BEFORE THE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Petition for Emergency Action under Section 1431 of the Safe Drinking Water Act to Protect Residents of the Lower Yakima Valley, Washington, from Imminent and Substantial Endangerment to Public Health Caused by Nitrate Contamination of Drinking Water Sources	EPA Docket No. _____ Date: October 26, 2021

Submitted on Behalf of Petitioners

Center for Food Safety, Friends of Toppenish Creek, and Food & Water Watch

To: Administrator Michael Regan
U.S. Environmental Protection Agency
Mail Code 1101A
1200 Pennsylvania Avenue NW
Washington, DC 20460

Acting Regional Administrator Michelle Pirzadeh
U.S. Environmental Protection Agency, Region 10
1200 6th Avenue, Suite 155
Seattle, WA 98101

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I. INTRODUCTION

Petitioners Center for Food Safety, Friends of Toppenish Creek, and Food & Water Watch respectfully petition the U.S. Environmental Protection Agency to exercise its broad emergency powers established in Section 1431 of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300i, to address groundwater contamination that has presented, and continues to present at ever-increasing levels, an imminent and substantial endangerment to the health of the residents of the Lower Yakima Valley in Washington. Like many other parts of the nation plagued by pollution from industrial agriculture, the residents of the Lower Yakima Valley are suffering from drinking water contamination that has been likened to rural America's "own, private Flint."[1] EPA must act now to address this too-long ignored health crisis and ensure clean drinking water for Washingtonians.

This petition is based primarily on data that have been compiled by the U.S. EPA, Washington Department of Ecology, and Lower Yakima Valley Groundwater Advisory Committee, all of which demonstrate that nitrate concentrations in public water systems and underground sources of drinking water have routinely exceeded federal and state drinking water standards, putting the health of area residents at serious risk. Every methodology employed by Washington officials confirms that not only have past, voluntary measures employed by the State been unsuccessful at reducing nitrate concentrations in crucial drinking water sources to below federal and state standards, but also that the unambiguous and unabated trend is towards ever greater levels of nitrate contamination. Instead of changing track based on these findings and mandating actions necessary to improve water quality, Washington officials have repeatedly neglected to implement regulations that would mitigate this pollution in the Lower Yakima Valley Ground Water Management Area (LYVGWMA).

As explained within this Petition, the well-documented nitrate contamination of Lower Yakima Valley's drinking water necessitates prompt and decisive EPA emergency action under the SDWA. Elevated levels of nitrate in drinking water are known to increase the risk of a wide range

[1] Jack Healy, *Rural America's Own Private Flint: Polluted Water Too Dangerous to Drink*, N.Y. TIMES (Nov. 3, 2018), https://www.nytimes.com/2018/11/03/us/water-contaminated-rural-america.html?smid=url-share.

of very serious health problems, including birth defects, blue-baby syndrome, various cancers, thyroid disease, and other maladies.[2] This contamination poses an imminent and substantial threat to human health, and the problem is only getting worse.

Despite Washington applying for and being granted "primacy" under the SDWA, state and local officials have failed to do what is needed to correct the pervasive threat to human health and instead have allowed nitrate concentrations in the area's drinking water to rise over the span of three decades. Washington officials have effectively abandoned their responsibility to protect Washington citizens and continue to put control in the hands of the very polluters that have turned a once pristine source of drinking water into a pervasive threat to human health. EPA is fully empowered under the SDWA to take emergency action to protect human health in the Lower Yakima Valley given present circumstances.

Therefore, Petitioners request that EPA act to protect human health and effectuate the goals of the SDWA in the Lower Yakima Valley. Specifically, Petitioners request that EPA issue orders as necessary to protect the health of people who use the drinking water, including, at a minimum, orders that require responsible contaminators to provide a free and safe alternative source of drinking water for impacted communities; orders that prohibit CAFOs from expanding or constructing new operations until nitrate concentrations fall below unsafe levels, public notice of potential contamination events, such as manure land applications; an investigation to determine the specific entities and land use practices causing the contamination; a survey to identify public water systems, private supply wells or ground water monitoring wells near potentially contaminated areas downstream from CAFOs or manure application fields; monitoring of contaminants; control of the source of contaminants; and cleanup of contaminated soils endangering underground sources of drinking water. Petitioners further request that EPA seek injunctions through civil actions as needed to return the area's underground aquifers to a safe and drinkable condition.

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[2] *See infra* Section IV.D.1.

II. INTERESTS OF PETITIONERS

Center for Food Safety (CFS) is a national nonprofit organization that empowers people, supports farmers, and protects the environment from industrial agriculture. CFS represents over a million members and supporters nationwide, including over 34,000 members in Washington. CFS uses education, policy and legislation, and impact litigation to address the negative effects to public health and the environment from harmful food production technologies, and supports ecological food production, like organic and beyond. CFS's regional program in the Pacific Northwest specifically focuses on the negative impacts to community health, farmers, and wildlife from animal factories.

Friends of Toppenish Creek (FOTC) is a Washington nonprofit organization dedicated to protecting the rights of rural communities and improving oversight of industrial agriculture. FOTC operates under the simple principle that all people deserve clean air, clean water and protection from abuse that results when profit is favored over people. FOTC works through public education, citizen investigations, research, legislation, special events, and direct action.

Food & Water Watch (FWW) is a national, nonprofit membership organization that mobilizes regular people to build political power to move bold and uncompromised solutions to the most pressing food, water, and climate problems of our time. FWW uses grassroots organizing, media outreach, public education, research, policy analysis, and litigation to protect people's health, communities, and democracy from the growing destructive power of the most powerful economic interests. Factory farming is one of FWW's priority issues, and FWW dedicates significant resources to holding the government and industry accountable for factory farm pollution. FWW has approximately 115,000 members and supporters in Washington.

III. LEGAL BACKGROUND

A. Safe Drinking Water Act

Congress enacted the SDWA as a powerful tool for protecting drinking water resources throughout the United States. Under the Act, EPA and state authorities are encouraged to work

together to ensure access to safe drinking water. On the federal level, the SDWA "requires EPA to protect the public from . . . drinking water contaminants."[3]

States may apply for, and EPA may grant, "primacy" to states, which shifts significant authority and responsibility to state officials to implement the SDWA.[4] To assume primacy, the state is supposed to adopt regulations at least as stringent as EPA's national requirements, develop adequate procedures for enforcement and levying penalties, conduct inventories of water systems, maintain records and compliance data, and develop a plan for providing safe drinking water under emergency conditions.[5] While a state granted primacy has responsibility to implement the SDWA's provisions in that state, EPA retains emergency powers under Section 1431 of the SDWA to take actions necessary to abate imminent and substantial endangerment to the health of persons caused by drinking water contamination when state officials have failed to effectively do so on their own.

B. EPA's Emergency Powers

For EPA to exercise its Section 1431 authority, two conditions must be met. First, the EPA must have received "information that a contaminant which is present in or likely to enter a public water system or an underground source of drinking water . . . may present an imminent and substantial endangerment to the health of persons."[6] Second, EPA must have received information that "appropriate State and local authorities have not acted to protect the health of such persons" in a timely and effective manner.[7]

1. Contaminant

The SDWA defines a contaminant as "any physical, chemical, biological, or radiological substance or matter in water."[8] While this broad definition does not require a substance to be

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[3] *City of Portland v. EPA*, 507 F.3d 706, 709 (D.C. Cir. 2007).

[4] 42 U.S.C. § 300g-2; 40 C.F.R. §§ 142.10–142.19 (primacy enforcement responsibility)

[5] CONG. RES. SERV., SDWA: A SUMMARY OF THE ACT & ITS MAJOR REQUIREMENTS 7 (last updated July 1, 2021), https://sgp.fas.org/crs/misc/RL31243.pdf.

[6] 42 U.S.C. § 300i; *see also* U.S. EPA, Updated Guidance on Emergency Authority under Section 1431 of the SDWA, 8 (May 30, 2018) (hereinafter Emergency Authority Guidance).

[7] 42 U.S.C. § 300i; *see also* Emergency Authority Guidance, at 12–13.

[8] 42 U.S.C. § 300f(6).

regulated under the Act in order to be classified as a "contaminant," nitrate is listed as a contaminant with an established maximum contaminate level (MCL) of 10 mg/L.[9] An MCL is the "maximum permissible level of a contaminant in water which is delivered to any user of a public water system."[10] MCLs are promulgated after a determination by EPA based on the best available, peer-reviewed science and data that the regulation of the contaminant will reduce a threat to public health.[11] Establishing nationwide, health-based MCLs is central to EPA's role in protecting drinking water under the SDWA.[12]

The MCL for nitrate was set at 10 mg/L to protect against blue-baby syndrome; however, lower levels of nitrate can cause other health effects, including cancer and reproductive harm.[13] For example, recent studies have found statistically significant increased risks of colorectal cancer at drinking water levels far below the current MCL of 10 mg/L.[14]

2. Imminent & Substantial Endangerment

An endangerment from a contaminant is "imminent" if conditions that give rise to it are present, even if the actual harm may not be realized for years.[15] Courts have established that an "imminent hazard" may be declared at any point in a chain of events that may ultimately result in harm to the public.[16] Information presented to EPA need not demonstrate that residents are actually drinking contaminated water and becoming ill to warrant EPA exercising its Section 1431

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[9] 40 C.F.R. § 141.62(b).

[10] 42 U.S.C. § § 300f(3).

[11] *Id.* §§ 300g-l(b)(1)(A), § (3)(A).

[12] 42 U.S.C. § 300g-1(b)(4)(B). Before establishing an MCL, EPA first identifies a "maximum contaminant level goal" (MCLG) indicating the level at which no known adverse health consequences will occur. *Id.* § 300g-1(b)(4)(A). The MCL is then set as close to the MCLG as is feasible when using "the best technology, treatment techniques and other means which the Administrator finds . . . are available (taking cost into consideration)." *Id.* § 300g-1(b)(4)(D).

[13] *See, e.g.*, M. H. Ward et al., *Drinking Water Nitrate & Human Health: An Updated Review*, 15 INTERNAT'L J. ENVTL. RES. & PUBLIC HEALTH 1557 (2018).

[14] *See, e.g.*, J. Schullehner et al., *Nitrate in Drinking Water & Colorectal Cancer Risk: A Nationwide Population-Based Cohort Study*, 143 INTERNAT'L J. CANCER 73 (2018).

[15] Emergency Authority Guidance, at 8 (citing *United States v. Conservation Chemical Co.*, 619 F. Supp. 162, 193–94 (W.D. Mo. 1985)).

