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William Matthews  
ODA/CAFO Program  
635 Capitol Street NE  
Salem OR 9730-2532

Via E-mail to [wmatthews@oda.state.or.us](mailto:wmatthews@oda.state.or.us)

**RE: Public Comments on Proposed NPDES Permit for Lost Valley Ranch Dairy CAFO**

Mr. Matthews:

Food & Water Watch, Columbia Riverkeeper, Friends of Family Farmers, Northwest Environmental Defense Center, Oregon Physicians for Social Responsibility, Sierra Club Oregon Chapter, Friends of the Columbia Gorge, the Humane Society of the United States, and Center for Biological Diversity submit the following comments on the Oregon Department of Agriculture's (ODA) draft National Pollutant Discharge Elimination System (NPDES) permit (the Permit) for the proposed Lost Valley Ranch dairy concentrated animal feeding operation (CAFO).

We appreciate ODA's acknowledgement that this facility necessitates an individual permit, as well as basic groundwater monitoring provisions that are not always included in CAFO NPDES permits. However, we believe that the proposed facility poses a significant threat to Oregon's waterways and public health, and that the draft Permit and related documents suffer from substantial deficiencies. We therefore request that ODA rescind the draft Permit and deny any subsequent Lost Valley Ranch applications that suffer the same fatal flaws.

**I. CAFO Pollution is a Significant Threat to Oregon's Waterways**

As CAFOs grow in scale and become increasingly concentrated in certain communities and watersheds, they pose increasing risks to waterways and public health. CAFOs produce more than 300 million tons of waste each year, containing numerous pollutants: nutrients such as nitrogen, phosphorus, and potassium; pathogens and parasites such as *Salmonella* and *Escherichia coli*; heavy metals including arsenic, cadmium, lead, iron, manganese, nickel, copper, and zinc; and pharmaceuticals.<sup>1</sup> These pollutants frequently make their way into waterways. The U.S. Environmental Protection Agency (EPA) has established that "[a]gricultural operations, including CAFOs, now account for a significant share of the remaining water pollution problems in the United States."<sup>2</sup> Indeed, agriculture "is the leading contributor of pollutants to identified water quality impairments in the Nation's rivers and streams."<sup>3</sup> Twenty-nine states specifically identified animal feeding operations as contributors to water quality impairment in EPA's 2009 National Water Quality Inventory.<sup>4</sup>

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<sup>1</sup> 76 Fed. Reg. 65431, 65433-34 (Oct. 21, 2011).

<sup>2</sup> 68 Fed. Reg. 7176, 7181 (Feb. 12, 2003).

<sup>3</sup> *Id.*

<sup>4</sup> 76 Fed. Reg. at 65434.

Oregon is already home to one of the largest dairies in the country, if not the world, and now proposes to allow another dairy, which will produce as much waste as a fairly large city, to locate nearby. While there is no appropriate site for such a large CAFO and the enormous quantities of waste it will produce, the risks of siting this facility near other mega-dairies and in a groundwater management area are simply too high to even warrant consideration.

## **II. The Permit Violates State Laws and Policies Aimed at Protecting People of Color and Low Income Communities from Pollution.**

ODA and DEQ have a legal duty to consider the facility's impacts on environmental justice communities. EPA defines "environmental justice" as "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies."<sup>5</sup> ORS 182.545(1), "Duties of Natural Resource Agencies," states:

In order to provide greater public participation and to ensure that all persons affected by decisions of the natural resources agencies have a voice in those decisions, each natural resource agency shall:

- (1) In making a determination whether and how to act, consider the effects of the action on environmental justice issues.
- (2) Hold hearings at times and in locations that are convenient for people in communities that will be affected by the decisions stemming from those hearings.
- (3) Engage in public outreach activities in the communities that will be affected by decisions of the agency.
- (4) Create a citizen advocate position that is responsible for:
  - (a) Encouraging public participation;
  - (b) Ensuring that the agency considers environmental justice issues; and
  - (c) Informing the agency of the effect of its decisions on communities traditionally underrepresented in public processes.

DEQ and ODA are "Natural Resource Agencies" under ORS 182.535. For the reasons stated below, DEQ and ODA violated ORS 182.545 by issuing the Lost Valley Ranch permit before complying with ORS 182.545(1)–(3).

Lost Valley Ranch would have significant impacts on air, groundwater, and surface water quality yet ODA and DEQ fail to address the facility's impacts on environmental justice communities. According to recent census data, 36% of Morrow County's population is Hispanic or Latino.<sup>6</sup> Morrow County is also home to the Confederated Tribes of the Umatilla Indian Reservation ("CTUIR") reservation and usual and accustomed treaty rights territory. The Permit Fact Sheet and accompanying materials are silent on the facility's impacts on environmental justice communities, including Tribes and tribal members. In addition, Commenters are unaware of any public outreach activities that targeted environmental justice communities. For example,

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<sup>5</sup> EPA Website, <https://www.epa.gov/environmentaljustice>.

<sup>6</sup> U.S. Census Bureau, Quick Facts: Morrow County, Oregon, <http://www.census.gov/quickfacts/table/PST045215/41049#headnote-js-b>.

did DEQ or ODA's staff offer to speak to the CTUIR Tribal Council about the facility and impacts on air and water quality?

Commenters request that DEQ and ODA: (1) withdraw the draft permit; (2) develop a process to inform environmental justice communities, including sovereign tribal nations and tribal members, of the facility's impacts; (3) develop a quantitative and qualitative analysis of the facility's impacts on environmental justice communities; (4) incorporate environmental justice considerations in a revised draft permit or decision to deny the proposed permit; and (5) if DEQ and ODA reject permit denial, reissue the draft permit for public comment.

In addition to undertaking specific actions to address the Lost Valley Ranch proposal, the agencies should examine and disclose to the public how the agencies failed to consider environmental justice in authorizing the second largest CAFO in state history. Importantly, the agencies should develop and implement a process to ensure compliance with state law and agency policies that require environmental justice considerations in agency decision-making. For example, DEQ has a website subpage dedicated to environmental justice, an environmental justice liaison, and an environmental justice policy dating back to 1997.<sup>7</sup> The agencies must ensure that they do not repeat this failure to comply with Oregon's environmental justice law.

