waters of the state from animal agriculture. Due in part to resistance from industry, Ecology has never been able to comply.[1] There are no approved BMPs for animal agricultural in Washington. [2] The WA Conservation Commission and the WA Conservation Districts have long promoted use of Field Office Technical Guides (FOTGs) from the Natural Resource Conservation Service (NRCS) to fill this role. [1, 3, 4]

In 2022 the Friends of Toppenish Creek submitted an Environmental Reports Tracking System (ERTS) complaint to Ecology and the WA State Dept. of Agriculture (WSDA) because Klompe Frieslandia Dairy was composting manure in pens and corrals where cows live, eat, and sleep.[5] FOTC asked the agencies to identify any BMPs that recommend this practice. The agencies did not respond to this request. They could not, because no such BMPs exist.

The most relevant BMP, approved by an advisory group for the Yakima Regional Clean Air Agency in 2018[6], states:

> *Housing, Drylot Pens.*
>
> *Remove and/or Spread (Harrow) Manure Frequently (NH3, PM) Ammonia emissions from open drylot pens are due to infrequent manure removal. There are two types of in-pen manure management: (i) spreading or harrowing, and (ii) complete manure removal. In general, manure in drylot pens should be completely cleaned out every one to three months. The reduction in the quantity of manure results in less ammonia volatilization and also minimizes PM (dust) production from animal hoof action on the loose manure*

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[1] Wester Environmental Law Center. 2016. Agricultural Pollution in Puget Sound. The Quest for the Holy Grail: Agricultural BMPS in Washington. Page 23. https://westernlaw.org/wp-content/uploads/2019/02/Salmon-White-Paper-Higher-Res.pdf

[2] Email response to public records request to WA Ecology. 2023.

[3] NRCS Conservation Practice for Nutrient (Manure) Management Code 590 is available at https://efotg.sc.egov.usda.gov/api/CPSFile/18981/590_WA_CPS_Nutrient_Management_2014 This guide does not address manure stockpiling or composting in pens and corrals.

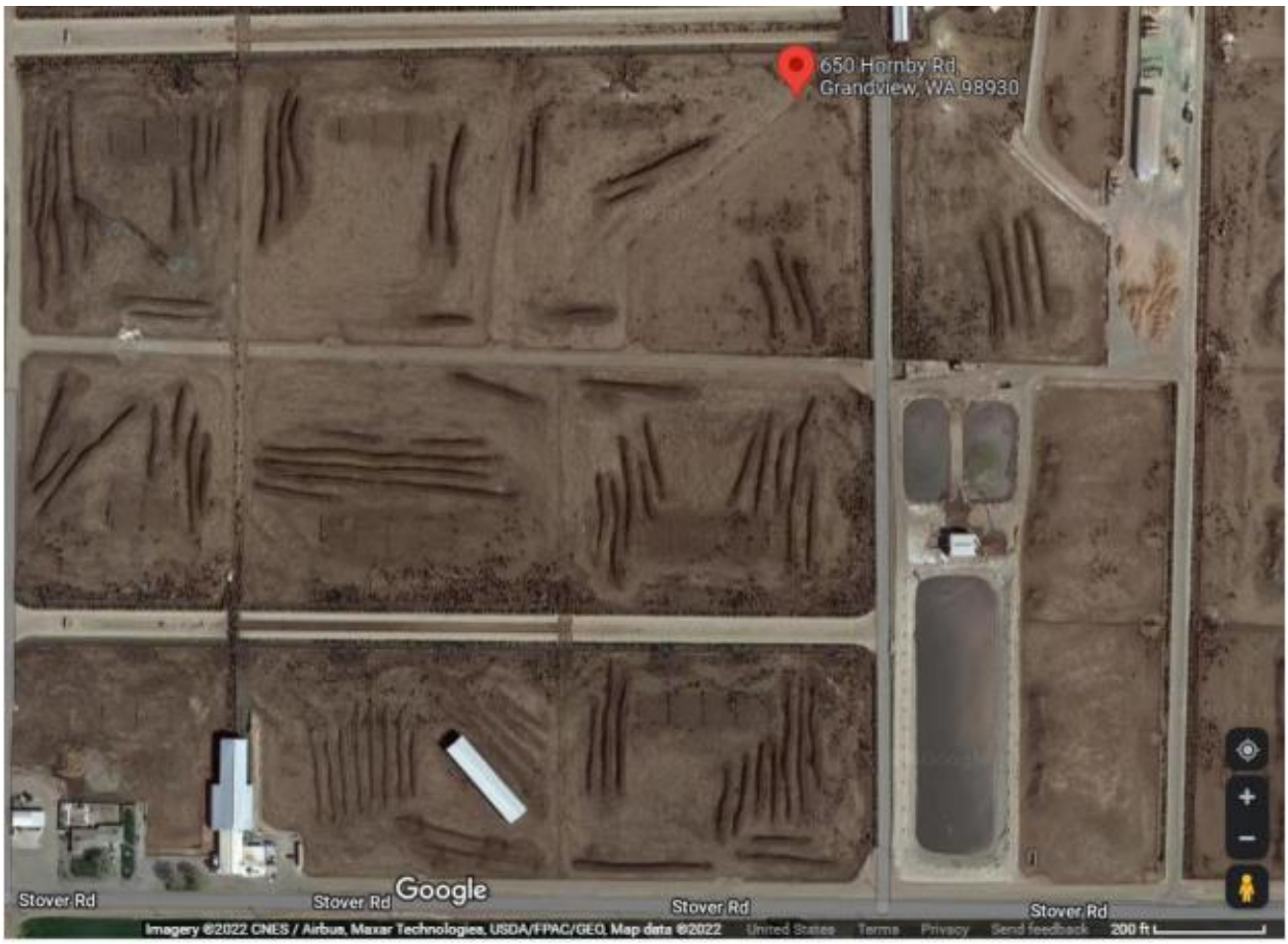
[4] NRCS Conservation Practice for Composting Facilities Code 317 is available at https://efotg.sc.egov.usda.gov/api/CPSFile/28696/317_WA_CPS_Composting_Facility_2021 This guide does not address manure stockpiling or composting in pens and corrals.