[16] *Id.* at 8 n.15 (citing cases).

emergency authority.[17] In other words, an actual injury need not have occurred for EPA to act, and to wait for such actual injury to befall the public would be counter to the precautionary intent behind the SDWA. Thus, while the threat or risk of harm must be "imminent" for EPA to act, actual and documented harm itself need not be.[18] While endangerments are readily determined to be imminent where MCL violations expose sensitive populations to a contaminant, contaminants that lead to chronic health effects may also cause "imminent endangerment."[19] In such cases, it is appropriate to consider the length of time a population has been or could be exposed to a contaminant. [20]

An endangerment is "substantial" "if there is a reasonable cause for concern that someone may be exposed to a risk of harm."[21] For instance, Congress has deemed an endangerment sufficiently substantial where a substantial likelihood exists that contaminants capable of causing adverse health effects will be ingested by consumers if preventative action is not taken.[22] As with imminence, EPA has made clear that actual reports of human illness resulting from contaminated drinking water are not necessary to establish substantial endangerment.[23]

C. Washington's Authority

EPA granted Washington primacy under the SDWA in 1976.[24] Although the SDWA allows states to set higher standards than the federal minimum, Washington state law sets the drinking water quality standard for nitrate at the same level as the federal standard: 10 mg/L.[25]

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[17] *See Trinity Am. Corp. v. EPA*, 150 F.3d 389, 399 (4th Cir. 1998).

[18] Emergency Authority Guidance, at 8.

[19] *Id.*

[20] *Id.*

[21] *Id.* at 11.

[22] *See* H.R. Rep. No. 1185, 93rd Cong., 2d Sess., 35–36 (1974).

[23] *See* Emergency Authority Guidance, at 11 (citing *United States v. North Adams*, 777 F. Supp. 61, 84 (D. Mass. 1991)).

[24] Wash. Dep't of Health, *Formal Agreement with EPA* (last visited Sep. 7, 2021), https://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/RegulationandCompliance/RuleMaking/FormalAgreementwithEPA.

[25] WAC 246-290-310; *see also* Wash. Dep't of Health, *Q&A: Nitrate in Drinking Water* (Jul. 2016), https://www.doh.wa.gov/Portals/1/Documents/Pubs/331-214.pdf.

Public water systems with nitrate levels over 10 mg/L must notify people who receive water from them.[26]

Because water quality testing has consistently found concentrations of nitrates in excess of the state and federal MCL, Washington officials designated the Lower Yakima Valley Groundwater Management Area in 2012.[27] The LYVGWMA "was established to allow for the identification and implementation of practices that will reduce nitrate loading and ultimately reduce groundwater nitrate concentrations below 10 mg/L."[28] The designation has been in effect since because nitrate contamination has not been reduced.

In 2012, Washington established the Lower Yakima Valley Groundwater Advisory Committee to bring the area's drinking water below the 10 mg/L trigger level, at the request of Yakima County. The Committee was an official body comprised of residents, government officials, and industry representatives,[29] appointed by the Washington Department of Ecology. The Committee was responsible for developing and implementing recommendations intended to achieve various goals that, if met, should improve water quality, and bring nitrate concentrations within safe levels.[30] The Committee submitted its final recommendations and findings to the Ecology Department in June 2019, and the Ecology Department certified the Program in July 2019.[31]

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[26] WAC 246-290-310.

[27] LOWER YAKIMA VALLEY GROUNDWATER ADVISORY COMMITTEE, LOWER YAKIMA VALLEY GROUNDWATER MANAGEMENT PROGRAM, VOL. I: THE PROGRAM, 1 (2019) (hereinafter 2019 LYVGWMA Program), https://www.yakimacounty.us/DocumentCenter/View/22177/GWMA-VolumeI-July2019.

[28] *Id.*

[29] *Id.*: *see also* Yakima County, *GWMA Committee Members* (last visited Oct. 8, 2021), https://www.yakimacounty.us/576/Committee-Members.

[30] *See supra* note.

[31] *See* LYVGWMA, 2019 Second Quarter Report (Jul. 9, 2019), https://www.yakimacounty.us/DocumentCenter/View/21764/2019-2nd-Quarter-Report; Letter from Wash. Dep't of Ecology re: Request to Certify the LYVGWMA (Jul. 29, 2019), https://www.yakimacounty.us/DocumentCenter/View/22161/DOE-Certifzication-Letter.

D. EPA's Authority in Washington

Yet, even where EPA has granted primacy to a state like Washington, EPA retains permanent emergency powers to abate present or likely contamination of public water systems (PWS) or underground sources of drinking water (USDW) when such contamination poses an imminent and substantial threat to human health and the state with primacy "ha[s] not acted to protect the health of [endangered] persons."[32]

EPA's Section 1431 authority extends to contaminated PWSs or USDW that pose a threat to human health,[33] including sources that supply private wells.[34] EPA defines a USDW as an aquifer or part of an aquifer "(1) [w]hich supplies any public water systems; or (2) which contains a sufficient quantity of ground water to supply a public water system; and (i) currently supplies drinking water for human consumption."[35] A PWS is an aquifer that provides water for human consumption and "has at least fifteen service connections or regularly serves at least twenty-five individuals."[36] Most of the drinking water for rural residents of the LYVGWMA comes from private wells supplied by shallow groundwater or community wells that rely on groundwater to regularly serve hundreds of people.[37] Therefore, these underground aquifers qualify as USDW and PWSs within the purview of the SDWA.[38]

To abate endangerment to human health that arises despite a state's efforts to curtail it, Congress authorized EPA, among other things, to issue "such orders as may be necessary to protect the health of persons who are or may be users of" the affected drinking water supplies and to

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[32] 42 U.S.C. § 300i(a).

[33] *Id.*

[34] Emergency Authority Guidance, at 7–8.

[35] 40 C.F.R. § 144.3.

[36] 42 U.S.C. § 300f(4)(A).

[37] Wash. Dep't of Health., *Drinking Water Service Area* (last updated Jun. 21, 2021), https://geo.wa.gov/datasets/WADOH::drinking-water-service-areas-1/about.

[38] *See also* 2019 LYVGWMA Program, Vol. I, at 4–5 ("In January 2010, EPA issued a finding in support of [SDWA] Section 1431 . . . to address groundwater contamination. EPA found that groundwater in the Lower Yakima Valley is . . . an underground source of drinking water, and contamination may present an imminent and substantial endangerment to human.").

commence civil enforcement actions against entities causing threats to public health by contaminating drinking water supplies.[39]

IV. DRINKING WATER CONTAMINATION IN LOWER YAKIMA VALLEY CONSTITUTES AN ENDANGERMENT UNDER THE SDWA AND NECESSITATES EMERGENCY ACTION BY EPA.

Nitrate contamination in Washington's Lower Yakima Valley is a widespread issue that has worsened through the decades as state officials continuously fail to effectively address the problem. Nitrogen-intensive land uses throughout the area paired with the hydrogeology of the region have created a dangerous situation that puts tens of thousands of people at risk of drinking polluted water. The main contributors to this problem are the large-scale animal agriculture facilities (mainly dairies) that dominate land use within the area.[40] Another major contributor to the nitrate contamination is widespread irrigated agriculture in the region,[41] a substantial portion of which is controlled by the dairy operations.[42]

Emergency action by the EPA is necessary to address the increasing levels of nitrate in LYVGWMA drinking water because the contamination poses an imminent and substantial risk to the health of more than 24,000 residents who rely on groundwater, and because Washington officials have failed to improve drinking water quality, despite knowing about the problem for

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[39] Emergency Authority Guidance, at Attach. 2.

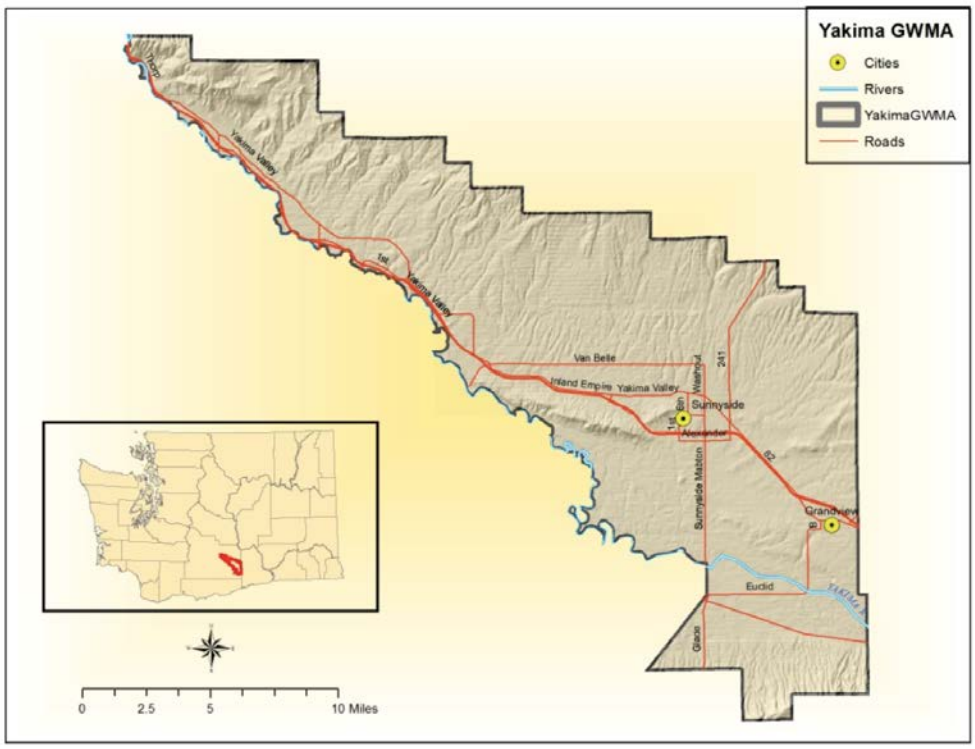
[40] WASH. DEP'T OF ECOLOGY, MANURE & GROUNDWATER QUALITY: LITERATURE REVIEW 20 (Jun. 2016) (hereinafter 2016 Ecology Literature Review), https://apps.ecology.wa.gov/publications/documents/1603026.pdf; *see also* U.S. EPA, REGION 10, LOWER YAKIMA VALLEY PROJECT NITROGEN LOADING SCREENING ANALYSIS (Jun. 2012) (hereinafter 2012 EPA Nitrogen Screening Analysis), http://www.friendsoftoppenishcreek.org/cabinet/data/GWMA%20MR%20Attachment%2035%20EPA%20Nitrogen%20Budget%202012.pdf.

