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June 11, 2014

Washington State Board of Health
Public Meeting
Hotel Murano
1320 Broadway Plaza
Tacoma, Washington 98402
Wednesday – June 11, 2014
9:30 am-4:05 pm

Re: Written Testimony on Briefing: Keeping of Animals – WAC 246-203-130

Honorable Members of the Board,

Thank you for the opportunity to address the Board about one of the most significant public health threats facing our state today: contamination of public and private drinking water wells from the lack of regulation of factory farms. We appreciate you having us here today and for all of your efforts to ensure that present and future generations of this state can depend upon safe and reliable drinking water resources. This testimony is being submitted on behalf of: Center for Environmental Law & Policy, Center for Food Safety, Community Association for Restoration of the Environment, Friends of Toppenish Creek, Concerned Citizens of the Yakama Reservation, Animal Legal Defense Fund, Martha and Dean Effler, MD, FAAP in Yakima, WA, Citizens for Sustainable Development, Jim and Lynda Dyjak and Puget Soundkeeper Alliance.

The contamination of groundwater and drinking water from factory farms is well documented throughout the state of Washington, and the public health threats are well known. But nothing is being done to protect Washingtonians from this public health crisis. Currently over 65% of Washingtonians get their drinking water from groundwater.¹ Approximately 725,000 Washingtonians get their drinking water from individual private wells.² In the United States, “over a million people are estimated to take their drinking water from groundwater that

¹ Ecology, Strategic Recommendations for Groundwater Assessment Efforts of the Environmental Assessment Program, available at <https://fortress.wa.gov/ecy/publications/publications/0303009.pdf> (last visited May 19, 2014).

² WA Department of Health, The Office of Drinking Water (Overview), available at <http://www.doh.wa.gov/CommunityandEnvironment/DrinkingWater/TheOfficeofDrinkingWater.aspx> (last visited May 19, 2014). In 2000, the Department of Health reported that 800,000 Washington residents, or 15% of the state population, relied on unregulated private wells for their drinking water source. WA Department of Health, Contamination of Drinking Water in Washington State Background Paper, Risk Communication Case Study (April 28, 2000).

shows moderate or severe contamination with nitrogen-containing pollutants, mostly due to the heavy use of agricultural fertilizers and high rates of application of animal waste.”³

Unfortunately, neither the Department of Ecology nor Agriculture are doing what needs to be done to protect the health of those Washingtonians who have no option other than to drill a well to obtain water for drinking, bathing, irrigation and other uses. We are here today to ask you to implement your existing statutory authority to assure safe and reliable public drinking water and to protect the public health. We have several recommendations in regard to what you can do to protect the people of this state.

As you are aware, the Washington State Board of Health has significant legal authority to protect public health. RCW 43.20.050. The legislature has made it clear that the Board plays a vital role ensuring that animals are kept in a way that does not threaten public health and the environment. This role is codified in the Board’s statutory obligation to “adopt rules and standards for prevention, control and abatement of health hazards and nuisances related to the disposal of human and animal excreta and animal remains.” RCW 43.20.050(2)(c). Within this statutory enactment is the legislature’s finding that animal manure can **and does** constitute a public health hazard, sufficient to convey to this Board significant authority to prevent, control and abate health hazards caused by animal manure. This authority is broad and not limited in terms of the type of animal excreta, the number of animals generating the excreta, or if there are other sources of law that apply to the animal excreta in question. It makes no sense for the Board to narrowly interpret this statutory authority, especially considering that the largest factory farms pose the greatest risk to human health and the environment. We are here today to urge you to exercise and enforce this authority to the fullest extent of the law.

Since 1978, the Department of Health, Office of Drinking Water has delegated authority from the Environmental Protection Agency (“EPA”) to implement the provisions of the Safe Drinking Water Act, the federal statute that mandates the prevention of contamination of public drinking water from any source. Pub. L. 93-523. Specifically, the Office of Drinking Water is obligated to “[r]espond to drinking water emergencies, threats of unsafe water, and reports of waterborne disease” and to “[r]espond to acute coliform and nitrate MCL violations”⁴ Notably, under the state’s agreement with EPA, fecal coliform and nitrate violations are designated as the highest risk category for potential health violations.⁵ Large-scale factory farming is the predominant source of these violations in this state, creating a drinking water emergency that requires immediate Board of Health action.