[5] See Attachments 1, 2, 3, 4 & 5

[6] Yakima Regional Clean Air Agency. 2018. Resource Guide and Best Management Practices for Dairy Operations. https://www.yakimacleanair.org/site/files/file_manager/page/shared/Resource%20Guide%20for%20BMP%20for%20Dairy%20Oparation%20Aug18.pdf

pack. More frequent (monthly, weekly) removal of manure from areas where manure deposition is highest (i.e., sleeping areas, feed bunks) is desirable. Installation of concrete alleyways adjacent to feedbunks aids in daily collection of manure and further reduces ammonia volatilization potential. The daily harrowing of pens should be practiced to spread out the manure pack, but should only be done during times of the day when PM production will not be an issue, such as the early morning.

Composting and Manure Stacking in Pens & Corrals in the Lowr Yakima Valley



Klompe Frieslandia Dairy - August 2022 – manure in windrows in cow pens

Klompe Frieslandia confines 11,200 animals on 136 acres of pens on three contiguous dairies.[7] Each animal produces about 120 lbs of manure and feces a day and about a pound of

[7] Klompe Frieslandia Manure Pollution Prevention Plan. 2024. Available on Ecology's Permit and Reporting Information System (PARIS) website at https://apps.ecology.wa.gov/paris/PermitSearch.aspx

nitrogen per day.[8] Approximately half of the nitrogen is excreted in urine.[9, 10] This nitrogen must go somewhere – up into the air, or down into the soil and water.

In 2024 the WA State Dept. of Ecology issued a National Pollutant Discharge Elimination (NPDES) Permit for Klompe Frieslandia. Ecology approved a Manure Pollution Prevention Plan (MPP)[7] that stated:

> *During the winter period and under wet weather conditions, manure generated within the animal pens is typically managed within the pens in windrows or piles to prevent damage to pens and soil pads from truck activity.*

In other words, Klompe Frieslandia has authorization to stock pile manure within the pens and corrals where animals live.

There is no required soil testing within the pens, although deep soil sampling on other dairies in the area found serious leaching of nitrate and ammonia beneath pens and corrals.[11]

There is no groundwater testing to determine whether pollutants leach from these windrows and stockpiles to the aquifer beneath the pens, although the dairy is supposed to develop a plan for a system of monitoring wells for the operation as a whole within six months of receiving the permit. Ecology's NPDES general permit for CAFOs does not state how long the agency has to approve the plan for monitoring wells. Within ninety days of the monitoring well plan approval Klompe Frieslandia must complete construction of the monitoring wells. The dairy must notify Ecology thirty days prior to initiating monitoring. In short, there will be no data regarding leaching from the pens for about a year. [12]

We do not know for certain how much nitrogen volatilizes and contributes to air pollution of the ambient air surrounding the dairy. FOTC research in 2019 found ammonia levels at a LYV home that were 66 times higher than levels in north Yakima County, far from CAFOs.[13]

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[8] Nennich, T. D., et al. "Prediction of manure and nutrient excretion from dairy cattle." *Journal of dairy science* 88.10 (2005): 3721-3733. https://www.sciencedirect.com/science/article/pii/S0022030205730587