### **III. The Permit is Legally Deficient**

#### *a. The Permit Lacks Required Surface Water Monitoring Requirements*

The Permit is deficient because it lacks surface water monitoring required in every NPDES permit. The federal Clean Water Act (CWA) “requires every NPDES permittee to monitor its discharges into the navigable waters of the United States in a manner sufficient to determine whether it is in compliance with the relevant NPDES permit.” *Natural Res. Defense Council v. Los Angeles Cnty Dep’t of Pub. Works*, 725 F.3d 1194, 1707 (9th Cir. 2013) (emphasis in original). This universal requirement derives from Section 402 of the CWA, which requires that all NPDES permits contain conditions to “assure compliance” with NPDES permit effluent limitations, water quality standards, and other requirements of the Act. 33 U.S.C. § 1342.

EPA regulations specify that “each NPDES permit shall include” monitoring requirements “[t]o assure compliance with permit limitations,” including “[t]he mass (or other measurement specified in the permit) for each pollutant limited in the permit; [t]he volume of effluent discharged from each outfall; or [o]ther measurements as appropriate.” 40 C.F.R. § 122.44(i). Federal CWA regulations also state that permitting requirements must specify the “type, intervals, and frequency [of sampling] sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring.” 40 C.F.R. §§ 122.48(b), 122.44(i)(1). Permittees must report monitoring results “on a frequency dependent on the nature and effect of the discharge, but in no case less than once a year.” 40 C.F.R. § 122.44(i)(2). The federal regulations also set out the required monitoring methodology. *See* 40 C.F.R. Part 136.

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<sup>7</sup> DEQ Website, [http://www.deq.state.or.us/about/envjusticelaws.htm#tribal relations](http://www.deq.state.or.us/about/envjusticelaws.htm#tribal%20relations); DEQ Environmental Justice Policy, <http://www.deq.state.or.us/nwr/docs/1997DEQ-EJ-policy.pdf>.

The applicable regulations provide no general exemptions from these compliance monitoring requirements. Although 40 C.F.R. § 122.44(a)(2) provides that pollutant monitoring waivers can be granted for certain pollutants referred to as 40 C.F.R. Subchapter N pollutants, which include fecal coliform and biochemical oxygen demand, such waivers can only be granted on a case-by-case basis where “the discharger has demonstrated through sampling and other technical factors that the pollutant is not present in the discharge or is present only at background levels from intake water and without any increase in the pollutant due to activities of the discharger.” The Permit lacks any discussion or requirement related to Lost Valley Ranch making such a demonstration, and as a result ODA cannot waive monitoring requirements even for Subchapter N pollutants.

It is clear under the CWA and its implementing regulations that monitoring to assure compliance is a required element of every NPDES permit. Although the Permit requires various other monitoring requirements, such as manure and soil sampling and groundwater monitoring, those requirements do not yield data that is representative of the discharge of pollutants to waters of the state and the U.S. Nor does the sampling required only in the event of non-compliance, Permit at S4.A.1, satisfy this requirement for monitoring to assure compliance. Because the Permit has no adequate surface water quality monitoring requirements, there is no way for Lost Valley Ranch to “assure compliance” with the Permit and it violates federal law.

*b. The Animal Waste Management Plan Has Numerous Deficiencies and is Under-Protective of Water Quality*

Lost Valley Ranch’s Animal Waste Management Plan (AWMP) lacks certain required elements and is too vague to demonstrate that the facility will meet Oregon and federal requirements to retain wastewater and apply manure nutrients at agronomic rates. First, the AWMP must require “procedures” for management of animal mortalities that ensure there will be zero discharge from mortality management areas. *See* Permit at S3.C, 40 C.F.R. §§ 122.42(e)(1)(ii), 412.35(a), 412.31(a), 412.2(h). The AWMP lacks such procedures, instead only stating that Lost Valley Ranch will either haul mortalities to an “approved” area for “regular” pickup or haul them weekly to a landfill. AWMP at 5. The AWMP must account for mortalities management between these pick-ups and explain what procedures it will use to demonstrate that it will prevent any mortality management-related discharges on-site and at the pickup location.

Second, Lost Valley Ranch’s plans for manure management are extremely vague. The Fact Sheet includes a March 16, 2016 diagram of an anaerobic digester labeled as the Willow Creek Dairy Digester, Fact Sheet at 4, while the AWMP includes a diagram with an “assumed” anaerobic digester location, AWMP App. A, but no other mention of a digester anywhere in the document. Anaerobic digesters can be difficult to properly maintain. Such systems have been known to emit air pollutants such as ammonia gas,<sup>8</sup> cause manure spills, and cause explosions,<sup>9</sup>

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<sup>8</sup> *See e.g.* Bell, et al., Ammonia emissions from an anaerobic digestion plant estimated using atmospheric measurements and dispersion modelling (2016), <http://www.ncbi.nlm.nih.gov/pubmed/27302836>.

so far more information about the type of system Lost Valley Ranch proposes to use, how much of its waste will be treated, and how it will be operated and maintained, is necessary before ODA can consider approval of such a system. In addition, since it appears from the lack of information in the AWMP that the digester may not be in place when Lost Valley Ranch begins operations, any proposal to bring such a system online after operations begin will constitute a “change in the type of manure system” subject to public notice and comment. *See* Permit at S3.D(1)(a)(v).

The AWMP also lacks basic information about how much waste will be applied on-site and how much may be sent offsite or used as cattle bedding. All of these various uses are mentioned, but without any attempt at quantifying how many of the manure solids “may” need to be exported for disposal elsewhere, AWMP 2.e.iii, or where this end use will take place. This raises significant concerns that Lost Valley Ranch lacks adequate land base for agronomic use of its manure nutrients while also lacking a specific plan for safe use of excess nutrients.