[41] 2016 Ecology Literature Review, at 20.

[42] *See* FOTC, LYVGWMA MINORITY REPORT (Dec. 2018), https://www.yakimacounty.us/DocumentCenter/View/18990/FOTC-Minority-Report; *see id.* at Attach 12: Jean Mendoza, *What Will Happen to the Groundwater in Lower Yakima Valley if We Do Nothing?* (2018) (estimating that more than 35,000 acres of land application fields are owned or rented by dairies in Yakima County), https://www.yakimacounty.us/DocumentCenter/View/18721/GWMA-MR-Attachment-21-What-will-happen-to-the-groundwater-if-we-do-nothing.

nearly thirty years.[43] Congress enacted the SDWA to protect public health in these situations.[44] The dangerous levels of nitrate in drinking water in the LYVGWMA are likely to continue to increase without emergency action by the EPA.

Figure 1: Boundary of the Lower Yakima Groundwater Management Area



A. The LYVGWMA is Particularly Susceptible to Nitrate Pollution.

Nitrate contamination in LYVGWMA drinking water has worsened in part due to the region's hydrogeology. Groundwater drawn from shallow alluvial aquifers is highly vulnerable to nitrate contamination because of the sediment characteristic to the area. Nitrate contamination occurs when excess nitrogen is applied to land in the form of manure or synthetic fertilizer. Water carries the excess nitrogen from the surface through the soil column, where oxygenated conditions

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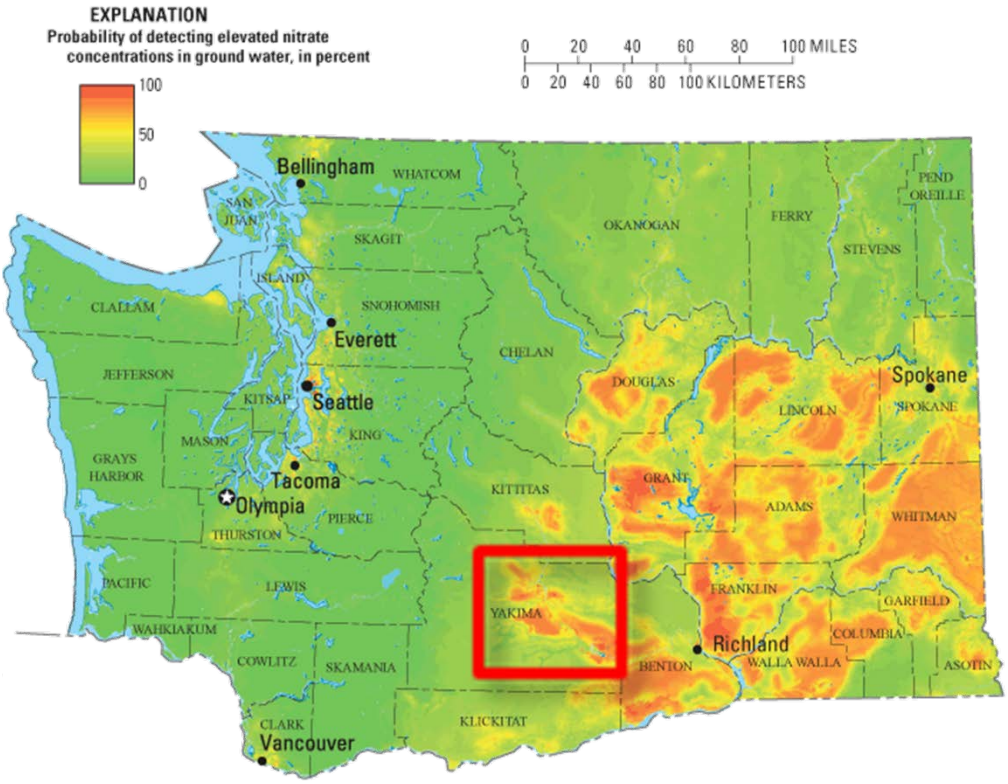
[43] WASH. DEP'T OF ECOLOGY ET AL., LOWER YAKIMA VALLEY GROUNDWATER QUALITY PRELIMINARY ASSESSMENT & RECOMMENDATIONS DOCUMENT 12 (Feb. 2010) (hereinafter 2010 Groundwater Quality Preliminary Assessment), https://apps.ecology.wa.gov/publications/publications/1010009.pdf.

[44] 42 U.S.C. § 300i (extending EPA's authority to cover contamination of USDW and PWSs and adding to the actions EPA can take to remedy imminent and substantial endangerment).

facilitate conversion of nitrogen to nitrate.[45] The shallow alluvial aquifers in the LYVGWMA lie below permeable sediments and rocks that allow for the nitrate produced in the soil column to move easily and quickly to the water table.[46] Upper basaltic layers beneath alluvial aquifers may also contain water that is vulnerable to nitrate contamination from the shallower aquifer.[47]

Figure 2: Probability of Detecting Nitrate Concentrations Above 2 mg/L in Groundwater with Hydrogeomorphic Regions[48]



[45] *E.g.*, U.S. EPA, RELATION BETWEEN NITRATE IN WATER WELLS & POTENTIAL SOURCES IN THE LOWER YAKIMA VALLEY 8 (2013) (hereinafter 2012 EPA Nitrate Sources Report), https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-report-2013.pdf.

[46] *Id.*

[47] *Id.*

[48] WASH. DEP'T OF ECOLOGY, WASHINGTON NITRATE PRIORITIZATION PROJECT (2016), https://apps.ecology.wa.gov/publications/documents/1610011.pdf; *see also* WASH. DEP'T OF HEALTH, U.S. GEOLOGICAL SURVEY SCI. INVESTIGATIONS REP. 2008-5025, ESTIMATING THE PROBABILITY OF ELEVATED NITRATE CONCENTRATIONS IN GROUNDWATER IN WASHINGTON STATE 15 fig.9b (2008), https://pubs.usgs.gov/sir/2008/5025/pdf/sir20085025.pdf.

Unlike many other compounds, nitrate is minimally absorbed during transport through soils, which allows it to move relatively quickly through the soil, at almost the same rate as water.[49] Mobility of nitrate is also enhanced because negatively charged soil particles repel the negative nitrate ion.[50] This allows nitrate to move farther and faster than other compounds.

Combining nitrogen intensive land uses with the LYVGWMA's heightened vulnerability to nitrate contamination is a major hazard. Animal wastes from large animal agriculture operations in the LYVGWMA are stored in lagoons and applied to crops, depositing huge amounts of nitrogen on the land. The nitrogen converts to nitrate in the soil and ends up in the groundwater via water from widespread irrigation. Irrigation water provides shallow aquifers with artificial recharge, a mechanism by which nitrate can easily contaminate LYVGWMA drinking water.[51] Rural communities are particularly at risk since private wells are more likely to draw from shallow aquifers than public water systems, which can pull water from deeper wells and multiple sources.[52]

Washington officials have repeatedly failed to remedy the obvious threat posed by the high nitrogen input and hydrogeology in the LYVGWMA. EPA action is necessary to prevent worsening of the problem and to protect the health of communities in the Lower Yakima Valley.

B. The LYVGWMA Has a Documented History of Nitrate Contamination.

The LYVGWMA has an extensive history with nitrate contamination in groundwater aquifers, which supply wells that are the primary source of drinking water for most rural residents. Residential wells are the main source of water for the third of LYVGWMA residents that are not connected to public water systems.[53] Nitrate levels have been recorded at concerning levels since the 1980s, and since then, nitrate levels in the LYVGWMA groundwater have continued to

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[49] 2012 EPA Nitrate Sources Report, at 8.

[50] *Id.* at 5.

[51] 2019 LYVGWMA Program, Vol. I, at 38.

[52] 2010 Groundwater Quality Preliminary Assessment, at 12.

[53] 2019 LYVGWMA Program, Vol. I, at 17.

increase due to Washington's failure to regulate pollution from industrial agriculture and dairy operations.[54]

Well sampling conducted between 1988 and 2008 revealed that 12% of private wells in Lower Yakima Valley showed nitrate levels above the SDWA MCL of 10 mg/L.[55] Another 21% of sampled wells showed levels between 5 mg/L and 9.9 mg/L,[56] far above the national average of 1.1 mg/L.[57] According to EPA, "[h]igher nitrate concentrations than [the national average] usually indicates that human activities have contributed additional nitrate to the groundwater."[58] Moreover, many adverse health effects, such as cancer, have been documented at levels far below 10 mg/L.[59]

In early 2010, EPA conducted a study on private drinking wells in Lower Yakima Valley and found that the nitrate contamination constituted a substantial and imminent endangerment under the SDWA, warranting use of EPA's Section 1431 emergency powers:

> The EPA has determined that [imminent and substantial endangerment] exist in the Yakima Valley because nitrate levels are above the maximum contaminant limits (MCLs). Under SDWA Section 1431, the EPA can take action to investigate sources of contamination and issue orders requiring other parties who caused or contributed to the endangerment to take any action that EPA

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[54] *See* WASH. DEP'T OF AGRIC., ESTIMATED NITROGEN AVAILABLE FOR TRANSPORT IN THE LOWER YAKIMA VALLEY GWMA 9 (2018) (hereinafter 2018 Nitrogen Availability Assessment), https://www.yakimacounty.us/DocumentCenter/View/17514/June-2018-Final-Nitrogen-Availability-Assessment-; *see also* U.S. EPA, SITUATION ASSESSMENT REPORT ON YAKIMA VALLEY GROUNDWATER ASSESSMENT 3 (Apr. 2010) (hereinafter 2010 EPA Stakeholder Assessment) ("In the past 25–30 years, large scale dairy operations have joined feedlots in the valley, significantly increasing the amount of nitrates present."), https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-situation-assessment-report-2010.pdf; FOTC, Suggested Refinements to the 2018 Nitrogen Availability Assessment, https://www.yakimacounty.us/DocumentCenter/View/18740/GWMA-MR-Attachment-61-Suggested-refinements-to-the-NAA.

[55] 2010 Groundwater Quality Preliminary Assessment, at 11; *see also* 2018 Nitrogen Availability Assessment, at 1, 9.

[56] 2010 Groundwater Quality Preliminary Assessment, at 13.

[57] 2012 EPA Nitrate Sources Report, at ES-2.

[58] *Id.*: *see also* 2010 Groundwater Quality Preliminary Assessment, at ES-2 ("Concentrations above 0.3 mg/L indicate some process is leading to increased nitrogen in groundwater beyond what would be observed in a pristine watershed.").