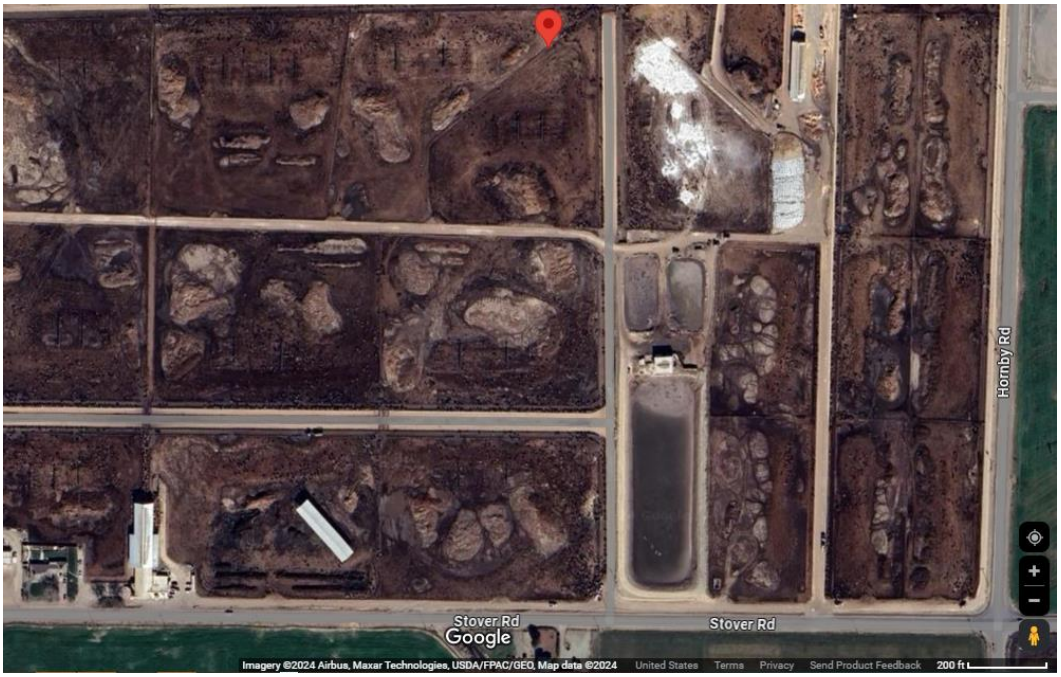
[9] NRCS Agricultural Waste Management Field Handbook. Chapter 11. Table 11-9, page 18/40. Available at https://irrigationtoolbox.com/NEH/Part%20651%20AWMFH/awmfh-chap11.pdf

[10] Cornel University. Nitrogen Management on Dairy Farms. https://www.dairyn.cornell.edu/pages/40dairy/410utilization/416excretion.shtml

[11] See Attachments 6, 7 & 8

[12] FOTC, as part of a coalition of environmental groups, has appealed Ecology's NPDES permits because, among other issues, there is no opportunity for the public to review this plan prior to approval. This is a violation of federal law, 33 U.S.C. § 1251(e). See FOTC. Notice of Appeal. http://www.friendsoftoppenishcreek.org/cabinet/data/CAFO%20Appeal%205%202022%20CAFO%20Permits%20Notice%20of%20Appeal%20[162023%20sig].pdf

[13] FOTC. 2019. Study Finds Elevated Ammonia Levels at Lower Yakima Valley Site Near Large CAFO Dairies. https://www.friendsoftoppenishcreek.org/cabinet/data/EPA%20Air%20Attachment%2019%20Ammonia%20Levels%20in%20Yakima%20County%20FOTC.pdf



Klompe Frieslandia Dairy - June 2024 – stacked manure in pens

A closer look that makes cows more visible

Impact on Communities and the Environment

Adverse consequences of producing more manure than the environment can assimilate are evident all around us:

- Chesapeake Bay – What is Killing Chesapeake Bay? https://www.cbf.org/how-we-save-the-bay/chesapeake-clean-water-blueprint/what-is-killing-the-bay.html

- Methane production in California - Dairy and livestock are responsible for over half of California's methane emissions https://ww2.arb.ca.gov/our-work/programs/dairy-and-livestock-wg/about

- Saving Lake Erie - "Western Lake Erie has been plagued by an increase of HABs intensity over the past decade. These blooms consist of cyanobacteria or blue-green algae, which are capable of producing toxins that pose a risk to human and animal health, foul coastlines, and impact communities and businesses that depend on the lake." https://www.lakeeriewaterkeeper.org/

- Species Extinction in Puget Sound - In 2005, the Southern Resident killer whale (Orca) was listed as endangered under the Endangered Species Act. There are less than 75 Orcas alive today. https://www.fisheries.noaa.gov/west-coast/endangered-species-conservation/southern-resident-killer-whale-orcinus-orca

- Lower Yakima Valley Groundwater - EPA issued a report in March 2013 entitled, *Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley*. The study concluded that several dairies in the report were likely sources of elevated nitrate levels that were measured in residential drinking water wells downgradient of the dairies. https://www.epa.gov/wa/lower-yakima-valley-groundwater

We know this. You know this. And yet our responsible officials delay, delay, delay. This paper is a plea for the EPA AG and Water Quality Advisory group and others to take immediate, strong action to stop overloading the environment with cow shit.

Sincerely,

Jean Mendoza

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