³ Pew Commission on Industrial Farm Animal Production, Putting Meat on the Table: Industrial Farm Animal Production in America (August 1, 2008).

⁴ State/EPA Agreement, State of Washington Department of Health, Office of Drinking Water and U.S. Environmental Protection Agency (October 1, 2011-September 30, 2013) at 4.

⁵ *Id.* Appendix C (Washington State Department of Health, Office of Drinking Water Compliance Strategy Decision Matrix based on Public Health Risk).

It is undeniable that factory farms throughout the state of Washington are contaminating the ground water and drinking water resources with nitrates, bacteria and pharmaceuticals. Factory farms generate so much manure that it must be stored in large storage lagoons or piled on the ground. Just as an example, a group of dairies in the Lower Yakima Valley with 20,000 cows produces an amount of waste equivalent to the city of Chicago, Illinois, a city of 2.8 million people.⁶ There are approximately 80,000 dairy cows within a 100 square mile area in the Lower Yakima Valley. This number of animals produces as much animal waste as New York City. Unlike human waste, however, the vast amounts of animal waste generated by large factory farms is not sent to any kind of wastewater treatment plant, but rather dumped into unlined lagoons and placed in huge quantities directly onto the ground. And in contrast to other solid waste or municipal waste disposal facilities that are subject to stringent design, operation and monitoring regulations, factory farm lagoons are literally unlined holes in the ground. It is a simple principle of physics, known as Darcy's Law, that describes the flow of a fluid through a porous medium and confirms that all lagoons leak. Indeed, every study that the Washington Department of Ecology has conducted on factory farm lagoons illustrates the principle of Darcy's Law, as each lagoon investigated was found to leak. As Tom Tebb, Ecology's Yakima Regional Office Director and a licensed engineering geologist, geologist, and hydrogeologist, has confirmed: "A lagoon built on earth, if not properly constructed, would leak."⁷ Mr. Tebb also recognized that even manure lagoons constructed with a synthetic liner (there is one such lagoon in this state) would leak into the groundwater.⁸ When lagoons leak, the highly toxic animal excreta⁹ that is contained within the lagoons has only one place to go: into the groundwater and drinking water resources of this state. If you monitor the groundwater down-gradient of factory farm lagoons, you *will* find contamination. Countless studies, and courts of law, have confirmed that incontrovertible fact.

⁶ Phil Ferolito, Yakima Herald-Republic, "Dairy's Digester Will Now Be Used to Pipe Natural Gas" (May 20, 2014), available at <http://www.yakimaherald.com/news/2176878-8/dairys-digester-will-now-be-used-to-pipe> (last visited May 20, 2014).

⁷ *CARE, et al. v. Cow Palace, et al.*, Nos. CV-13-3016-TOR; CV-13-3017-TOR (E.D. WA) (Deposition of Thomas Tebb) (February 26, 2014) at 41.

⁸ *Id.*

⁹ Mr. Tebb has stated that dairy manure is actually stronger and more highly toxic than human waste. *Id.* at 27; *see also* EPA, Detecting and Mitigating the Environmental Impact of Fecal Pathogens Originating from Confined Animal Feeding Operations: Review (September 2005) ("Two important differences [between human and livestock waste] are that livestock CAFO animal wastes can be as much as 100 times more concentrated than human wastes, and the treatment of human wastes is required by law prior to discharge into the environment.").