[59] *See, e.g.*, Expert Report of Robert S. Lawrence, M.D., *CARE v. Cow Palace, LLC* (E.D. Wash., Dec. 1, 2014) ("Health effects have been documented at exposure levels below 10 mg/L, suggesting that the EPA MCL may need to be lowered."); *see also supra* notes 13 and 14 (demonstrating health risks at levels below 10 mg/L).

> believes may be necessary to protect the health of persons. This could include, for example, providing alternative water supplies, or requiring actions intended to reduce nitrogen loading to the aquifer, such as lining wastewater lagoons.[60]

The high levels of nitrate near large dairies were especially startling. EPA found that nitrate levels in wells downgradient of some industrial dairy operations were *four times higher* than the MCL, indicating that dairies are "a likely source of nitrate contamination" in the Lower Yakima Valley.[61] In a follow-up study, EPA sampled groundwater monitoring wells near a cluster of industrial dairy operations, including the George DeRuyter & Son Dairy, D&A Dairy, Cow Palace, Liberty Dairy, and Bosma Dairy.[62] EPA found that nitrate concentrations in the wells downgradient of these dairies reached up to 190 mg/L, "with four of six downgradient monitoring wells exceeding EPA's drinking water standard."[63] According to EPA, "[t]his new data demonstrate[d] that the dairies are a source of nitrate contamination to the groundwater beneath and downgradient of these dairies, thereby reinforcing the conclusions in the [EPA report entitled Relation Between Nitrate in Water Wells and Potential Sources]."[64]

In an attempt to address the issue, the Washington Department of Ecology designated the LYVGWMA in 2012, and convened a Groundwater Advisory Committee to develop a program to monitor the nitrate contamination and make recommendations to reduce nitrate levels to below the state and national standard of 10 mg/L.[65] Since its creation, the GWMA has focused on collecting groundwater nitrate samples confirm the extent of the problem, and developing recommendations for reducing contamination and continuing monitoring and analysis of the

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[60] 2019 LYVGWMA Program, Vol. I, at 4 (discussing 2010 EPA Stakeholder Assessment, at 5); *see also* 2012 EPA Nitrate Sources Report.

[61] *Id.* at 53, 81 ("[T]he Dairy Cluster is a likely source of the nitrate contamination in the downgradient residential drinking water wells."); *see also id.* at 61 ("[A]ll the downgradient residential water wells (with the exception of [one well]) associated with the Dairy Cluster have nitrate levels greater than the MCL."), 80 ("All three residential drinking water wells downgradient of the Haak Dairy that were sampled have nitrate levels greater than the MCL.").

[62] U.S. EPA, MONITORING WELL INSTALLATION & DATA SUMMARY REPORT: LOWER YAKIMA VALLEY 1 (Mar. 2013) (hereinafter 2013 EPA Nitrate Sources Report) , https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-monitoring-well-installation-data-summary-report-2013.pdf.

[63] *Id.* at 7.

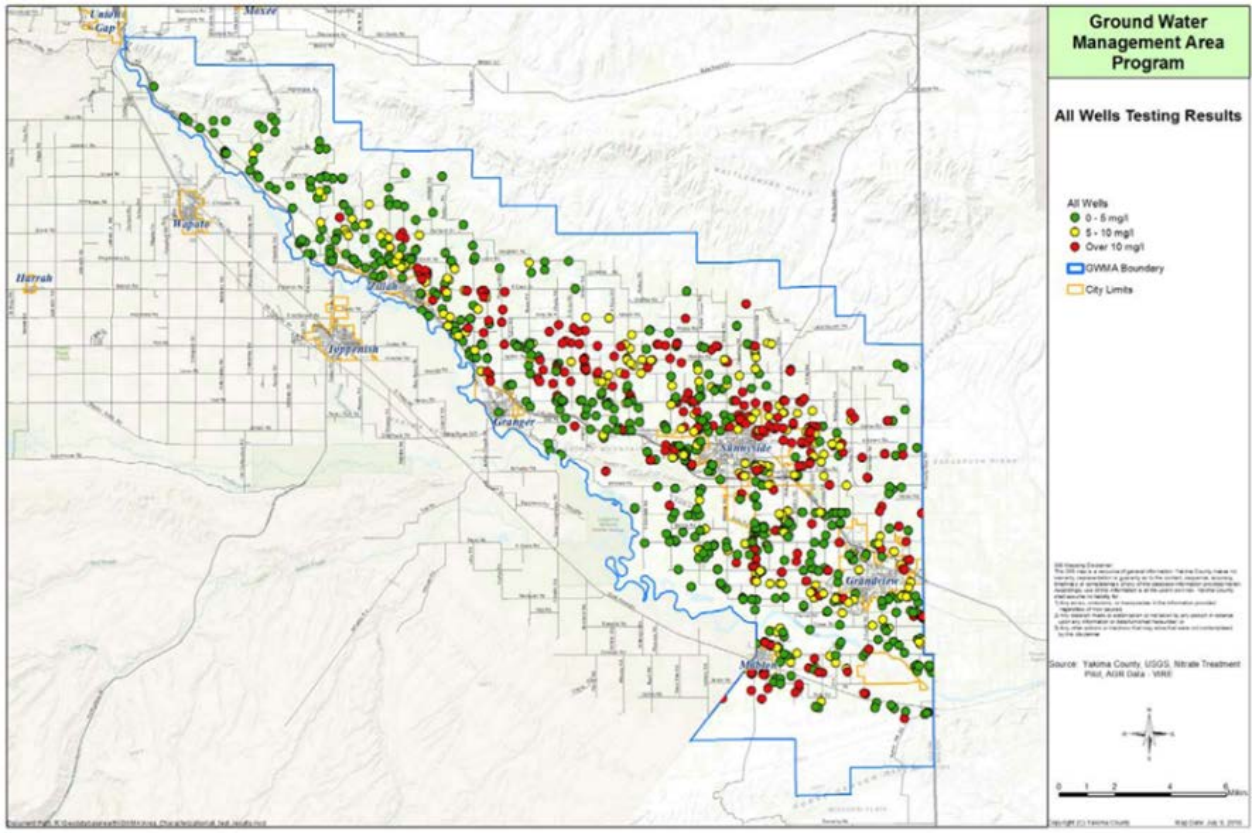
[64] *Id.*

[65] 2019 LYVGWMA Program, Vol. I, at 5; *see also* RCW 90.44.400.

problem.[66] However, the designation of the LYVGWMA has not yielded the timely results needed to protect the health of residents of the Lower Yakima Valley.

Due to lack of effective and timely local and state regulation, the problem continues to worsen. Well sampling conducted in 2017 revealed that 26% of private wells in the LYVGWMA showed nitrate levels about the MCL.[67]

Figure 3: Nitrate Levels Compiled From Three Separate Testing Programs[68]



[66] *See generally* 2019 LYVGWMA Program, Vol. III (summarizing accomplishments of the GWMA program, including public education campaigns, sampling studies, and operating guidelines).

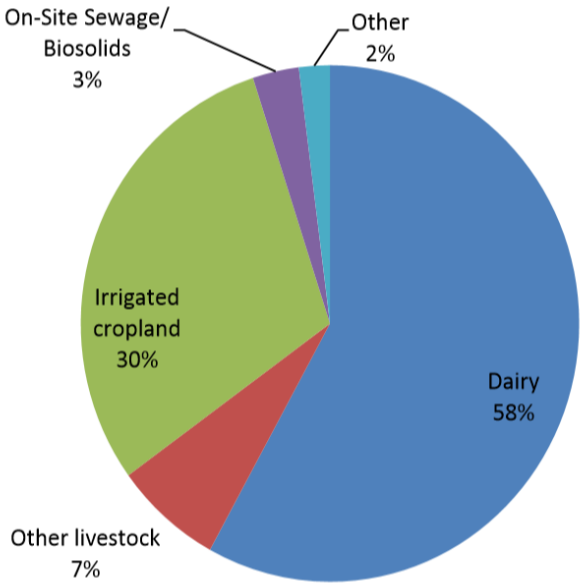
[67] R. L. HUFFMAN, U.S. GEOLOGICAL SURVEY, CONCENTRATIONS OF NITRATE IN DRINKING WATER IN THE LOWER YAKIMA RIVER BASIN, GROUNDWATER MANAGEMENT AREA: 2017 1, 18 (2018) (hereinafter 2017 USGS Report) ("At least one nitrate concentration above the MCL was detected in 26 percent of wells."), https://pubs.usgs.gov/ds/1084/ds1084.pdf.

[68] 2019 LYVGWMA Program, Vol. I, at 76.

C. CAFOs and Irrigated Agriculture Are Dominant Land Use Activities and the Predominant Causes of Nitrate Contamination in the LYVGWMA.

Most nitrate contamination in the LYVGWMA is caused by concentrated animal feeding operations (CAFOs) and irrigated agriculture. Despite evidence of their adverse impacts on groundwater and public health, these two land uses have escaped state and local regulation for decades, resulting in a public health crisis that requires emergency action from EPA.

Figure 4: Estimated Nitrogen Generated by Source in Lower Yakima Valley[69]



1. *Dairy CAFOs*

Dairy CAFOs are the largest source of nitrogen in the region.[70] There are currently 41 dairy operations in the LYVGWMA, including 11 dairies with active CAFO status and "combined" surface and groundwater discharge permits under the National Pollutant Elimination Discharge System (NPDES) and State Waste Discharge General Permit Program.[71] In addition,

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[69] 2016 Ecology Literature Review, at 20 (citing 2012 EPA Nitrate Sources Report).

[70] *Id.*

[71] Wash. Dep't of Agric., *WA Dairies* (updated Jul. 22, 2021), https://geo.wa.gov/datasets/26add7da921d4aa68ccb50ce191c6182_0; *see also* Wash. Dep't of Ecology, *CAFO Permits, Yakima County* (last accessed Aug. 17, 2021), https://apps.ecology.wa.gov/paris/

there are at least 22 large-scale dairy operations, each confining thousands of animals, operating without a NPDES permit or state General Permit. Yakima County contains over 105,000 cows, nearly all of which are located within the GWMA.[72] A single CAFO, such as Cow Palace, produces more than 188,000 tons of manure annually, which results in more than 1,200 tons of nitrogen from just one facility.[73] Moreover, CAFOs continue to increase herd sizes, resulting in more manure.[74] For example, from 2012 to 2021, Cow Palace increased from 6,840 dairy cows to 8,800 dairy cows.[75]

Table 1: Permitted CAFOs in the Lower Yakima Valley[76]

BUSINESS NAME	CITY
COW PALACE #1 & #2	Granger
D&A FARMS	Outlook
DE RUYTER & BROTHERS DAIRY WASHINGTON, LLC	Outlook
DESTINY DAIRY & T&D DAIRY	Sunnyside
GEORGE DE RUYTER DAIRY	Outlook
J & K DAIRY LLC #1 & #2	Sunnyside
JLS DAIRY	Sunnyside
SKYRIDGE FARM #1 & #2	Sunnyside
SNIPES MOUNTAIN DAIRY (SMD), LLC	Outlook
SUNNYSIDE DAIRY #1 & #2	Sunnyside
VIEWPOINT DAIRY	Sunnyside

PermitSearch.aspx?PermitNumber=&FacilityName=&City=&County=Yakima&Address=&ZipCode=&Region=0&PermitType=1&AdminRegion=0.