Third, the AWMP fails to provide adequate information about land application area features that require manure application setbacks, such as waterways, sinkholes, tile line inlets, or ditches. CAFO nutrient management plans and AWMPs must identify all such conduits to waterways and the site-specific conservation practices to be implemented. *See* 40 C.F.R. § 412.4(c)(1)-(5), Permit S2.J and S3.C.2(f). While some of the AWMP soil maps include these features in their legends, none seem to be identified on the maps themselves, and it is not clear if that indicates their absence. In general, the few, large-scale soil maps are inadequate to identify all required features considering Lost Valley Ranch has 5,900 acres of application fields, and some conduits to waterways that require setbacks are far too small to be visible at such a scale. It also appears that waterways and conduits may not have been accounted for because the AWMP’s soil phosphorus index analyses consistently fail to account for field distance to perennial waterways. AWMP App. B. This is clearly incorrect and incomplete, regardless whether the actual spreading fields require setbacks that have not been accounted for, and may have affected the accuracy of the AWMP’s assessment of phosphorus loss risk. At a minimum, ODA must require Lost Valley Ranch to require far more detailed information about its land application practices, including field-specific setback maps, and more information to support its phosphorus index summaries and conclusions of low site vulnerability ratings.

Fourth, the AWMP appears to omit the nutrients in the estimated feed leachate that will be diverted into the waste storage lagoons from the overall land application nutrient analysis. *See* AWMP App. C. The “Animal Waste Management System Production” spreadsheets account for the storage volume contribution from silage area stormwater runoff, but do not include any silage leachate nutrients in the accounting for daily nutrient production. These nutrients must be accounted for. Lost Valley Ranch cannot simply assume that all feed storage runoff will be stormwater runoff devoid of nutrients, because it acknowledges that only some unknown portion of the feed will be stored in “Ag Bags” with reduced (but not zero) leachate. *Id.* 2.b.iv. The operation will have more than *eight acres* of silage storage alone and provides no information on any practices Lost Valley Ranch may take to dry the silage prior to storage to reduce leachate or other measures that would minimize this source of lagoon influent. Silage leachate “is typically

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<sup>9</sup> Lee Bergquist, State Manure Digester Plagued by Spills, Explosion, Milwaukee Journal Sentinel (Jan. 29, 2015), <http://archive.jsonline.com/news/statepolitics/state-financed-manure-digester-plagued-by-spills-explosion-b99435123z1-290263421.html>.

very high in nutrients that can harm surface water and groundwater,” and as a result “is a *worse potential pollutant than manure or sewage*.”<sup>10</sup> Overlooking this important potential nutrient source at such a massive dairy could have significant impacts on the facility’s land application area needs and overall nutrient budgeting.

*c. The Permit’s Antidegradation Review is Inadequate*

The Lost Valley Ranch Fact Sheet includes a cursory discussion of Oregon’s antidegradation requirements, but proceeds to base its conclusion that the Permit complies on a faulty description of the Permit’s requirements. The Permit’s lack of an Antidegradation Review also fails to comply with OAR 340-041-0004.

The Fact Sheet relies on unsubstantiated claims in rejecting a proper Antidegradation Review. For example, ODA concluded that the Permit will not degrade existing water quality in part because “discharge is prohibited from all of the production area and all of the land application activities.” Fact Sheet at 3.1. But this is incorrect. The Permit requires land application of waste to take place at “agronomic rates.” Permit at S2.C.1. EPA’s CAFO regulations make clear that agronomic application rates are not “zero discharge” requirements; to the contrary, agronomic application is calculated primarily to maximize crop yield, and nutrient management plan restrictions are intended only to “*minimiz[e]* nitrogen and phosphorus movement to surface waters.” 40 C.F.R. §§ 412.4(c)(1), 412.31(b), 412.35(b) (emphasis added).

Moreover, even if nutrients were not directly lost to surface waters from runoff, land applied manure that is not incorporated is subject to significant ammonia nitrogen volatilization. Much of this ammonia will eventually redeposit on waterways and land, and contribute to existing nitrogen loads. While ammonia fate and transport is variable, some studies have found that as much as twenty percent of ammonia emitted by CAFOs will deposit nearby as dry deposition.<sup>11</sup> The AWMP indicates that Lost Valley Ranch will spread and spray irrigate waste, but will not incorporate it into the soil or otherwise act to reduce volatilization. AWMP at 3-4. ODA must conduct a realistic antidegradation analysis that takes into account the inevitable dry and wet weather runoff and leaching of nutrients and other pollutants to surface waters, as well as the ammonia loss and deposition, that will result from the facility’s proposed land application practices.

In addition, the Permit fails to explain how runoff from 5,900 acres of agricultural land will have no contact with surface water, with the exception of a 25-year storm event. Did ODA or DEQ verify the applicant’s claim, using GIS or ground surveys, that 5,900 acres of agricultural land has no connection to surface waters? What section of the Antidegradation Policy (OAR 340-041-0004) and IMD do DEQ and ODA rely on in concluding that Antidegradation Review is exempted where discharges only occur at a 25-year storm event?

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<sup>10</sup> Purdue Extension, Silage Leachate: Use Caution and Protect the Environment (Nov. 2014), <https://extension.purdue.edu/extmedia/AS/AS-625-W.pdf> (emphasis added).

<sup>11</sup> See, e.g. W.H. Asman et al., Ammonia: emission, atmospheric transport and deposition, *New Phytol.* 139:27-48 (1998); D. Fowler et al., The mass budget of atmospheric ammonia in woodland within 1 km of livestock buildings, *Environ. Pollution* 102, S1:343-348, 346-47 (1998).

Overall, the Fact Sheet's Antidegradation discussion fails to comply with the requirements in OAR 340-041-0004, DEQ's Antidegradation Policy Implementation IMD, which is incorporated into state law under OAR 340-041-0004, and DEQ's November 2, 2014, memo amending the Antidegradation IMD. The November 2, 2014, memo states:

On August 8, 2013, EPA sent DEQ a review of DEQ's Antidegradation Policy Implementation IMD. EPA found that DEQ's procedures for Tier 1 review were inconsistent with federal requirements and stated that: 1) the Tier 1 review must analyze protection of existing uses that are not designated beneficial uses; and 2) Tier 1 review, including the analysis of existing use protection, must be done for all new or existing discharges at the time of permit issuance or renewal, regardless of whether they result in a lowering of water quality.

The November 2, 2014, memo goes on to state:

To address these [*i.e.*, EPA's] findings, permit writers should determine whether the discharge protects existing uses during development of any permit, even if the discharge pollutant loads are the same or less than during the previous permit cycle and DEQ has determined there is no lowering of water quality. DEQ cannot assume that the uses currently designated at the location of the discharge include all existing uses.