Studies, including those relied upon by the Department of Health,¹⁰ also demonstrate that factory farms generate so much manure that it cannot be applied at agronomic rates, which is “the rate at which a viable crop can be maintained and there is minimal leaching of chemicals downwards below the root zone.”¹¹ While manure can be a useful product as a fertilizer that helps crops grow, any farmer or gardener will tell you that overuse of manure is harmful to plant propagation. That is because crops can only effectively uptake a specific, limited amount of nutrients contained in the manure. Once manure is applied in an amount that exceeds the agronomic rate, again the nutrients have only one place to go: into the groundwater and drinking water resources of this state.

We provide you with this information not to ask you to take action to protect the environment, which is a moral necessity, but to show you that factory farm waste presents a clear and present danger to the public health, demanding your immediate action. Safe and reliable drinking water is an essential natural resource to which all people of this state are entitled. Action by the Board is especially appropriate when those of us who are most vulnerable to consuming contaminated drinking water are infants and small children.¹² In addition, because it may be technologically difficult, time-consuming and expensive to remediate contaminated groundwater, future generations of this state are depending upon us to take steps *now* to ensure that they can rely upon groundwater as a safe and reliable source of drinking water.

As is demonstrated by the Department of Health’s own study, there is compelling evidence that exposure to nitrates in drinking water “significantly and substantially” increases

¹⁰ Washington Department of Health, An Examination of Methemoglobinemia in Washington State (May 1996) (“According to recent studies, farmers apply 24-38% more nitrogen-containing [manure] than crops require due to uncertainties associated with soil nutrient studies and weather. Excess nitrate can percolate into aquifers and contaminate drinking water.”).

¹¹ WA Department of Ecology, Basic American Foods Land Application Site (Moses Lake) Groundwater Review, Publication No. 12-03-019 (Feb. 2012) at 16.

¹² The federal government has recognized the heightened need to protect children from environmental health and safety risks. See Executive Order 13045, Protection of Children From Environmental Health Risks & Safety Risks (April 21, 1997) (recognizing that “a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks” and directing federal agencies to “make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children” and “ensure that [agency] policies, programs, activities and standards address disproportionate risks to children that result from environmental risks or safety risks.”).

the risk of an infant having elevated levels of methemoglobin.¹³ Nitrate toxicity in drinking water is manifest as a disease called methemoglobinemia.¹⁴ Infants under six months of age are most at risk because of their immature enzyme systems. If exposed to excessive nitrates and nitrites the oxygen carrying capacity of the blood is impaired resulting in a bluish discoloration of the skin, rapid breathing, weakness, sleepiness, and even death. Consumption of nitrate-contaminated water during pregnancy has also been linked to birth defects and miscarriages, and excessive nitrates in drinking water have been linked to neural tube defects (anencephaly). In August 2012, a health care provider in central Washington reported an excessive number of anencephaly births at a local hospital.¹⁵ The Department of Health conducted an investigation, including whether the pregnant mother used a public or private well-water supply.¹⁶ The Department of Health was unable to identify the “clear cause of the elevated prevalence of anencephaly,” and recommended “monitoring private well nitrate concentrations because of their potential association with birth defects and other adverse health outcomes.”¹⁷ While some data gaps exist – no government authority is presently collecting information about the number of families that rely upon contaminated household well water to feed their young infants or the number of infants that have been harmed by nitrate toxicity in utero – those gaps do not justify inaction. It is imperative that the Board of Health act *today* to protect those most vulnerable in this state.¹⁸

¹³ James VanDerslice, Washington Department of Health, Well Water Quality & Infant Health Study (June 14, 2009).

¹⁴ *Id.*

¹⁵ Centers for Disease Control and Prevention, Morbidity & Mortality Weekly Report, Vol. 62, No. 35, “Investigation of a Cluster of Neural Tube Defects – Central Washington, 2010-2013,” (Sept. 6, 2013); Croen, L.A., Todoroff, K. & Shaw, G.M. (2001) Maternal Exposure to Nitrate from Drinking Water and Diet and Risk for Neural Tube Defects. *American Journal of Epidemiology* 15 (4), available at http://aje.oxfordjournals.org/content/153/4/325.full.pdf?origin=publication_detail (last visited June 4, 2014) (finding the risk for anencephaly was four times greater when pregnant women drank water contaminated with nitrates).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ Nitrates in drinking water have also been linked to numerous other health effects including spontaneous abortions and cancer. Bolan et al., USGS, National Water-Quality Assessment (NAWQA Program), Probability of Nitrate Contamination of Recently Recharged Groundwaters in the Conterminous United States, *Environmental Science & Technology*, v. 36, no. 10 p. 2138-2145 (May 15, 2002) (“Nitrate in drinking water also might increase cancer risk through production of N-nitroso compounds in the body, which are highly carcinogenic.”).