[72] Yakima Valley Trends, *Number of Dairy Cows in Milk Production & Share of All Dairy Cows Used in Milk Production in the State* (2020), http://yakimavalleytrends.org/graph.cfm?cat_id=1&sub_cat_id=1&ind_id=7.

[73] 2012 EPA Nitrate Sources Report, at 47.

[74] *Id.* at F-3 (explaining that "the amount of waste generated by the average Yakima Valley dairy increased substantially" "as livestock operations have become more concentrated").

[75] *See id.* at 47 tbl.17; 2018 Cow Palace CAFO Annual Report (Dec. 18, 2018), https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=259007 (8,000 dairy cows); 2021 Cow Palace CAFO Combined & State General Permit Notice of Intent (Sep. 2, 2021) https://apps.ecology.wa.gov/paris/DownloadDocument.aspx?Id=382011 (8,800 dairy cows).

[76] *See supra* note 71.

To deal with all the manure and wastewater generated in dairy production facilities, CAFOs rely on liquified manure storage systems, such as lagoons, which can hold millions of gallons of liquified manure and wastewater for long periods.[77] These storage structures are a significant source of nitrogen in the area.[78] In 2013, EPA sampled lagoons at five Yakima Valley CAFOs and found that total nitrogen concentrations reached up to 1,800 mg N/L.[79] As CAFO herd sizes continue to increase, the amount of nitrogen concentration from liquified manure storage will also increase.

2. Irrigated Agriculture

Irrigated agriculture accounts for about 49% of the land area in the LYVGWMA,[80] and a significant portion of this land is used to grow feed crops for dairy cows (e.g., alfalfa, corn, pasture) and/or treated as a disposal site for manure and waste from the nearby CAFOs.[81] Nearly one third of this acreage supports dairy and livestock operations and significant areas of irrigated cropland are owned and controlled by dairies.[82]

Manure from livestock operations in the LYVGWMA is commonly used as fertilizer for irrigated crops in the area. In 2013, the EPA estimated that 18.5 million pounds of nitrogen are applied to irrigated cropland each year in the LYVGWMA,[83] and this number will continue to increase with growing herd sizes and increased reliance on liquified manure storage. When liquified manure storage systems reach capacity, operators must empty them by disposing of the

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[77] *See* 2012 EPA Nitrate Sources Report, at 48–49 ("In combination, [five dairy CAFO] lagoon systems have a surface area of approximately 1,841,000 square feet (equivalent to about 32 football fields)," and "a combined maximum storage capacity of about 126,800,000 gallons.")

[78] *See id.* at 80–81 (concluding that CAFO manure lagoons are "likely leaking nitrogen-rich wastewater into the underlying soils").

[79] *See id.* at 36, 52; *see also* 2018 Nitrogen Availability Assessment, at 12 (noting that the average total nitrogen concentration at all five dairy CAFOs was 1,212 mg N/L).

[80] 2019 LYVGWMA Program, Vol. I, at 21.

[81] *See* 2018 Nitrogen Availability Assessment, at 9.

[82] *See supra* note 42.

[83] 2012 EPA Nitrate Sources Report, at 12.

liquified manure and process wastewater onto nearby agricultural fields.[84] These land applications of manure are one of the largest sources of nitrogen from dairy CAFOs.[85] Applications of manure higher than agronomic rates leave nitrogen in the soil after the growing season, which then leaches into the groundwater as nitrate, endangering public health.[86]

D. CAFOs in the LYVGWMA Have Escaped State Regulation and Legal Enforcement.

The continued prevalence of CAFOs and the quantity of nitrogen they produce in the LYVGWMA indicates that the threat to drinking water will worsen without changes to these land uses and regulations in the area. Most nitrate contamination comes either directly from CAFOs or the land application of the manure they produce. Due to the Washington's failure to regulate, CAFOs dispose of massive quantities of animal waste onto nearby fields, causing significant environmental and public health impacts on local communities and drinking water sources.

Both Washington's water discharge permitting program and its Dairy Nutrient Management Plan fail to effectively prevent overapplication of manure, allowing excess nitrogen to seep into groundwater as nitrate.[87] Under the Washington State Dairy Nutrient Management Act, all milk producers must have a Nutrient Management Plan (NMP). These NMPs only need to include minimum elements, such as a summary of the operation and its waste management systems.[88] For CAFOs, NMPs must include best management practices to help reduce water

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[84] *Id.* at 50 ("All the dairies in the Dairy Cluster apply animal wastes as fertilizer onto application fields that they own or lease," and these "application fields can be a significant source of nitrogen loading to the soil and potentially the groundwater and surface water.").

[85] *Id.*; *see also* 2018 Nitrogen Availability Assessment, at 10.

[86] *E.g.*, 2012 EPA Nitrate Sources Report, at 50, F-3, F-5 ("Applying too much AFO wastewater to field . . . can also cause the pollutants in animal waste to pollute…groundwater before they can be completely absorbed by the land and crops."); *see also id.* at 34 ("Even with agronomic application rates, mismanagement of irrigation water can move nitrogen through the vadose zone.").

[87] *See* Western Envtl. Law Center, *Protecting Washington Waters from Manure Pollution*, 4 (Jan. 11, 2016), https://westernlaw.org/sites/default/files/CAFO%20Fact%20Sheet%202.0.pdf.

[88] RCW 90.64 (establishing minimum requirements for dairy NMPs); *see also* Wash. Dep't of Agric., *Minimum Elements of a Dairy NPM, Approval Checklist Used By Conservation Districts* (last visited Aug. 12, 2021), https://agr.wa.gov/departments/land-and-water/livestock-nutrients/minimum-elements-of-a-dairy-nmp.

pollution.[89] As of March 3, 2017, all permitted CAFOs must have a Manure Pollution Prevention Plan (MPPP) that meets the CAFO permit requirements established by the Department of Ecology.[90] However, NMPs have no enforcement mechanism,[91] and nitrate contamination has increased since these requirements went into effect. These efforts have failed to reduce groundwater pollution from CAFOs because they lack substantive requirements and enforcement. It is common practice to store waste in lagoons for later land application, but without any strict enforcement of Dairy Nutrient Management Plan Best Management Practices or water discharge permit requirements to monitor groundwater, dairies have been over-applying manure as a way of dealing with excess supply.[92]

CAFOs in the LYVGWMA have faced multiple legal actions for mismanaging manure in ways that pollute drinking water. In 2015, Cow Palace Dairy was involved in a Resource Conservation and Recovery Act (RCRA) citizen suit filed by Petitioner Center for Food Safety and others, alleging that Cow Palace's management and land application of manure threatened public health by polluting residents' drinking water. The ruling stated that Cow Palace was responsible for elevated nitrate levels in the area's drinking water due to its over application of manure and leaking manure storage lagoons.[93] The Plaintiffs' expert provided estimates for Cow Palace's lagoon leakage and testified that the lagoons leak millions of gallons of manure annually.[94] The district judge concluded that while the parties disputed how much manure was leaking from the lagoons, there was no question that the lagoons do in fact leak manure, directly contributing to

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[89] Wash. Dep't of Agric., *Minimum Elements of a CAFO Dairy NPM* (last visited Aug. 12, 2021), https://agr.wa.gov/departments/land-and-water/livestock-nutrients/cafo-nutrient-management-plans.

[90] Wash. Dep't of Agric., *Nutrient Management Plans* (last visited Aug. 12, 2021), https://agr.wa.gov/departments/land-and-water/livestock-nutrients/minimum-elements-of-a-dairy-nmp.

[91] *See* WASH. DEP'T OF AGRIC., IMPLEMENTATION OF NUTRIENT MANAGEMENT TRAINING PROGRAM: REPORT TO WASHINGTON STATE LEGISLATURE 11 (Jun. 2017) ("There is no penalty for failure to follow or update a NMP."), https://app.leg.wa.gov/ReportsToTheLegislature/Home/GetPDF?fileName=634-DNMP2017LegReport_b2479af1-2fc9-4218-8200-1a0118e3063b.pdf.

[92] *Id.*

[93] *CARE v. Cow Palace, LLC*, 80 F. Supp. 3d 1180, 1230 (E.D. Wash. 2015) ("Defendants' application, storage, and management of manure at Cow Palace Diary violated RCRA's substantial and imminent endangerment and open dumping provisions.").

[94] *Id.* at 1196.

groundwater contamination.[95] Cow Palace admitted to having no synthetic liners in its lagoons, despite liners being recommended when a lagoon sits directly above an aquifer.[96] The district judge also held that Cow Palace land applied tens of millions of gallons of manure to fields that required no fertilization, further leading to the elevated nitrate levels in the surrounding area.[97]

While *some* dairies, through settlement of citizen suits,[98] have started to make operational changes to reduce their contribution to the nitrogen/nitrate overload in the GWMA, many more operations have not. More recently, Petitioners have taken two dairies located in the town of Outlook, Snipes Mountain Dairy and De Ruyter & Brothers Dairy, to court for excessive land applications of manure as a method of waste disposal that is polluting nearby drinking water.[99] These two dairies are adjacent to each other and collectively produce 62 million gallons of manure per year.[100] Most of this manure is stored in poorly lined lagoons that sit directly above two aquifers. These aquifers supply drinking water to nearby homes and even to an elementary school. The school's drinking water well, as well as others in the area, have had nitrate levels higher than the safe drinking water limit of 10 mg/L.[101]

While the RCRA citizen suit provision has the potential to provide some relief on a dairy-by-dairy basis, the resource burden on citizen groups to challenge each facility and monitor them for compliance is extremely high. This relief can take years to win, if at all, increasing residents'

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[95] *Id.*

[96] *Id.* at 1195.

[97] *Id.* at 1222.

