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Association, U.S. Poultry & Egg Association, United Egg Producers, and National Council of
Farmer Cooperatives*

11
12 UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF WASHINGTON

13
14 COMMUNITY ASSOCIATION FOR)
RESTORATION OF THE)
15 ENVIRONMENT, INC., a Washington Non-)
Profit Corporation and CENTER FOR)
16 FOOD SAFETY, INC.,)
a Washington, D.C. Non-Profit Corporation,)

No. 13-CV-3016-TOR

**MOTION FOR LEAVE TO
SUBMIT BRIEF AS *AMICI
CURIAE***

17 Plaintiffs,)

Without Oral Argument:
5/6/2015, 6:30 P.M.

18 v.)

19 COW PALACE, LLC, a Washington)
20 Limited Liability Company, THE DOLSEN)
COMPANIES, a Washington Corporation,)
21 and THREE D PROPERTIES, LLC, a)
Washington Limited Liability Company,)

22 Defendants.)
23)

1 **I. RELIEF REQUESTED**

2 American Farm Bureau Federation, National Cattlemen’s Beef Association, U.S. Poultry
 3 & Egg Association, United Egg Producers, and National Council of Farmer Cooperatives
 4 (“Agricultural Associations”) respectfully move the Court for an order granting them leave to
 5 file the attached *amici curiae* brief addressing the remedy phase of this case.¹ In the attached
 6 brief, the Agricultural Associations endeavor to provide an in-depth discussion of current federal
 7 and state environmental protection standards and practices for manure management, including
 8 how they are developed, their goals, and the challenges they confront. The Agricultural
 9 Associations also discuss why they believe that, where such standards and practices apply, they
 10 should be the basis for any order awarding injunctive relief in this case.

11 As this Court has previously noted, it has broad discretion to grant or refuse prospective
 12 *amici*’s participation. *See Hoptowit v. Ray*, 682 F.2d 1237, 1260 (9th Cir. 1982), *abrogated on*
 13 *other grounds by Sandin v. Conner*, 515 U.S. 472 (1995). That discretion should be exercised to
 14 grant leave to participate when the information provided in the proposed brief is “timely and
 15 useful.” *Nat’l Petrochemical & Refiners Ass’n v. Goldstone*, No. 10-cv-163, 2010 WL 2228471,
 16 *1 (E.D. Cal. June 3, 2010); *see also Cobell v. Norton*, 246 F. Supp. 2d 59, 62 (D.D.C. 2003)
 17 (granting leave to file an amicus brief because it “may be helpful and of interest to the Court”).

18 Here, the Agricultural Associations seek to participate in the “classic role of amicus
 19 curiae” to “assist[] in a case of general public interests, supplementing the efforts of counsel[.]”
 20 *Miller-Wohl Co., Inc. v. Comm’r of Labor & Indus. State of Montana*, 694 F.2d 203, 204 (9th
 21 Cir. 1982). The purpose of the attached *amici* brief is to supplement the submissions of the
 22 parties by providing the Court with a discussion that focuses on the manure management

23 _____
 24 ¹ Counsel for the Defendants indicated that they consent to the submission of the attached *amici*
 brief. Counsel for the Plaintiffs indicated that they do not consent.

1 standards for environmental protection that are developed by federal and state agencies for use
2 throughout the United States.

3 **II. INTERESTS OF PROPOSED *AMICI* AND JUSTIFICATION FOR *AMICI***
4 **STATUS**

5 Proposed *amici* are national agricultural organizations whose members grow crops and
6 operate livestock and poultry feeding operations that manage manure under nutrient management
7 plans.

8 American Farm Bureau Federation (“AFBF”), a not-for-profit, voluntary general farm
9 organization, was founded to protect, promote, and represent the business, economic, social and
10 educational interests of American farmers and ranchers. AFBF has member organizations in all
11 50 states and Puerto Rico, representing around 6 million member families.

12 National Cattlemen’s Beef Association (“NCBA”) is the national trade association
13 representing U.S. cattle producers, with more than 28,000 individual members and several
14 industry organization members. NCBA represents more than 175,000 cattle producers and
15 feeders. NCBA works to advance the economic, political, and social interests of the U.S. cattle
16 business and to be an advocate for the cattle industry’s policy positions and economic interests.

17 U.S. Poultry & Egg Association (“USPOULTRY”) is the world’s largest and most active
18 poultry organization, with affiliations in 27 states and member companies worldwide. Its
19 membership includes producers and processors of broilers, turkeys, ducks, eggs, and breeding
20 stock, as well as allied companies. USPOULTRY serves its members through research,
21 education, communications, and technical services.