Based on the fleeting discussion of the state's Antidegradation Policy in the Permit Fact Sheet, the Permit fails to comply with the requirements outlined in DEQ's November 2, 2014, memo and, in turn, OAR 340-041-0004 and DEQ's Antidegradation Policy Implementation IMD. Moreover, for the reasons stated above, Commenters note that DEQ and ODA fail to substantiate the underlying assumption that the facility is a "zero discharge" site.

*d. The Permit Ignores the Analysis and Requirements of the Umatilla Basin TMDL.*

DEQ and ODA fail to recognize and incorporate the requirements of the Umatilla Basin TMDL and Water Quality Management Plan in the draft Permit. Fact Sheet at 6. First, the Fact Sheet identifies potential discharges to surface water and, for the reasons stated above, concludes incorrectly that the facility is a "zero discharge" site. Second, DEQ and ODA fail to analyze the applicability of the Umatilla Basin TMDL, which encompasses surface water bodies impacted by the facility. In the introduction to the Umatilla Basin TMDL, CTUIR representative and TMDL development co-chair Antone Minthorn states:

Good things take a long time to develop. It took seventy years to partially restore stream flows to the Umatilla River and to reintroduce salmon into our River. We now have both – salmon and minimal instream flows. Now we have spent nearly five years developing the Umatilla TMDL – to restore water quality to the water we all worked so hard to leave in the River.<sup>12</sup>

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<sup>12</sup> Umatilla Basin TMDL and WQMP at xvi, <http://www.deq.state.or.us/wq/tmdls/docs/umatillabasin/umatilla/tmdl.pdf>.



Despite the substantial resources and the multi-stakeholder process that went into developing the TMDL, DEQ and ODA ignore the TMDL in developing the Lost Valley Ranch Permit. The TMDL identifies why consideration of the TMDL is appropriate for a CAFO within the Umatilla Basin: (1) “water quality concerns [in the Umatilla Basin] are predominantly landscape based; not discrete point source pollution, and (2) “[t]he [Umatilla] Basin is a high priority for Oregon, and will be the 3rd sub-Basin TMDL completed in the State.”<sup>13</sup> The agencies should review the TMDL and WQMP and revise the Permit accordingly.

*e. The Permit Must Prohibit Practices Known to Threaten Water Quality*

The Permit purports to prohibit virtually all land application discharges and requires Lost Valley Ranch to “provide adequate storage capacity for solid and liquid wastes at all times so that land application occurs only during periods when soil and water conditions allow for agronomic application.” Permit at S2.E(1). However, it then inexplicably authorizes several practices associated with surface water runoff, including manure application on frozen, snow-covered, and some saturated ground. The Permit only prohibits application on “saturated soils immediately before or during rainfall events that are expected to result in surface runoff.” Permit at S2.C. This vague, yet narrow, restriction all but ensures that the facility will experience avoidable nutrient loss from its extensive land application areas. ODA must better tailor the Permit’s specific restrictions to ensure that all land application practices will meet the Permit’s overarching requirements to protect water quality.

In its NPDES Permit Writers’ Manual for CAFOs, EPA notes that state programs “should either prohibit application of manure and process wastewater on snow, ice, and frozen ground, or include specific protocols that CAFO owners or operators . . . will use to conclude whether application to a frozen or snow– or ice–covered field (or a portion thereof) poses a reasonable risk of runoff.”<sup>14</sup> Similarly, NRCS, EPA’s primary resource for developing technical standards for nutrient management,<sup>15</sup> advises that “[n]utrients must not be surface–applied if nutrient losses offsite are likely” and warns against spreading on “frozen and/or snow–covered soils, and when the top 2 inches of soil are saturated from rainfall or snow melt.”<sup>16</sup> ODA should adopt these restrictions at a minimum.

Lost Valley Ranch makes clear in its AWMP that it will not limit its application practices to minimize the risk of surface water runoff. Instead, it will “only apply enough manure to address storage limitations.” AWMP at 4. This is inconsistent with the Permit’s requirements, and ODA must require Lost Valley Ranch to maintain enough storage to avoid any scenario where “emergency” spreading is authorized due to inadequate storage capacity.

Lost Valley Ranch also intends to “field stage” its solid manure for up to four months before land application. AWMP at 4. However, EPA has made clear that any waste stockpiles are considered part of the CAFO production area. 40 C.F.R. § 122.23(b)(8). Thus any possible

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<sup>13</sup> *Id.* at 3

<sup>14</sup> EPA, NPDES Permit Writers’ Manual for CAFOs at 6-15.

<sup>15</sup> *Unified National Strategy for Animal Feeding Operations*, U.S. DEP’T OF AGRIC. & U.S. ENVTL. PROT. AGENCY at 3.2 (March 9, 1990), <http://www.epa.gov/npdes/pubs/finafost.pdf> [hereinafter *Unified Strategy*].

<sup>16</sup> NRCS 590 at 3.



runoff from any field staging or stockpiling must be diverted into the waste storage lagoons to comply with the Permit's production area effluent limitations and federal regulations. The AWMP only says that Lost Valley Ranch will not allow "free draining moisture" from the stockpiles. This is inadequate, however, because no precipitation-based discharges from these areas are eligible for the agricultural stormwater exemption. There is no indication that Lost Valley Ranch will retain all pollution from these areas as required, and ODA should expressly prohibit all stockpiling or field staging.

The Permit should also restrict spreading to prohibit spreading on steep slopes. The Permit completely lacks any land application limitations related to slope, Permit at S2.C, and the AWMP only states that Lost Valley Ranch will not spread on frozen soil on slopes of more than five percent. AWMP at 4. Steeply sloped areas often lack soil properties that foster normal plant growth, meaning that it is less likely that nutrients from manure will be fully assimilated by plants, and more likely that these excess nutrients will be transported to surface and ground waters.<sup>17</sup> EPA has found land slope to be a key determinant of runoff and of the likelihood of pathogen transport.<sup>18</sup> The AWMP indicates that Lost Valley Ranch's application fields include slopes of up to forty percent. AWMP App. B. ODA must conduct its own field-specific analysis of nutrient and other pollution loss from land application on such slopes and impose restrictions as necessary to prevent runoff.