[98] *Id.*; *but see* Order on Consent Decree Sanctions, *CARE v. George DeRuyter & Son Dairy, LLC, et al.*, No. 13-CV-3017-TOR (E.D. Wash. July 14, 2020), https://gaftp.epa.gov/region10/sites/yakima/Lawsuits/02_CARE_v_DeRuyter/2020-07-14%20Order%20on%20Sanctions.pdf. While several dairies entered consent decrees following *CARE v. Cow Palace* summary judgment, *see, e.g.*, Consent Decree (May 19, 2015), https://gaftp.epa.gov/region10/sites/yakima/Lawsuits/01_CARE_v_Cow-Palace/DeRuyter_Consent_Decree.pdf, not all have adhered to the requirements and timelines, requiring further court intervention. *See* Second Quarter 2019 Groundwater Monitoring Data Report, *In the Matter of Yakima Valley Dairies*, SDWA-10-2013-0080, Table 6 (Aug. 2019) , https://gaftp.epa.gov/region10/sites/yakima/Lawsuits/01_CARE_v_Cow-Palace/Well_Monitoring_Data_2019_Q2.pdf.

[99] Emily Goodell, *Dirty Dairies Dump Animal Waste Into Yakima Valley Drinking Water*, YAK TRI NEWS (last updated May 12, 2021), https://www.yaktrinews.com/lawsuit-dirty-dairies-dump-animal-waste-into-yakima-valley-drinking-water.

[100] *Id.*

[101] *Id.*

exposure to nitrate contamination as they attempt to fix the problem on their own while they wait for EPA and state officials to fulfill their obligation to protect drinking water. This individual, case-by-case relief cannot equal the widespread changes necessary to remedy the public health crisis facing the Lower Yakima Valley, which the state has failed to undertake and only EPA can effectuate using its emergency powers under the SDWA.

Moreover, even when complying with requirements and standards for manure management, dairies can pollute groundwater. Lagoons that are constructed in compliance with National Resource Conservation Service (NRCS) standards are actually designed to leak. According to the NRCS handbook, "properly" constructed lagoons can leak up to 5,000 gallons of manure wastewater per acre per day.[102] Additionally, the Washington Department of Ecology does not require groundwater monitoring by CAFOs as part of its 2017 revised CAFO general discharge permit, despite having known about the risk posed by the area's dairies for decades.[103] In June 2021, the Washington Court of Appeals held that the Department's CAFO general permits were unenforceable because they "do not impose sufficient surface or groundwater monitoring requirements on CAFOs."[104] The court directed the Department to rewrite the permit, but the Department does not plan to issue a revised permit until the end of 2022, at the earliest.[105] In the meantime, at least 11 dairy CAFOs in Yakima Valley continue to operate with a legally deficient general permit.[106]

Considering the huge magnitude of nitrogen production attributable to the LYVGWMA's dairies, the many lenient guidelines for manure management, and available well testing data, the unavoidable conclusion is that CAFOs are to blame for the area's dangerously elevated nitrate

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[102] NRCS Agric. Waste Mgmt. Field Handbook, *Chapter 10: Agricultural Waste Management System Component Design*, App. 10D-16 (2009) ("NRCS guidance considers an acceptable initial seepage rate to be 5,000 gallons per acre per day."); *see also* 2012 EPA Nitrate Sources Report, at 32–33, 47–48 (estimating that dairy CAFOs release millions of gallons of manure lagoon leakage every year).

[103] *Puget Soundkeeper Alliance, et al. v. Wash. Dept. of Ecology*, No. 52952-1 (Wash. Ct. App) (challenging this general permit for failing to adequately regulate discharges of pollutants from CAFOs under federal and state law).

[104] *Washington State Dairy Fed'n v. State*, 490 P.3d 290 (Wash. Ct. App. 2021).

[105] *See id.*; Wash. Dep't of Ecology, *Permit Reissuance* (last visited Aug. 17, 2021), https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Concentrated-animal-feeding-operation#Reissue.

[106] *See supra* note at 71.

concentrations in drinking water. The EPA itself has reiterated this conclusion in a 2019 letter to Petitioner Friends of Toppenish Creek, in which the agency stated that data collected since its 2013 study confirms that improper manure handling and crop irrigation are the primary sources of nitrate in the region.[107]

The state's repeated failures to mitigate nitrate levels in drinking water put more and more people at risk of drinking contaminated water. Allowing CAFOs to continue operating in the LYVGWMA without meaningful changes to their animal confinement, manure management, and manure disposal practices will perpetuate the imminent and substantial endangerment to residents' health in direct violation of the SDWA.

E. Conditions in the LYVGWMA Constitute an Imminent and Substantial Endangerment to Human Health Under the SDWA.

The current levels of nitrate in drinking water in the LYVGWMA present an imminent and substantial endangerment to human health because consumption of drinking water contaminated with nitrate is known to cause serious health risks. and there is reasonable cause for concern that individuals are and will be exposed to this risk at increasing concentrations.

1. Nitrate Contamination in the LYVGWMA Constitutes an Endangerment.

Nitrate is plainly an endangerment to public health under the SDWA because EPA not only categorizes it as a "contaminant,"[108] but as an "acute contaminant" known to pose significant health risks:[109] According to EPA, "[n]itrate is an acute contaminant, meaning that one exposure can affect a person's health. Too much nitrate in your body makes it harder for red blood cells to carry oxygen."[110] Nitrate is a particularly insidious contaminant because it is colorless, odorless and tasteless, meaning that people don't have a way of identifying its presence in their drinking water

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[107] Letter from Chris Hladick, EPA Regional Admin., to Jean Mendoza, FOTC (Aug. 8, 2019).

[108] 40 C.F.R. § 141.62(b).

[109] 2019 LYVGWMA Program, Vol. I, at 15.

[110] U.S. EPA, Region 10, *Frequently Asked Questions About Nitrate & Drinking Water* (Oct. 2012) , https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-faq-october-2012.pdf; *Lower Yakima Valley Groundwater* (last visited Oct. 18, 2021), https://www.epa.gov/wa/lower-yakima-valley-groundwater; *see also* Wash. Dep't of Health, *Questions & Answers: Nitrates & Drinking Water* (Jul. 2016), https://www.doh.wa.gov/Portals/1/Documents/Pubs/331-214.pdf.

without testing.[111] Additionally, boiling drinking water, as is often done in preparation of baby formula, increases the nitrate concentration of the water because nitrates do not evaporate.[112] EPA previously found that nitrate levels above the MCL of 10 mg/L present an imminent and substantial endangerment to human health.[113]

Drinking water contaminated with nitrate has well-documented adverse health risks including a variety of cancers, "blue-baby syndrome," and reproductive problems.[114] An expert report presented in the citizen suit brought by Petitioner Center for Food Safety against Cow Palace includes evidence that several cancers including non-Hodgkin lymphoma, colon cancer, ovarian cancer, and bladder cancer are associated with exposure to nitrate levels as low as 5 mg/L.[115] Other cancers that can occur with long-term exposure to nitrates below 10 mg/L include stomach, nasopharynx, prostate, uterus and brain cancers.[116] The expert report also discussed increased risk of mortality from heart disease and strokes, and hyperthyroidism as serious health risks of long-term exposure to nitrate levels above 11 mg/L.[117]

Nitrate-contaminated drinking water is especially dangerous for sensitive populations such as infants and pregnant women. High levels of nitrate in drinking water are "a serious health concern for infants and pregnant or nursing women," and are known to cause methemoglobinemia, or "blue-baby syndrome," a potentially fatal condition in which an infant's skin turns blue from lack of oxygen in the blood.[118] Nitrate in water supplies has also been linked to spontaneous miscarriages and birth defects.[119] Census estimates from Yakima County indicate

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[111] 2010 Groundwater Quality Preliminary Assessment, at 14.

[112] *Id.* at 53.

[113] *See, e.g.*, Administrative Order on Consent, *In the Matter of Yakima Valley Dairies*, SDWA-10-2013-0080, at 7 (Mar. 19, 2013) (finding that "above the concentration of 10 mg/L in drinking water, nitrate may present an imminent and substantial endangerment to the health of person), https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-consent-order-2013.pdf.

[114] *See supra* notes 13 and 14; *see also* 2012 EPA Nitrate Sources Report, at ES-2.

[115] Expert Report, at 2, 22 ("Health effects have been documented at exposure levels below 10 mg/L, suggesting that the EPA MCL may need to be lowered.").

[116] *Id.*

[117] *Id.*

[118] *E.g.*, 2019 LYVGWMA Program, Vol. I, at 16.

[119] *See supra* note 110.

that infants and pregnant women—populations especially sensitive to nitrate consumption—live in the area, and approximately 6% of women between the ages of 15 and 50 gave birth in 2019.[120]

Nitrate contamination is and will continue to be present at elevated levels in groundwater in the LYVGWMA without EPA action. The numerous studies demonstrating that a contaminant known to cause disease and illness is present at unsafe levels in wells used by tens of thousands of residents proves an unambiguous SDWA "endangerment."

2. The Public Health Endangerment is Imminent.

Since the present contamination of the region's drinking water is thoroughly documented, endangerment is clearly imminent. As explained above, an endangerment is "imminent" if conditions that give rise to it are present, even if actual harm has not already been documented in the contaminated area.[121]

Unsafe levels of nitrate contamination in the Lower Yakima Valley water supply were identified over 30 years ago,[122] and data trends indicate that nitrate contamination is increasing in the LYVGWMA, despite Washington's lackluster attempt to mitigate the problem with a GWMA designation. [123] The highest levels of nitrate in wells tested are found near large dairies.[124] As discussed at length above, dairy CAFOs are known to cause nitrogen pollution in Lower Yakima Valley because they produce huge amounts of nitrogen pollution and fail to manage their waste responsibly. The upward trends in prevalence of elevated nitrate levels increases both the likelihood that individuals will be exposed to nitrate at harmful levels and the severity of those

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[120] U.S. Census Bureau, Census Profile: Yakima, WA (2019), http://censusreporter.org/profiles/16000US5380010-yakima-wa; Yakima County, WA (2019), https://www.census.gov/quickfacts/yakimacountywashington.

[121] *See supra* note 15

[122] *See* 2011 Groundwater Quality Preliminary Assessment, at 11, 13; *see also* WASH. DEP'T OF ECOLOGY, WASHINGTON STATE AGRICULTURAL CHEMICALS PILOT STUDY: FINAL REPORT 45–48, 58–59 (Nov. 1990) (hereinafter 1988 Ecology Study) (finding "detectable concentrations of nitrate" in wells sampled in Lower Yakima in 1988), https://apps.ecology.wa.gov/publications/documents/9046.pdf.