22 United Egg Producers (“UEP”) is a cooperative of egg farmers from all across the United
23 States, representing the ownership of approximately 95% of all the nation’s egg-laying hens.
24 UEP assists its farm members in legislative, regulatory, and advocacy issues.

1 The National Council of Farmer Cooperatives (“NCFC”) is a nationwide trade
 2 association founded in 1929 to represent America's farmer cooperatives. NCFC’s membership
 3 includes regional marketing, supply, bargaining, and farm credit bank cooperatives, as well as
 4 state councils of cooperatives, from across the United States. NCFC members handle almost
 5 every type of agricultural commodity produced in the United States, market those commodities
 6 domestically and abroad, and furnish production supplies and credit to their individual and
 7 farmer cooperative members. NCFC constituent members represent nearly 3,000 farmer
 8 cooperatives across the United States.

9 The Agricultural Associations’ members manage manure to support their farming
 10 operations. The standards discussed in the attached brief are applied by their members
 11 nationwide. The associations believe that this information will help the Court exercise its
 12 equitable discretion during this phase of this case.

13 The Agricultural Associations’ motion and proposed brief is timely. The Associations
 14 have filed this motion and proposed brief within the time allotted by this Court for the parties to
 15 file their trial briefs. The proposed *amici* brief will not delay the proceedings in this case.

16 The proposed *amici* brief has not been authored, edited, or reviewed by counsel for any
 17 party. Furthermore, no party or its counsel, or any person other than *amici*, has contributed
 18 money to fund the preparation and submission of the proposed brief.

19 //
 20 //
 21 //
 22 //
 23 //
 24 //

CONCLUSION

For the foregoing reasons, the Agricultural Associations respectfully request leave to file the attached brief as *amici curiae*.

DATED: May 4, 2015

Respectfully submitted,

Of counsel:

/s/ Jeff Slothower

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Association, U.S. Poultry & Egg Association,
United Egg Producers, and National Council
of Farmer Cooperatives*

CERTIFICATE OF SERVICE

I hereby certify on May 4, 2015, I electronically filed the foregoing Motion for Leave to Participate as *Amici Curiae* and Proposed Amici Curiae Brief with the Clerk of the Court using the CM/ECF System, which will send notification of such filing to all counsel of record.

/s/ Jeff Slothower
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Cooperatives (Additional counsel for Amici on signature page)
11

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**BRIEF OF AMICI AMERICAN
FARM BUREAU FEDERATION,
NATIONAL CATTLEMEN’S
BEEF ASSOCIATION, U.S.
POULTRY & EGG
ASSOCIATION, UNITED EGG
PRODUCERS, AND NATIONAL
COUNCIL OF FARMER
COOPERATIVES**

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1 In sum, these standards require farmers to responsibly manage the risk that nutrients will
2 be lost into the environment, but they do not (and could not) totally eliminate those risks. *Amici*
3 hope the information in this brief will aid the Court in the exercise of its equitable discretion in
4 devising injunctive relief, which should involve consideration of the public interest and be
5 tailored to what is necessary to accomplish established norms of environmental protection.
6 Livestock and poultry farmers who responsibly operate their farms rely on the science-based
7 standards and research discussed in this brief. We respectfully submit that the public interest is
8 well served by farmers who implement these sound, nationally accepted practices. They are
9 what is “reasonably required to accomplish” the goal of ensuring the use of the environmentally
10 protective manure management practices developed by the acknowledged experts in this field.
11 *Kenner v. Convergys Corp.*, 342 F.3d 1264, 1269 (11th Cir. 2003).

12 **INTERESTS OF AMICI**

13 *Amici* are national agricultural organizations whose members grow crops and operate
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 5 education, communications, and technical services.

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 12 state councils of cooperatives, from across the United States. NCFC members handle almost
 13 every type of agricultural commodity produced in the United States, market those commodities
 14 domestically and abroad, and furnish production supplies and credit to their individual and
 15 farmer cooperative members. NCFC constituent members represent nearly 3,000 farmer
 16 cooperatives across the United States.

17 **I. Manure Application Provides Multiple Benefits**

18 Manure is valuable because it provides nutrients for crops, but it also has other benefits
 19 for croplands.¹ As our scientific understanding of the beneficial effects of manure’s use has
 20 grown, so too has our understanding that its value goes beyond its nutrient content.