*f. The Permit Lacks a Required Reasonable Potential Analysis*

The Permit and related materials indicate that ODA did not conduct a reasonable potential analysis, despite the risk of water quality standards violations presented by a facility of this scale and in this location. Agriculture is a leading source of pollution in the Umatilla Basin, and nitrogen, phosphorus, bacteria, and sediment are known threats to beneficial uses, including salmonid fish rearing and spawning, resident fish and aquatic life, wildlife, boating, fishing, water contact recreation, and aesthetics, throughout the Basin.<sup>19</sup> Given there are existing TMDLs for nitrates, bacteria, sediment, and temperature for segments throughout the Umatilla Basin,<sup>20</sup> it seems apparent that the vast influx of manure and associated wastewater Lost Valley Ranch proposes to create and dispose of in the watershed creates the reasonable potential for additional violations of water quality standards.

State agencies frequently omit reasonable potential analyses from CAFO permits due to these permits' supposed "zero discharge" limits, but EPA has established that this is not permissible.<sup>21</sup> A reasonable potential analysis is particularly important in addressing land application area discharges, because, as discussed, the Permit does not impose a zero discharge limit on land application practices.

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<sup>17</sup> EPA, NPDES Permit Writers' Manual for CAFOs at A-8.

<sup>18</sup> EPA, *Literature Review of Livestock and Poultry Manure*, EPA 820-R-13-002 23, 25 (July 2013).

<sup>19</sup> Umatilla Agricultural Water Quality Management Plan 15 (Rev'd Dec. 5, 2012).

<sup>20</sup> *Id.* at 18-19.

<sup>21</sup> EPA, NPDES Permit Writers' Manual for CAFOs at 4-35 – 4-36, citing 40 C.F.R. §§ 122.4(d), 122.44(d).

#### IV. The Permit's Groundwater Controls and Monitoring Provisions are Inadequate

The Lost Valley Ranch will operate in the Lower Umatilla Basin Groundwater Management Area.<sup>22</sup> This Area was designated because of the elevated nitrate concentrations in the groundwater.<sup>23</sup> Nitrate-nitrogen concentrations in many groundwater samples in the area exceed the federal safe drinking water standard.<sup>24</sup> “Throughout the Umatilla Reporting Basin there are more than 20 locations with water quality concerns due to *excess pathogens and chemicals from manure and bio-solids*.”<sup>25</sup>

Placing a large dairy CAFO in a vulnerable groundwater area like the Lower Umatilla Basin Groundwater Management Area could have disastrous consequences for the area. As EPA has established, “[p]ollutants in animal waste and manure [from CAFOs] can enter the environment [by] leaching into soil and ground water.”<sup>26</sup> “Among the reported environmental problems associated with animal manure are . . . ground water quality degradation.”<sup>27</sup> Indeed, one of the leading causes of nitrate contamination in the Lower Umatilla Basin’s groundwater is dairies.<sup>28</sup> Excessive nitrate levels in drinking water are dangerous to both humans and livestock.<sup>29</sup> EPA has noted that:

CAFO wastes can contaminate ground water and thereby cause health risks and other welfare losses to people relying on ground water sources for their potable supplies or other uses. Of particular concern are nitrogen and other constituents that leach through the soils and the unsaturated zone and ultimately reach ground waters. Nitrogen loadings convert to elevated nitrate concentrations at household and community system wells, and elevated nitrate levels in turn pose a risk to human health in households with private wells.<sup>30</sup>

Adding large quantities of nitrates to an area with already heightened nitrate-nitrogen concentrations has serious implications for human health. Elevated nitrate levels can cause methemoglobinemia (also known as blue-baby syndrome). The Centers for Disease Control has determined that there may be a link between high nitrate levels in well water near feedlots and

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<sup>22</sup> See Or. Dep’t of Env’tl. Quality, Lower Umatilla Basin Groundwater Management Area, <http://www.deq.state.or.us/wq/groundwater/docs/GWMARegionsLoUmatilla.pdf> (map depicting the boundaries of the Lower Umatilla Basin Groundwater Management Area).

<sup>23</sup> Or. Dep’t of Env’tl. Quality, Groundwater Management Areas, <http://www.deq.state.or.us/wq/groundwater/gwmas.htm>.

<sup>24</sup> Or. Dep’t of Env’tl. Quality, Lower Umatilla Basin Groundwater Management Area, <http://www.deq.state.or.us/wq/groundwater/lubgwma.htm>.

<sup>25</sup> Oregon Watershed Enhancement Board, 2013-2015 Plan Accomplishments: Umatilla Basin, [https://www.oregon.gov/OWEB/Pages/BiennialReport1315/Umatilla\\_Basin.aspx](https://www.oregon.gov/OWEB/Pages/BiennialReport1315/Umatilla_Basin.aspx).

<sup>26</sup> National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7176, 7181 (Feb. 12, 2003) (“EPA CAFO Reports”).

<sup>27</sup> *Id.*

<sup>28</sup> Or. Dep’t Env’tl. Quality, Lower Umatilla Basin Groundwater Management Area Action Plan 9 (Dec. 8, 1997), available at <http://www.deq.state.or.us/wq/groundwater/docs/lubgwma/actionplan.pdf>.

<sup>29</sup> EPA CAFO Reports at 7181.

<sup>30</sup> *Id.* at 7241.

spontaneous abortions in humans.<sup>31</sup> Additionally, there is a link between nitrate levels in water and increased risk of stomach and esophageal cancers.<sup>32</sup>

Given the levels of nitrates in the Lower Umatilla Water Basin, and the strong potential for the Lost Valley Ranch to add new nitrates to the groundwater, the proposed Permit is not adequate to protect groundwater quality. It is not surprising that Morrow County officials who signed the facility's Land Use Compatibility Statement expressed concern that "the addition of 30,000 cows has the ability to significantly contribute to the nitrogen loading of the [Groundwater Management Area] and signed it only "with trepidation."<sup>33</sup>

Although the Permit will require Lost Valley Ranch's several lagoons and cells to comply with seepage design rates, the groundwater vulnerability and already-high nitrates present in the Umatilla Basin groundwater call into question whether the projected seepage rates will be low enough to prevent exceedances of the nitrate Maximum Contaminant Level of 10 mg/L. The lagoon complex will use a double liner with a leak detection system. AWMP App. A. However, Lost Valley Ranch's own engineering firm has estimated that "[i]f we assume one small pinhole with a diameter of 2mm per acre, the leakage rate could be about 330 gallons per day per acre." *Id.* This means as much as 1,480 total gallons of leakage per day by the engineer's own estimate. *Id.* The AWMP provides no indication of how conservative or realistic this estimate may be.