[123] *Compare* 2017 USGS Report, at 1, 18 (26% of wells sampled in 2017 exceeded the nitrate MGL of 10) with 1988 Ecology Study, at 48 (no wells sampled in 1988 exceeded MGL, but 30% of wells showed "detectable concentrations of nitrate," ranging from 0.01 to 6.2 mg/L").

[124] *See supra* notes 61–64 (discussing EPA's 2012 and 2013 studies on dairy CAFOs)

exposures. This further demonstrates that CAFOs (including their manure lagoons and land application sites) are the primary culprit, and endangerment is imminent.

3. The Public Health Endangerment is Substantial.

The public health risks associated with nitrate contamination in the LYVGWMA constitute a substantial endangerment under the SDWA. According to the EPA's updated guidance on SDWA emergency authority, an example of substantial endangerment is "a substantial likelihood that contaminants capable of causing adverse health effects will be ingested by consumers if preventative action is not taken."[125] Well sampling from 1988 to present has shown elevated nitrate levels in residential drinking water wells across the Lower Yakima Valley. Thus, residents of the Lower Yakima Valley have been and continue to be "exposed to a risk of harm,"[126] given the severe health risks associated with the exposure. This alone demonstrates that the endangerment is substantial.

The lack of state regulations to address the well-documented increase in nitrate concentrations indicates there is no way the contamination levels or number of people drinking contaminated water will decrease without emergency action by the EPA. Despite Petitioners' attempts to remedy the situation through RCRA citizen suits against specific dairy operators and administrative challenges to Washington's CAFO general permits, nitrate levels remain dangerously high, resulting in immediate and ongoing public health impacts. These exposures constitute a serious risk of harm, indicating that the existing public health crisis in Lower Yakima Valley will continue to endanger residents unless and until EPA takes necessary action under the SDWA Section 1431.

V. WASHINGTON OFFICIALS HAVE FAILED TO ACHIEVE SAFE DRINKING WATER QUALITY DESPITE DECADES OF ATTEMPTING TO IMPLEMENT MITIGATION PLANS.

EPA should exercise its emergency authority under Section 1431 of the SDWA because users of USDW and PWSs in the LYVGWMA face imminent and substantial endangerment, and

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[125] Emergency Authority Guidance, at 11 (explaining that an endangerment is substantial "if there is a reasonable cause of concern that someone may be exposed to a risk of harm").

[126] *Id.*

action by Washington officials has been neither timely nor effective. In January 2010, EPA determined that the use of Section 1431 emergency powers was appropriate to address nitrate pollution in the Lower Yakima Valley.[127] Since then, nitrate pollution has worsened, and state officials still lack adequate plans or resources to address the problem.

Washington officials have been aware of the public endangerment from nitrates in the Lower Yakima Valley since the 1980s and have allowed the danger to increase. Community Association for Restoration of the Environment (CARE) and Concerned Citizens for the Yakima Reservation (CCYR) definitively identified the nitrate issue in 1997.[128] In 2010, the Washington Department of Ecology, along with EPA and other state agencies, compiled well sampling data from 1988 to 2008 and found that 12% of private wells sampled in the Lower Yakima Valley exceeded the nitrate MCL.[129] The report estimated that over 2,000 people in the Lower Yakima Valley are exposed to nitrate over the maximum contaminant level (MCL) through their drinking water.[130] Yakima County relied on this preliminary assessment report to submit a request to the Ecology Department to form the Lower Yakima Valley Groundwater Management Area.[131]

Since the LYVGWMA was formed in 2011, the project has focused on installing 30 ambient groundwater monitoring wells to measure baseline water quality conditions.[132] Based on the initial well sampling in fall 2018, 45% of monitoring wells exceeded the MCL for nitrates.[133]

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[127] *See, e.g.,* 2010 EPA Stakeholder Assessment, at 5 ("The EPA has determined that these conditions exist in the Yakima Valley because nitrate levels are above the maximum contaminant limits (MCLs).").

[128] PACIFIC GROUNDWATER GROUP, REQUEST FOR IDENTIFICATION OF LYVGWMA 1 (Jun. 2011) , http://www.yakimacounty.us/DocumentCenter/View/2359; Wash. Dep't of Ecology, Order Designating the Lower Yakima Valley Groundwater Management Area (Nov. 15, 2011) , https://www.yakimacounty.us/DocumentCenter/View/15881/ECY_Order-of-the-Director-to-Form-GWMA-11-15-11?bidId=.

[129] *See supra* notes 52–56 (discussing 2010 Groundwater Quality Preliminary Assessment).

[130] 2010 Groundwater Quality Preliminary Assessment, at 6.

[131] Request for GWMA Identification, at1, 5.

[132] PACIFIC GROUNDWATER GROUP, LYVGMA AMBIENT GROUNDWATER MONITORING WELL INSTALLATION REPORT 1 (Apr. 2019) (hereinafter 2019 Monitoring Well Installation Report) , https://fortress.wa.gov/ecy/ezshare/wq/groundwater/Ambient-Well-Installation-Report.pdf; *see also* WAC 173-100-100 (6)(b) (requiring that the GWMA Program include a monitoring system for evaluating the effectiveness of the Program).

[133] *See* 2019 Monitoring Well Installation Report, Table 2.

Only 17% of monitoring wells fell below the natural background rate of 3 mg/L, while 21% of wells tested at more than twice the MCL for nitrates.[134] And a 2017 sampling of 156 private wells in the Lower Yakima Valley concluded that at least 26% of sampled wells exceeded the MCL.[135] More testing consistently reveals more of a problem.[136] Thus, Washington officials are and have been fully aware of the ongoing threat to human health that exists in the LYVGWMA.

Washington's agencies and officials have proven ineffective at dealing with this imminent and substantial endangerment and have failed to execute their responsibility to address the LYVGWMA's dangerous nitrate problems. Although Washington officials have clear authority to adopt the mandatory regulations necessary to resolve the imminent and substantial endangerment, they have consistently refused to act. The Washington Department of Health has responsibility for carrying out the protection of public water systems under the SDWA. The Ecology Department is responsible for implementing the Water Resources Act of 1971, as well as controlling and preventing pollution to surface and groundwater under the Water Pollution Control Act.[137] The Washington Department of Agriculture regulates and enforces the management of livestock nutrients.[138] Under the Washington Environmental Policy Act, all agencies must consider the environmental implications of potential actions.[139] Yakima County is responsible for adopting a comprehensive plan and developing regulations consistent with the Groundwater Management Act, which protects the quality and quantity of groundwater for public water supplies.[140] But instead of utilizing these existing authorities, Washington agencies undertook a lengthy and expensive planning process with the LYVGWMA that has not resulted in meaningful action.

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[134] *Id.*

[135] 2017 USGS Report, at 1, 18.

[136] New well monitoring networks have intentionally excluded the dairy cluster area. WASH. DEP'T OF ECOLOGY, QUALITY ASSURANCE PROJECT PLAN: LYVGMA AMBIENT GROUNDWATER MONITORING NETWORK 24 (Jun. 2021), https://apps.ecology.wa.gov/publications/documents/2103106.pdf.

[137] RCW §§ 90.48, § 90.54, § 90.48.030; WAC 173-200-010.

[138] RCW §§ 90.64, § 90.48; WAC 16-611.

[139] RCW § 43.21C.

[140] RCW § 36.70A.070(1).

After formation of the LYVGWMA in 2012, the state's primary mechanism for bringing drinking water quality within safe levels has been the Groundwater Management Program.[141] The Groundwater Advisory Committee developed the Program under the direct supervision of Yakima County as lead agency.[142] From the period of 2012 to 2019, all Washington agencies involved in protection of drinking water focused efforts on providing technical assistance to the Groundwater Advisory Committee. The Committee completed planning for the Program in 2019, after seven years and at a cost of more than $2.3 million.[143] In those intervening seven years, the Groundwater Advisory Committee completed only 10 actions, most of which involved sampling and monitoring rather than tangible actions to prevent or abate nitrate contamination from the primary contaminators, such as CAFOs.[144]

The main product of the Program is a prioritized list of 64 "Recommended Actions," which amounts to an outline of what agencies have consistently failed to do for decades. Washington officials do not explain why they expect more of the same approaches will yield different results this time. And since the Program's approval, the trend of failure has continued. The Program is both inadequately staffed and funded, and prioritizes more of the same inadequate, voluntary actions of the past rather than using regulatory authority to remedy the ever-growing nitrate danger.

The Program does not have a functional management structure, even though the third highest priority recommendation is to "[e]stablish a Lead Agency responsible for implementation and oversight of the GWMA Groundwater Management Plan and acquisition of stable funding to support their activities."[145] The Program also includes a section on implementation that directs the agencies responsible for managing groundwater pollution to form a facilitation team to "create a management structure" for implementation of the Recommended Actions.[146] However,

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[141] WAC 173-100-100.

[142] WAC 173-100-090-100.

[143] Letter from Jean Mendoza, FOTC, to Vincent McGowan, Wash. Dep't of Ecology (Aug. 8, 2021) (on file with author).

[144] 2019 LYVGWMA Program, Vol. I, at 2–3, 87–98.

[145] *Id.* at 87.

[146] *Id.* at 99–101.

implementation of the Program recommendations is stalled with inadequate leadership and funding. Although implementation activities have not been publicized, information obtained through public records requests reveals that the South Yakima Conservation District, which has a staff of two individuals, is designated to lead this monumental pollution cleanup plan.[147] No other agency has been willing to assume leadership responsibilities.[148] Moreover, the South Yakima Conservation District and the facilitation team have not secured funding for implementation.[149]

Even if implementation was adequately funded and staffed, the Program's Recommended Actions are both redundant and inadequate to resolve the pollution problem. None of the action categories require reductions in nitrate pollution from the major contaminators.[150] Indeed, one recommendation category is to "[p]romote voluntary source reduction strategies for all nitrate sources."[151] In the past, Washington's voluntary strategies have consistently failed to improve nitrate levels and engage CAFOs to the extent necessary to lower nitrate levels. There is no reason to believe that will change given the inadequate leadership and funding evidenced so far. Voluntary strategies do not mandate actions that would begin to abate the ongoing endangerment to human health and as such are unenforceable and inadequate to bring nitrate levels within state and federal standards. Even where residents have obtained a court order requiring CAFOs to reduce nitrate contamination, CAFO operators have continued to ignore their obligations, forcing residents to turn to the courts once again to hold the CAFOs in contempt.[152]

The few Recommended Actions with regulatory teeth have been designated as low priority. For example, the Recommended Action to "[a]mend the Dairy Nutrient Management Act to extend WSDA's authority on manure application to manure application on properties other than

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[147] Letter from Laurie Crowe, Livestock Nutrient Management Program Specialist, South Yakima Conservation District, to Jean Mendoza, FOTC (Jun. 11, 2020) (on file with author).