21 _____
 22 ¹ The use of manure in agriculture has a very long history. Neolithic communities in Europe
 23 used animal manure as fertilizer to increase crop production as early as 6000 B.C.E. Bogaard,
 24 A., et al., “Crop manuring and intensive land management by Europe’s first farmers,”
 Proceedings of the National Academy of Science, 110 (31), at 12589–12594 (2013). This
 Neolithic use of manure was strategic and economizing. *Id.* at 12590-91. Differing levels of
 manure were used on crops grown in the same location, where these differences correspond

(continued...)

1 **A. Manure Has Market Value as a Fertilizer**

2 First and foremost, animal manure is an excellent fertilizer.² That value is reflected in
3 contract and market prices at which it is bought and sold. Sales are facilitated in many instances,
4 for a fee, by a service industry built around brokering and transporting manure.^{3,4} Not
5 surprisingly, several state Land Grant University Cooperative Extension programs have
6 developed online manure value “calculators.”⁵

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 (...continued)

11 directly to the observed differences in how well crops respond to supplemental nutrients. *See id.*
12 Even at the dawn of agriculture in Europe 8000 years ago it was clear to farmers that their animal
13 manure was a valuable resource that required management. The archaeobotanical evidence
14 indicates that these Neolithic farmers were “investing” their scarce labor and resources into
15 heavily manuring specific parcels of land, with a view towards the long term benefits of the
16 investment (given that manure breaks down over multiple years to provide nutrients years).
17 Furthermore, it appears to scientists that crop and animal production developed together,
18 affecting each other and making the development of each possible. *See* Balter, M., “Researchers
19 Discover First Use of Fertilizer,” *Science* (July 15, 2013) (“And new evidence from both the
20 Near East and Europe, Bogaard says, suggests that ‘cropping and herding developed in tandem’
21 and were ‘entangled from the start.’”).

22 ² Payne, J.B., Lawrence, J., Manure as a Source of Crop Nutrients and Soil Amendment (2013),
23 Livestock and Poultry Environmental Learning Center, *available at*
24 http://www.extension.org/pages/8913/manure-as-a-source-of-crop-nutrients-and-soil-amendment#.VS_0Fe85Cpo

³ For a discussion of how brokering is used to merchandise manure, with examples cited in
various states, *see* Lawrence, J.D., Massey, R.E. Business Arrangements for Manure Offsite
Transfer (2011), Livestock and Poultry Environmental Learning Center, *available at*
<http://www.extension.org/pages/8901/business-arrangements-for-manure-offsite-transfer#.VT-uRe9FCpo>.

⁴ *See* “Manure Brokers Help Manage Waste At Ohio CAFO Farms” (2015), *available at*
<http://wosu.org/2012/news/2015/02/09/manure-brokers-help-manage-waste-ohio-cafo-farms/>
(interview with a pork producer in Ohio that markets his own animals’ manure, or uses a broker,
where price is set competitively relative to commercial fertilizer costs).

⁵ *See, e.g.*, Minnesota (<http://goo.gl/Dkiz0i>); Nebraska (<http://goo.gl/Urpki>); New York
(<http://goo.gl/Dkiz0i>); Vermont (<http://goo.gl/0EXAY5>); Missouri (<http://goo.gl/0EXAY5>).

1 **B. Manure Rebuilds Soil**

2 Second, in addition to adding nutrients, manure improves soil in other ways.⁶ Animal
3 manure adds organic matter to soil, which has led the U.S. Environmental Protection Agency
4 (“EPA”) to characterize manure a soil “builder.”⁷ Organic matter, in turn, substantially improves
5 soil’s water holding capacity, making it more resilient to dry conditions.⁸ It also eases the task of
6 soil cultivation and reduces the harm to crop yields from soil compaction.⁹

7 **C. Manure Reduces Runoff and Soil Erosion**

8 Third, studies have found that use of animal manure reduces runoff and soil erosion,
9 sometimes quite substantially.¹⁰ A meta-review of multiple research efforts on this subject found
10 that locations receiving manure annually had reductions in water runoff ranging from two to
11 sixty-two percent, and soil losses were decreased by a range of fifteen to sixty-five percent.¹¹

12 _____
13 ⁶ Graham, E., Grandy, S., and Thelen, M., Manure Effects on Soil Organisms and Soil Quality,
14 Michigan State Univ. Extension, Emerging issues in animal agriculture, *available at*
15 <http://msue.anr.msu.edu/uploads/files/AABI/Manure%20effects%20on%20soil%20organisms.pdf>
16 f (“It should now be evident that the increase in crop yields associated with manure application
17 is not simply caused by the properties of the manure, but is instead the result of a series of
18 complex interactions between the nutrients, organic matter and organisms in the manure and the
19 existing conditions of the amended soil. Amendments can have profound effects on soil
20 structure, soil chemistry and soil organisms (microbes and macrofauna) and have also been
21 found to suppress soil pathogens and disease.”).