Because of these significant threats to groundwater, we support the inclusion of groundwater and tile drain outfall monitoring requirements in the Permit. Permit at S.4.A, S5. However, the Groundwater Monitoring Plan should be subject to public notice and comment and made enforceable by incorporation into the Permit itself. The facility's underground piping system is extensive, as is its land application area, and any plan capable of assuring compliance with effluent limitations must not only provide monitoring wells throughout the entire network of piping, land application fields, and waste storage structures, but must also provide representative data from before and after relevant manure handling and application events. We support the requirement that Lost Valley Ranch submit all of its groundwater monitoring data in its annual reports, but propose more frequent reporting, such as quarterly reports within 30 days of a monitoring event.

Regardless of the monitoring plan, the magnitude of waste production and the location of this facility simply pose too great a threat to groundwater quality to warrant approval. Dangers to groundwater are particularly troubling, because "[g]roundwater, once polluted, is difficult and sometimes impossible to clean up. Therefore, the [agency should] emphasize the prevention of groundwater pollution, and [] control waste discharges to groundwater so that the highest possible water quality is maintained." Or. Admin. R. 340-040-0020(2). ODA should deny the Permit for lack of adequate monitoring requirements and management practices.<sup>34</sup>

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<sup>31</sup> Centers for Disease Control & Prevention, *Spontaneous Abortions Possibly Related to Ingestion of Nitrate-contaminated Well Water – LaGrange County, Indiana, 1991-1994*, 45:26 Morbidity and Mortality Weekly 569, 569-71 (July 1996).

<sup>32</sup> EPA CAFO Reports, 68 Fed. Reg. at 7238.

<sup>33</sup> Morrow County Planning Department, Land Use Compatibility Statement (Aug. 18, 2015).

<sup>34</sup> See Or. Dep't of Agric., State of Oregon Confined Animal Feeding Operation Permit Program 5, at <https://www.oregon.gov/ODA/shared/Documents/Publications/NaturalResources/CAFONPDESPermitAndEvalFact>

## **V. The Facility's Proposed Water Withdrawals are Unreasonable**

ODA should further deny the Permit because it would withdraw water from a water basin experiencing depletion. The facility indicates that it intends to pump 890,050 gallons of water per day. That amounts to a staggering 320,418,000 gallons of water per year. Such a huge withdrawal would be ill-advised, and contrary to the Lower Umatilla Groundwater Management Plan.

The removal of groundwater from an aquifer will have one of the following possible consequences: (1) removal of water from the local aquifer, and thus a reduction of the remaining water available in the aquifer; (2) less water leaving the groundwater system because lakes, streams, and wetlands are unable to pull water out as part of the natural and necessary water recharge process; or (3) water pulling from a surface water source to enter the groundwater system.<sup>35</sup> In short, the water will not simply be recharged; it must be taken from somewhere. The interplay between groundwater and surface water here is particularly dramatic, because the alluvial aquifer in question is unconfined: "it is recharged directly from the land surface and has a strong connection with surface water bodies."<sup>36</sup>

Already, the Umatilla Sub-Basin has experienced great groundwater withdrawal from competing users. "The intensive use of groundwater is reflected in the decreasing water levels in wells across much of Umatilla County, and as decreased stream flows (baseflow) in some stream reaches."<sup>37</sup> "Groundwater overdraft continues to be a significant issue in the Umatilla Basin."<sup>38</sup> This depletion is particularly concerning because the Umatilla Sub-Basin is home to "four indigenous species of fish that qualify as Sensitive, Threatened or Endangered under either the federal [Endangered Species Act] or Oregon's Sensitive Species Rule."<sup>39</sup>

## **VI. The Fact Sheet's Discussion of Compliance History is Inadequate**

ODA's Permit Fact Sheet asserts that there is no compliance history to consider in the permitting process, because this will be a new facility. But this position glosses over the undeniably relevant compliance history for Willow Creek Dairy, which is owned and operated by the same individual as the proposed facility. Operator competence and diligence influence compliance at least as much as factors like proximity to waterways and waste management system, and ODA must consider this facility's compliance record when determining whether it is appropriate to grant a permit for another massive dairy.

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[Sheet.pdf](#) (Mar. 31, 2016) ("In situations where a CAFO might affect groundwater quality, additional monitoring requirements or management practices may be required by ODA").

<sup>35</sup> U.S. Geological Survey, U.S. Geological Survey Circular 1186, Sustainability of Ground-Water Resources 18, 76 (1999).

<sup>36</sup> Oregon State University Institute for Water and Watersheds, Umatilla Sub-Basin Data Synthesis and Summary 13 (July 4, 2006), at <http://www.co.umatilla.or.us/planning/pdf/Appendix%20M%20-%20Data%20Synthesis%20and%20Summary.pdf>.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.* at 16.

<sup>39</sup> *Id.* at 24.

Moreover, the proposed operation and Willow Creek Dairy are clearly affiliated with Threemile Canyon Farms, as Willow Creek Dairy is owned by Threemile Canyon Farms. *See* Willow Creek Dairy AWMP. Like Willow Creek Dairy, Lost Valley Ranch will be owned and operated by the son-in-law of Threemile Canyon co-owner John Bos.<sup>40</sup> The links between these businesses and their owners necessitates a close review of any business affiliation between Threemile Canyon and Lost Valley Ranch, along with Threemile Canyon's compliance history, in determining whether to issue the Permit as proposed.