Animal manure generated by animals confined at factory farms also contains significant amounts of pathogens, anti-microbials and hormones. The Washington Department of Health has found that “[s]eepage of liquid effluent from holding pens or barns, or manure piles, as well as percolation from fields in which animals graze can contribute not only nitrate, but also bacterial contamination to groundwater.”¹⁹ “Levels of human pathogens in animal manures can be millions to billions/gram of feces and [a]ntibiotic use also causes high proportions of antibiotic-resistant bacteria in animal wastes.”²⁰ Currently, there is a significant regulatory gap in terms of addressing animal waste management systems and their pathogenic contamination of land, air and surface and ground water. This is an area where the Board of Health can and should step in to take action to protect human health. We encourage the Board to revise its keeping of animals regulation so that it includes specific and enforceable requirements to ensure that animal manure is managed in a way that prevents the spread of pathogens, anti-microbials and hormones.

The American Public Health Association has declared that “[m]anure pathogens capable of causing severe gastrointestinal disease, complications, and sometimes death in humans include *Campylobacter*²¹ and *Salmonella* species, as well as *Listeria monocytogenes*, *Helicobacter pylori*, and *E coli* 0157:H&, and the protozoa *Cryptosporidium parvum*.⁸”²² Furthermore, “[e]pidemiology studies have, in fact, linked several outbreaks involving these pathogens to livestock waste; and Manure land application in excess of the land’s absorptive capacity also can lead to excess nitrogen and phosphorus in soil.”²³ Neither the Department of Ecology nor the Department of Agriculture is taking steps to address pathogen, anti-microbial and hormone pollution from factory farms in this state. This is true even though EPA has

¹⁹ Washington Department of Health, *An Examination of Methemoglobinemia in Washington State* (May 1996).

²⁰ Mark D. Sobsey, “Overview of Pathogens Associated with AFOs: What Organisms and Why?”

²¹ One recent study has found that “[i]n Washington State, the two counties with the highest concentrations of dairy cattle also report the highest incidences of campylobacteriosis.” Davis, M., et al., “Risk Factors for Campylobacteriosis in Two Washington State Counties with High Numbers of Dairy Farms,” *J. Clin. Microbiol.* (September 11, 2013). “These findings suggest that in areas with high concentrations of dairy cattle, exposure to dairy cattle may be more important than foodborne exposure to poultry products as a risk for campylobacteriosis.” *Id.*

²² American Public Health Association, “Precautionary Moratorium on New Concentrated Animal Feed Operations,” Policy No. 20037 (November 11, 2003), available at <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1243> (last visited June 3, 2014).

²³ *Id.*

recognized that “research suggests that synthetic hormones may persist at low concentrations even after months of [manure] storage and land application.”²⁴ As one study has concluded: “Based on available data, generally accepted livestock waste management practices do not adequately or effectively protect water resources from contamination with excessive nutrient, microbial pathogens, and pharmaceuticals present in the waste Potential impacts on human and environmental health from long-term inadvertent exposure to water contaminated with pharmaceuticals and other compounds are a growing public concern.”²⁵ There is a desperate need for the Board of Health to step in and utilize your existing statutory authority to protect public health.