17 ⁷ US EPA, Profile of the agricultural livestock production industry (archived ed.), at 43 (2000).

18 ⁸ University of Minnesota Extension, *Soil Management Series/Organic Matter Management*.
19 (2013), *available at* [http://www.extension.umn.edu/agriculture/tillage/soil-management/soil-
20 management-series/organic-matter-management/](http://www.extension.umn.edu/agriculture/tillage/soil-management/soil-management-series/organic-matter-management/) (“Manure is an excellent way to build organic
21 matter.”).

20 ⁹ *Id.*

21 ¹⁰ Risse M.L., et al., Land Application of Manure for Beneficial Resuse (prepared as part of a
22 series of papers by the National Center for Manure and Animal Waste Management), at 10
23 (1998), *available at* [http://www.ars.usda.gov/sp2userfiles/place/66120900/soilmanagementandcarbonsequestration/2
24 001ajfb02.pdf](http://www.ars.usda.gov/sp2userfiles/place/66120900/soilmanagementandcarbonsequestration/2001ajfb02.pdf). This entire paper provides a very thorough review of the research findings on the
environmental effects and properties of manure reuse.

24 ¹¹ *See id.*

1 The greater the manure application rate, the greater the reductions in runoff and erosion losses.¹²

2 While manure application might increase nutrient runoff *concentrations*, it appears to reduce
3 runoff *volumes*, and therefore the total amount of nutrients lost from the manured field.¹³

4 **II. Nitrogen Compounds Are Both Essential to Life and Highly Mobile, Presenting**
5 **Unique Management Challenges**¹⁴

6 Managing nitrogen poses special challenges. Its chemistry makes it highly mobile. It is
7 essential to life and water quality, yet can be harmful in excessive quantities. Current federal and
8 state guidelines and practices for the storage, handling, and use of animal manure reflect
9 society's effort to help farmers protect the environment and thus continue to reap the benefits
10 that animal manure can provide. Today's manure management guidelines and standards are
11 designed to help farmers reduce the amount of nutrients that invariably remain in the soil profile
12 after harvest, and thereby reduce the risk of environmental problems.

13 **A. Nitrogen Is Essential to Life**

14 Nitrogen is a fundamental component of amino acids, which are the building blocks of all
15 of the proteins that are essential to all plant and animal tissues. Water quality can be severely
16 harmed if reactive forms of nitrogen are *not* present, as aquatic life cannot live without it.

17
18
19 ¹² Gilley, J., E.; Risse, M., L.. Runoff and Soil Loss as Affected by the Application of Manure,
DigitalCommons@University of Nebraska – Lincoln, Vol. 43(6), at 1583-1588 (2000).

20 ¹³ See Risse, et al. *supra* n. 11.

21 ¹⁴ This overarching perspective on the challenges of nitrogen management, whether from manure
22 or chemical fertilizers, is part of the received wisdom of the chemical and biological science and
23 policy community. For a general overview of nitrogen and its role in biological and industrial
24 systems, and its properties, see <http://www.chemistryexplained.com/elements/L-P/Nitrogen.html>.
For an example of how this then is relied on in the agronomic and manure management
community see the Carlson, B., Vetsch, J., and Randall. G, "Nitrates in Drainage Water in
Minnesota," University of Minnesota Extension (2013).

1 **B. Nitrogen Is Mobile**

2 Nitrogen is also highly mobile, moving easily into, out of, and through biological and
3 physical systems. In its reactive forms, it is highly mobile in water and air. Bacterial activity
4 changes nitrogen compounds into reactive forms that meet organisms' biological needs. In
5 particular, the nitrate form moves easily with water, through the soil, then into plant root systems
6 and into the growing plant.