## **VII. The Facility's Air Emissions and Pharmaceutical Use Threaten Public Health**

As proposed, the Permit does not provide adequate assurance that Lost Valley Ranch will not threaten public health. A facility the size of the Lost Valley Ranch will emit substantial amounts of air pollutants. The Oregon Dairy Air Quality Task Force has found that dairies and other animal feeding operations emit ammonia, nitrous oxide, nitrogen oxides, methane, volatile organic compounds, hydrogen sulfide, particular matter, and methanol.<sup>41</sup>

Ammonia may be the most significant air pollutant emitted by dairies and their manure.<sup>42</sup> Land applying manure, as the applicant intends to do, increases the amount of ammonia emitted. "The primary cause of emission through land application is the volatilization of ammonia when the manure is applied to land."<sup>43</sup> There is also a secondary release of emissions as substances in the soil break down, releasing nitrous oxide.<sup>44</sup> The EPA has estimated that livestock account for approximately 80% of total ammonia emissions.<sup>45</sup> Indeed, the Threemile Canyon Farms reported in 2005 that its 52,300 dairy cow operation emitted 15,500 pounds of ammonia per day.<sup>46</sup> The ammonia emissions exceeded 5,675,000 pounds per year<sup>47</sup> and surpassed emissions from the nation's number-one manufacturing source of ammonia air pollution.<sup>48</sup> Threemile Canyon Farms is a little over a dozen miles away from Lost Valley Ranch.

Ammonia emissions should be a serious concern, because they can have profound implications for human health. Humans detect ammonia odor at concentrations ranging from 5 to 53 parts per million (ppm), and the odor can become "highly penetrating" at 50 ppm after 10

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<sup>40</sup> *See* Shirley Wentworth, The Portland Alliance, Trouble Down on the "Farm" (Sept. 2005), <http://www.theportlandalliance.org/2005/sept/troublefarm.htm>.

<sup>41</sup> Or. Dairy Air Quality Task Force, Final Report to the Department of Environmental Quality & Department of Agriculture 6 (July 1, 2008), *at* <http://library.state.or.us/repository/2012/201204101013082/>.

<sup>42</sup> Carrie Hribar, Nat'l Assoc. of Local Bds. of Health, Understanding Concentrated Animal Feeding Operations and Their Impacts on Communities 5 (2010), *available at* [https://www.cdc.gov/nceh/ehs/docs/understanding\\_cafos\\_nalboh.pdf](https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf).

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

<sup>45</sup> Michiel R.J. Doorn *et al.*, EPA, Review of Emissions Factors and Methodologies to Estimate Ammonia Emissions from Animal Waste Handling 1 (2002), *available at* <http://nepis.epa.gov/Exe/ZyPDF.cgi/2000E6XZ.PDF?Dockey=2000E6XZ.PDF>.

<sup>46</sup> Michele M. Merkel, N.Y. State Bar Association presentation at Albany Law School: The Use of CERCLA to Address Agricultural Pollution 1 (Sept. 15, 2006), *available at* [http://www.environmentalintegrity.org/pdf/publications/The\\_Use\\_Cercla.pdf](http://www.environmentalintegrity.org/pdf/publications/The_Use_Cercla.pdf).

<sup>47</sup> *Id.*

<sup>48</sup> Nat'l Ass'n of Clean Air Agencies, Comment on CERCLA/EPCRA Administrative Reporting Exemption for Air Releases of Hazardous Substances from Animal Waste 3, *available at* [www.4cleanair.org/documents/CAFOLetter32708.pdf](http://www.4cleanair.org/documents/CAFOLetter32708.pdf).

minutes of exposure.<sup>49</sup> One third of the volunteers in one human exposure study experienced irritation after just 10 minutes of exposure to 30 ppm ammonia.<sup>50</sup> The same study showed that eye, nose, throat, and chest irritation become moderate after a 30-minute exposure to 50 ppm and can become “highly intense” after a 30-minute exposure to 80 ppm.<sup>51</sup> At concentrations of 50 ppm, ammonia exposure can lead to throat irritation, mucous production, and cough.<sup>52</sup> At heightened concentrations, ammonia’s effects exceed odor and irritation, and cause actual damage to the respiratory system. This damage may include tracheal and nasopharyngeal burns, and bronchiolar/alveolar swelling.<sup>53</sup> At high levels, ammonia inhalation can cause fatal burns and infections.<sup>54</sup>

Particularly because it will apply waste with a center pivot irrigation system, Lost Valley Ranch’s planned manure land application also presents a danger of aerosolized pathogens. “Commercial livestock are often reservoirs of zoonotic pathogens (temporarily or permanently), which can be transmitted to the environment in untreated manures.”<sup>55</sup> Current and past zoonotic pathogens associated with cattle CAFOs include Brucellosis, Hemorrhagic colitis, Listeriosis, Tuberculosis, and Cryptosporidiosis.<sup>56</sup> Pathogens can be transported via air currents for up to miles,<sup>57</sup> where they can be inhaled or land on food crops.<sup>58</sup>

The Lost Valley Ranch is not only close to Threemile Canyon Farms. It is also less than a dozen miles away from the PGE Boardman coal-fired power plant. The EPA reports that the power plant has long violated air quality laws, emitting air pollutants into the Boardman area.<sup>59</sup> While PGE is slated to close the plant, it will continue to operate until 2020 at the earliest.<sup>60</sup> The plant continues to create air quality problems in the Boardman area, including regional haze.<sup>61</sup> When assessing the effect the Lost Valley Ranch will have on the Boardman area, the Agency must consider cumulative impacts on air quality. That is, the Agency should consider not only the impacts that the Lost Valley Ranch will have on air quality, but rather the effect of the

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<sup>49</sup> Acute Exposure Guideline Levels for Selected Airborne Chemicals, Vol. 6, Committee on Acute Exposure Guideline Levels, Committee on Toxicology, Nat’l Research Council of the Nat’l Academies of Scis 69-60.

<sup>50</sup> *Id.* at 60.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* at 16.

<sup>54</sup> *Id.* at 25.

<sup>55</sup> John Brooks, USDA, Bioaerosols and Pathogens, Extension (Mar. 20, 2015), *available at* <http://articles.extension.org/pages/70490/bioaerosols-and-pathogens>.

<sup>56</sup> *Id.*

<sup>57</sup> Angela Hamm, Hoosier Environmental Council, Pathogens in Manure and Contamination of Indiana’s Waters and Rural Population 8 (2011), *at* <http://www.hecweb.org/wp-content/uploads/2010/04/Pathogens-Paper-with-Cover.pdf>.