No state agency is acting to protect public health from the application of manure from antibiotic- and hormone-treated animals confined in factory farms. Because animals in factory farms live in their own feces 365 days per year, the animals are given significant doses of antibiotics and hormones to stave off rampant illness and death. No animal is adapted to live in their own manure on a daily basis. A study issued this year has recognized that “[t]he increasing prevalence of antibiotic resistance among bacteria is one of the most intractable challenges in 21st century public health.”²⁶ The study discovered “novel and diverse antibiotic resistance genes in the cow microbiome, demonstrating that it is a significant reservoir of antibiotic resistance genes.”²⁷ The Centers for Disease Control and Prevention has “reported that at least two million Americans suffer from antibiotic resistant bacterial infections each year and twenty-three thousand Americans die from those infections.”²⁸ The use of antibiotics in livestock far outweighs human antibiotic use. Humans use approximately 3,290,000 kilograms of antibiotics per year, while livestock receives 13,540,000 kilograms per year.²⁹ “The widespread use of antibiotics in livestock may be contributing to growing resistance to the drugs by bacteria such as

²⁴ EPA, Literature Review of Contaminants in Livestock & Poultry Manure & Implications for Water Quality (July 2013) at 43.

²⁵ J. Burkholder, et al., “Impacts of Waste from Concentrated Animal Feeding Operations on Water Quality,” 115 Environmental Health Perspectives 308 (Feb. 2007).

²⁶ F. Wichmann, et al., “Diverse Antibiotic Resistance Genes in Dairy Cow Manure,” mBio 5(2)e01017-13. Dot:10.1128/mBio.01017-13 (April 22, 2014).

²⁷ *Id.*

²⁸ City of Seattle Resolution 31514 (April 7, 2014).

²⁹ “Where Antibiotics Go,” Science News (March 8, 2014); *see also* City of Seattle Resolution 31514 (April 7, 2014) (“eighty percent of the antibiotics sold in the United States are used in livestock production, and the Centers for Disease Control and Prevention has reported that most of those antibiotics are used irresponsibly”).

Salmonella.”³⁰ Therefore, many cities, such as Seattle, have resolved to support statewide and national bans on nontherapeutic uses of antibiotics in livestock production. We encourage the Board to do the same.

We come here today not to complain, but to provide you with information and ask that you utilize your existing statutory authority to address the public health crisis caused by animal manure pollution from factory farms. We have several recommendations as to what you can do to protect public health. Ecology has recognized that “[n]either public water systems nor residents on single wells have regulatory authority to prevent or abate pollution from neighboring nitrate sources that may be causing the contamination.”³¹ Therefore, it is critical that this Board implement the authority that you have to prevent, control and abate “health hazards and nuisances related to the disposal of human and animal excreta and animal remains.” RCW 43.20.050(2)(c). There are a variety of ways that the Board can fulfill their statutory responsibilities:

- (1) **Support groundwater monitoring in the Washington CAFO General NPDES/State Discharge Permit that Ecology is drafting.** The Legislature has directed the Board of Health to consult with Ecology so that “agencies concerned with the preservation of life and health and agencies concerned with protection of the environment may integrate their efforts and endorse policies in common.” RCW 43.70.310. Groundwater monitoring at all medium and large CAFOs in the state of Washington is the only way to protect drinking water sources in the vicinity of these industrial facilities. In addition, it is the only means to ascertain the impact of factory farm pollution on private drinking water wells. Urging Ecology to require groundwater monitoring in the WA CAFO Permit is a specific recommendation that the Department of Health made to the Governor on September 17, 2012 and we urge the Board to also make this recommendation and use your authority to ensure that Ecology issues a CAFO Permit that includes groundwater monitoring.³²
- (2) **Retain the existing language in WAC 246-203-130.** We have submitted detailed comments on this proposed rulemaking and we incorporate those comments herein by reference. Instead of adopting the current proposal, use this opportunity to revise WAC

³⁰ *Id.*

³¹ *Id.*

³² WA Department of Health, “Governor Briefing on Ag/Dairy Waste Issues in the Royal City and Sequim Areas,” (September 17, 2012) at 5 (“Ensure groundwater sampling around animal operations. This would not only help to prevent [contamination of] public water systems, but private well owners as well.”).