[148] Email from Laurie Crowe to Jim Honeyford, Wash. State Senator, 15th Legislative District (Nov. 13, 2019, 3:24:37pm PT) (on file with author).

[149] *See supra* note 147.

[150] 2019 LYVGWMA Program, Vol. I, at 3.

[151] *Id.*

[152] Order Finding Noncompliance, *CARE v. Deruyter & Son Dairy LLC*, Case No. 2:13-cv-03017-TOR (E.D. Wash. Apr. 14, 2020), https://www.centerforfoodsafety.org/files/2020-04-14-dkt-256-order-finding-noncompliance-setting-briefing_79194.pdf.

those owned by dairies," was ranked 49 out of all 64 recommendations; and the Recommended Action to "[i]ssue permits for agricultural composting operations, to appropriately inspect composting operations and to enforce regulations that protect public health and the environment, per WAC 173.350.040," was ranked 53.[153] In contrast, the highest priority Recommended Actions were install ambient groundwater monitoring wells, and collect data from these wells.[154] Other high priority recommendations concerned funding and education.[155] Officials have collected decades of data relating to nitrate contamination in the Lower Yakima Valley.[156] Instead of securing funding to tackle this problem, officials have continued to prioritize ineffective approaches over using regulatory authority to clamp down on the major nitrate contaminators.

Moreover, Washington agencies and officials have made no effort to enforce existing authority against CAFOs. The Recommended Action ranked 25 out of 64 would have Washington's Departments of Ecology and Agriculture "[s]treamline current regulatory enforcement activities."[157] Both Washington state and federal law direct the Ecology Department to require both groundwater and surface water monitoring when a permit authorizes discharge of pollutants to waters of the state or waters of the United States, respectively.[158] Under the Washington Water Pollution Control Act, the Ecology Department is required to promulgate rules that "maintain the highest possible standards of all waters of the state" and may bring enforcement actions to carry out the provisions of the Act.[159] That authority extends to nitrates, including nitrates from CAFO facilities and nutrients applied in excess of agronomic rates.[160] The Ecology Department identifies CAFOs as the largest contributors to nitrate pollution in the Lower

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[153] 2019 LYVGWMA Program, Vol. I, at 96–97.

[154] *Id.* at 87.

[155] *Id.* at 87–89.

[156] *See, e.g.,* Request for LYVGWMA Identification, at 1–2.

[157] *See* 2019 LYVGWMA Program, Vol. I, at 92.

[158] *See* 2019 LYVGWMA Program, Vol. II, at 7–12. The Ecology Department has failed to require adequate reasonable monitoring under the "Combined Permit," which includes both the National Pollutant Discharge Elimination System (NPDES) permits issued by Ecology under the Clean Water Act and the State Waste Discharge General Permit.

[159] RCW §§ 90.48.035, § 90.48.037.

[160] WAC 173-200-010.

Yakima Valley; however, the Ecology Department has only brought four enforcement actions for water quality violations against three CAFOs in the Lower Yakima Valley in last decade.[161] This is little surprise because Ecology Department has failed to require adequate water quality monitoring by CAFO permittees authorized to discharge nitrates into waters.[162] Without monitoring to detect pollution, proper enforcement is impossible.

Petitioners and those living in the Lower Yakima Valley who rely on the area's groundwater for everyday life cannot depend on Washington agencies and officials to fix the ongoing and worsening endangerment to human health caused by nitrate contamination. Agencies and officials have been neither timely nor effective in remedying the situation, and their action plans do not address the decades of failure to rein in nitrate pollution from the area's CAFOs and irrigated agricultural practices.[163] EPA must not let Washington officials continue to sit on the sidelines for another decade as the threat to the health of Washington citizens grows ever more severe.

VI. EPA EMERGENCY ACTION IS NECESSARY TO ABATE ONGOING AND EVER-INCREASING ENDANGERMENT TO HUMAN HEALTH FROM NITRATE CONTAMINATION.

EPA action is necessary here because although state and local authorities have taken various actions to try and address nitrate contamination in the LYVGWMA over the past decades, such as testing, monitoring, and establishing action plans, these actions have not been timely or effective.[164] State and local officials have failed to protect public health from nitrate contamination, while state actions such as the continued approval and permitting of CAFO operations with inadequate protections and consideration directly undermine any efforts to

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[161] *See* Wash. Dep't of Ecology, *Water Quality Permitting & Reporting Information System* (last visited Sep. 27, 2021). https://apps.ecology.wa.gov/paris/Inspection/FacilityEnforcement.aspx?1=&2=&3=&4=yakima&5=0&6=13&7=0&8=7%2f28%2f2009+12%3a00%3a00+AM&9=9%2f28%2f2021+12%3a00%3a00+AM.

[162] *See, e.g.*, Puget Soundkeeper, *Ecology's CAFO Water Permit Sacrifices Public Health, Drinking Water, Shellfish Beds* (Jan. 2017), https://pugetsoundkeeper.org/2017/01/19/ecologys-cafo-water-permit-sacrifices-public-health-drinking-water-shellfish-beds.

[163] *See* 2019 LYVGWMA Program, Vol. I.

[164] *See* H.R. Rep. No. 1185, 93rd Cong., 2d Sess., 35–36 (1974) (discussing the legislative intent to "direct the Administrator to refrain from precipitous preemption of effective State or local abatement efforts" unless action is not timely or effective); *see also* Emergency Authority Guidance, at 9.

improve the region's groundwater quality. The state has its head in the sand and is only digging itself deeper. EPA's SDWA guidance states that if EPA knows state or local agencies are going to act, EPA must decide if the actions are timely and effective.[165] And if they are insufficient, EPA should proceed with emergency action necessary to protect human health.[166] Thus, EPA has the authority to take emergency action if, as here, the state and local agencies have already started to act, but not in a timely or effective way.

As discussed in detail above, the statutory prerequisites for emergency action under 42 U.S.C. § 300i are satisfied here.[167] First, nitrate, which is a "contaminant" under the SDWA,[168] is present in and continues to leach into USDW in the LYVGWMA. Second, the presence of nitrate contamination in groundwater is causing an imminent and substantial endangerment to public health; an alarming number of Lower Yakima residents rely on USDW that have been identified as carrying substantial nitrate risks for users. Finally, the State of Washington has not taken timely or effective action to abate the public health endangerment. Though the Ecology Department has taken some steps to investigate the nature and scope of the threat, Washington officials have failed to exercise their authority to regulate the predominant sources of contamination. And while county and city authorities have engaged in public education and research related to groundwater quality, their limited action has similarly proven insufficient to remedy the problem.

EPA has broad authority to investigate and remediate threats to public health under the SDWA. "Once EPA determines that action under Section 1431 is needed, a very broad range of options is available" as necessary to protect users of USDW.[169] The tools available to EPA include conducting studies, halting the disposal of contaminants that may be contributing to the endangerment, and issuing orders such as mandatory changes to manure generation, handling, and land application practices.[170] In fact, "EPA may take such actions notwithstanding any

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[165] *See* Emergency Authority Guidance, at 9, 13.

[166] *Id.*

[167] *See id.*

[168] 40 C.F.R. §§ 141.11(d) ("At the discretion of the State, nitrate levels not to exceed 20 mg/l may be allowed in a non-community water system"), § 141.62(b) (MCL for nitrate).

[169] Emergency Authority Guidance, at 14.

[170] *See id.* at 10–11.

exemption, variance, permit, license, regulation, order, or other requirement that would otherwise apply."[171]

EPA should prioritize investigating and abating nitrate contamination caused by CAFOs and land application of CAFO wastes to irrigated cropland in the LYVGWMA. As explained, these interrelated land use activities constitute most of the nitrogen pollution in the region and this contamination has degraded the area's USDW for decades. Unless EPA intervenes, this contamination will continue to endanger public health.[172]

Specifically, Petitioners respectfully request EPA take at least the following measures under its SDWA Section 1431 emergency powers, either by administrative order or through civil action:

- Order the parties responsible for the nitrate contamination to supply a free source of clean drinking water to residents of the LYVGWMA whose private wells or PWSs exceed safe limits for nitrate to prevent blue-baby syndrome, cancer, and other adverse health effects,
- Prohibit CAFOs from opening, expanding, or modifying operations in the LYVGWMA unless and until nitrate concentrations in wells with historically high levels of nitrate consistently fall below the MCL of 10 mg/L;
- Require CAFOs and irrigated agriculture land applying CAFO waste or other nitrogen fertilizers to modify their practices so that these operations will cease overburdening the area with nitrogen pollution via lagoon leakage, land application of manure, and/or spills and leaks;
- Investigate Washington's CAFO permit requirements and BMPs for nutrient management to determine why they have been unsuccessful at protecting groundwater in the LYVGWMA;
- Determine what enforcement measures should be implemented to effectively reduce nitrogen pollution from CAFO sources;
- Conduct additional investigation and monitoring throughout the LYVGWMA to more accurately trace the sources and quantities of nitrogen pollution, and to identify which CAFOs and manure management practices are causing nitrate contamination;

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[171] *Id.* at 9.

[172] *See supra* Section IV.C (discussing dominant sources of nitrate pollution).

- Provide a timetable for implementing a remedy to abate nitrate contamination from identified contaminators; and
- Notify the public of the existing nitrate hazards and provide public updates throughout the process of returning drinking water to a safe condition.

The threat to public health in the LYVGWMA from nitrate pollution of groundwater is present and pervasive, and all signs indicate a continuation and exacerbation of dangerous contamination levels absent EPA action. Therefore, the undersigned Petitioners respectfully request that EPA use its emergency powers under the SDWA to take the actions necessary to abate the sources of contamination that increasingly place the public at substantial risk and provide other forms of relief within its authority as long as the endangerment persists.

VII. CONCLUSION

In conclusion, for the reasons stated above, the undersigned Petitioners respectfully request that EPA invoke its emergency authority under Section 1431 of the Safe Drinking Water Act to urgently address the imminent and substantial endangerment to public health within the LYVGWMA caused by ongoing and increasing nitrate contamination. Please contact the undersigned for more information regarding this petition.

Respectfully submitted,

Amy van Saun
Center for Food Safety
avansaun@centerforfoodsafety.org

Jean Mendoza
Friends of Toppenish Creek
jeanrmendoza@icloud.com

Tarah Heinzen
Food & Water Watch
theinzen@fwwatch.org