<sup>58</sup> Brooks, Bioaerosols and Pathogens.

<sup>59</sup> EPA, Notice of Violation (Sept. 28, 2010), *available at* [http://media.oregonlive.com/environment\\_impact/other/NOV%20issued%20to%20Portland%20General%20Electric%20Company%20dated%20Sept\\_28\\_2010%20%281%29.pdf](http://media.oregonlive.com/environment_impact/other/NOV%20issued%20to%20Portland%20General%20Electric%20Company%20dated%20Sept_28_2010%20%281%29.pdf).

<sup>60</sup> Scott Learn, PGE’s Coal-Fired Boardman Plant Gets Approval to Close in 2020, with Fewer Pollution Controls, *The Oregonian* (Dec. 9, 2010), *available at* [http://www.oregonlive.com/business/index.ssf/2010/12/pges\\_coal-fired\\_boardman\\_plant.html](http://www.oregonlive.com/business/index.ssf/2010/12/pges_coal-fired_boardman_plant.html).

<sup>61</sup> Or. Dep’t Env’tl. Quality, Air Quality: Regional Haze, *at* <http://www.deq.state.or.us/aq/> (last visited Aug. 3, 2016).

cumulative impact of the Lost Valley Ranch's emissions combined with emissions from Threemile Canyon Farms, other area CAFOs, and the PGE coal plant.<sup>62</sup>

The Lost Valley Ranch also creates a risk of pharmaceuticals in groundwater. Ionophore antibiotics such as Monensin are antibiotics often fed to dairy cows to increase growth promotion. For example, about half of all dairy farms in California use Monensin. Approximately 40-50% of Monensin fed to bovines is excreted into the environment unchanged from its pre-feeding composition. As a result, the land application of manure from animals fed Monensin can and often does contaminate groundwater (along with streams, rivers, and other surface waters). "Emerging scientific data . . . suggests that pollution of rivers, lakes, and streams by active drug residues presents a significant, adverse impact on the aquatic environment."<sup>63</sup> A 2010 study concluded that, even in low doses, Monensin had direct toxic effects on soil animals and presents a potential ecological risk. Dairy-related pharmaceuticals like Monensin have been found in groundwater near dairies in Washington, demonstrating the path of transmission from feed to manure to land application to groundwater.<sup>64</sup>

Pharmaceutical leaching into groundwater is dangerous not only because of the direct risk of exposure to pharmaceuticals, but also because of the threat of antibiotic resistance. The Centers for Disease Control and Prevent have conservatively estimated that "more than two million people are sickened every year with antibiotic-resistant infections, with at least 23,000 dying as a result."<sup>65</sup> The American Academy of Pediatrics (AAP) has linked antimicrobial-resistant infections with increased morbidity, mortality, and health care costs.<sup>66</sup> According to the AAP,

The overuse and misuse of antimicrobial agents in veterinary and human medicine is, in large part, responsible for the emergence of antibiotic resistance. Approximately 80% of the overall tonnage of antimicrobial agents sold in the United States in 2012 was for animal use, and approximately 60% of those agents are considered important for human medicine.<sup>67</sup> Lost Valley Ranch has not indicated which antibiotics, if any, it plans to use at its operation. Such information is crucial to know in order to evaluate the risks to groundwater presented by land application of manure. Given the substantial public health threats posed by Lost Valley Ranch, ODA must deny the Permit.

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<sup>62</sup> See, e.g., Or. Stat. 468A.025(4)(e) (the intent of Oregon's environmental laws, and the protection of public health and welfare, are best served by "address[ing] the cumulative impact of sources on air quality").

<sup>63</sup> Shawna Bligh, *Pharmaceuticals in Surface Waters: Use of NEPA*, American Bar Association: Natural Resources & Environment Publication (2009).

<sup>64</sup> See *Community Assoc. for Restoration of the Environ.*, 80 F. Supp. 3d 1180, 1199 (E.D. Wash. 2015) (finding that dairy's operations involving use of manure may present an imminent and substantial endangerment to the public in violation of the Resources Conservation and Recovery Act).

<sup>65</sup> CDC, Antibiotic Resistance Threats in the United States 6 (2013), available at <http://www.cdc.gov/drugresistance/threat-report-2013/pdf/ar-threats-2013-508.pdf#page=6>.

<sup>66</sup> Jerome A. Paulson & Theoklis E. Zaoutis, The American Academy of Pediatrics, 136 Pediatrics e1671, e1671 (June 2015), available at [www.pediatrics.org/cgi/doi/10.1542/peds.2015-3630](http://www.pediatrics.org/cgi/doi/10.1542/peds.2015-3630).

<sup>67</sup> *Id.*



## VIII. Conclusion

ODA's draft Lost Valley Ranch Permit authorizes not only the construction of an unreasonably large CAFO in an area already degraded from industrial agribusiness pollution, but the Agency omitted critical considerations in its permitting process and proposes to allow practices that will threaten Oregon's surface and groundwater resources, public health, and listed species. The proposed AWMP and associated documents are also inconsistent, incomplete, and indicate that Lost Valley Ranch will not meet the Permit's effluent limitations. In short, ODA must not issue the Permit as proposed. Thank you for your consideration.

Sincerely,



Tarah Heinzen  
Staff Attorney  
Food & Water Justice  
Program  
Food & Water Watch  
1616 P St. NW, Suite 300  
Washington, DC 20036  
[theinzen@fwwatch.org](mailto:theinzen@fwwatch.org)  
(202) 683-2457

Lauren Goldberg  
Staff Attorney  
Columbia Riverkeeper

Ivan Maluski  
Policy Director  
Friends of Family Farmers

Mark Riskedahl  
Executive Director  
Northwest Environmental  
Defense Center

Kelly Campbell  
Executive Director  
Oregon Physicians for Social  
Responsibility

Rhett Lawrence  
Conservation Director  
Oregon Chapter, Sierra Club

Michael Lang  
Conservation Director  
Friends of the Columbia  
Gorge

Amanda Hungerford  
Staff Attorney  
Humane Society of the  
United States

Hannah Connor  
Staff Attorney  
Center for Biological  
Diversity