246-203-130 so that it includes specific and enforceable requirements designed to protect human health from animal manure pollution.

- (3) **Undertake a comprehensive, state-wide study of all public and private drinking water wells that are in the vicinity of medium and large CAFOs to ascertain the extent of nitrate, pathogen, antimicrobial and hormone contamination.** As the EPA has declared, “[w]hereas public water systems are subject to drinking water treatment processes, private drinking water wells are typically not tested or treated for these compounds, so antimicrobials and hormones in private groundwater drinking systems affected by livestock and poultry production may remain undetected. A stronger understanding of the prevalence and concentrations of antimicrobials and hormones in drinking water, as well as more research on which treatment processes best remove these compounds, will help in planning strategies to minimize their consumption and any potential associated health effects.”³³ Please utilize your authority to gather this critical information here in Washington state.
- (4) **Implement the recommendations of the National Association of Local Boards of Health designed to mitigate CAFO contamination,** including “monitoring health status, investigating health problems, developing policies, enforcing regulations, informing and educating people about CAFOs, and mobilizing community partnerships to spread awareness about environmental health issues related to CAFOs.”³⁴
- (5) **Implement the public health recommendations of the Pew Commission on Industrial Farm Animal Production in its August 1, 2008 report entitled, “Putting Meat on the Table: Industrial Farm Animal Production in America.”**
- (6) **Because of the confirmed high-risk well water in the Yakima Valley and in Whatcom County, the state Health Department should make methemoglobinemia a mandatory reportable disease under state law.** RCW 70.05.090 (“Whenever any physician shall attend any person sick with any dangerous contagious or infectious disease, or with any diseases required by the state board of health to be reported, he or she shall, within twenty-four hours, give notice thereof to the local health officer within whose jurisdiction such sick person may then be or to the state department of health in Olympia.”). This recommendation includes what the Washington State Interagency Ground Water Committee recommended nearly twenty years ago, in 1996: the Department of Health should “conduct follow-up investigations to determine, to the extent possible, the causal agent(s) of reported cases of methemoglobinemia.

³³ Environmental Protection Agency, Literature Review of Contaminants in Livestock & Poultry Manure & Implications for Water Quality (July 2003).

³⁴ Carrie Hribar, National Association of Local Boards of Health, Understanding Concentrated Animal Feeding Operations and Their Impact on Communities (2010).

Additionally, the Department of Health should establish an epidemiological surveillance program in which detection of events, such as a case of methemoglobinemia would trigger follow-up protocols for further investigation and intervention.”³⁵

- (7) **Implement the recommendations of the American Public Health Association in their Precautionary Moratorium on new CAFOs.**³⁶
- (8) Because this Board has the statutory obligation to “take whatever investigative or corrective action is necessary to assure that a safe and reliable drinking water supply is continuously available to users,” **we ask the Board to support and participate in Ecology’s Washington Nitrate Prioritization Project.** This project is designed to identify areas where nitrates in groundwater have exceeded or are at risk of exceeding drinking water standards.³⁷
- (9) **Pass a resolution or other formal action supporting a statewide and national ban on non-therapeutic use of antibiotics in livestock production.**

We greatly appreciate the opportunity to address the Board on public health issues associated with the keeping of animals. We are happy to provide you with any additional information that you require and we respectfully ask you to implement the aforementioned recommendations so that present and future generations of Washingtonians can exercise their rights to access clean and health drinking water. The Board has the statutory authority to address this public health crisis, and it’s time to use it.

Respectfully Submitted,

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³⁵ Washington State Interagency Ground Water Committee, A Report on Nitrate Contamination in the Mid-Columbia Basin (September 1996).

³⁶ American Public Health Association, Precautionary Moratorium on New CAFOs, Policy No. 20037 (November 18, 2003), available at <http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1243> (last visited May 20, 2014)

³⁷ Washington Department of Ecology, Quality Assurance Protection Plan, Washington Nitrate Prioritization Project, Publication No. 14-10-005 (January 2014).