7 This same mobility allows nitrogen to move downward through the soil profile toward
8 groundwater. In agricultural settings, lack of rainfall can inhibit plant growth, which can cause
9 unused nitrogen and other nutrients to accumulate in the soil. During precipitation events,
10 depending on their timing relative to plant growth, such accumulated nitrogen will move through
11 the soil profile with the water.¹⁵

12 **C. Precise Prediction of Actual Nutrient Uptake and Loss is Unattainable in an
13 Agricultural Setting**

14 Supplying the precise amount of nitrogen needed by a particular crop would be a
15 relatively straightforward task if all of the factors determining actual crop nutrient needs and
16 uptake, and the movement of nutrients, could be predicted with precision. Crop production,
17 however, is part of a biological and physical system where weather (*e.g.*, short term precipitation
18 events and freeze/thaw cycles, longer term changes in seasons or incidence of drought) plays a
19 dominant role and creates great uncertainty within a growing season and across years. Because
20 weather is unpredictable, managing manure to support crop production and protect water quality
21 is a risk management problem rather than a straightforward matching of nutrients needed with
22 nutrients supplied. Today's set of federal and state guidelines account for this difficulty.

23 ¹⁵ Lamb, J.A., Fernandez, F.G., Kaiser, D.E., "Understanding nitrogen in soils." (2014),
24 University of Minnesota Extension, available at [http://www.extension.umn.edu/agriculture/
nutrient-management/nitrogen/understanding-nitrogen-in-soils/](http://www.extension.umn.edu/agriculture/nutrient-management/nitrogen/understanding-nitrogen-in-soils/).

1 One of the fundamental challenges of using nutrients, whether from manure or from other
 2 types of fertilizer, in a biological system is that there is a chance every year that some nutrients
 3 will not be taken up by crops and instead enter the environment.¹⁶ These losses are unavoidable
 4 (particularly in the case of biologically reactive nitrogen compounds) and the amounts are
 5 unpredictable. Today's manure management guidelines do not seek to achieve the unattainable
 6 goal of zero loss of nutrients. Rather, they are explicitly designed to minimize such losses.

7 **III. National and State Manure Management Practices and Standards Define the Proper**
 8 **Use and Handling of Manure as Fertilizer**

9 **A. Land Grant Universities and the Cooperative Extension Services**

10 American agriculture has always relied heavily on science, information, and educational
 11 services provided by the Nation's Land Grant Universities and the associated federal and state
 12 Cooperative Extension Services. Since 1907, this information has included matters involving
 13 manure.¹⁷ These universities and extension services provide electronically available (and
 14 frequently used) links to online documents including guidance from every state in the country.
 15 Updates are frequent: less than two weeks ago, the extension community issued a new
 16 publication providing guidelines for applying liquid animal manure to cropland.¹⁸

17 _____
 18 ¹⁶ *Id.* ("Inhibiting the conversion of NH₄⁺-N to NO₃⁻-N (nitrate) can result in less N loss and
 19 more plant uptake; however, it is not possible to totally prevent the movement of some NO₃⁻-N
 20 to water supplies, but sound management practices can keep losses within acceptable limits.")

21 ¹⁷ The first extension bulletin published by Iowa State College (later University) in 1907 was
 22 focused on manure and the need to return manure, fodder and bedding to the soil to maintain its
 23 productivity. It exhibited a high degree of scientific understanding of the nutrient content in
 24 crops and the amount of nutrients needed to produce them. *See* Snyder, A.H., "Farm Manures,"
 Iowa State College Extension (1907), *available at*
<http://www.agronext.iastate.edu/immag/pubs/extpub1oct1907.pdf>

¹⁸ Hoorman, J.J., Rausch, J.N., Brown, L.C., "Preferential Flow of Manure in Tile Drainage."
 (2015), Livestock and Poultry Learning Center Extension Publication, *available at*
[http://www.extension.org/pages/27488/preferential-flow-of-manure-in-tile-
 drainage#.VT5RLe9FCpo](http://www.extension.org/pages/27488/preferential-flow-of-manure-in-tile-drainage#.VT5RLe9FCpo).

1 There are few, if any, nutrient use decisions made today in the professional farming and
2 ranching community that are not informed by this body of knowledge. The long history of the
3 training of agricultural professionals working in the field with farmers and ranchers was
4 formalized in 1992 by the American Society of Agronomy with the establishment of the
5 Certified Crop Advisors and Certified Professional Agronomists programs. Today there are
6 some 15,000 of these professionals working in the US and Canada with farmers and ranchers,
7 and they guide the use of crop nutrients in much of agriculture. Their training and testing to
8 become certified is largely based on the science and information generated and maintained by the
9 Land Grant University and Cooperative Extension system.

10 **B. Natural Resources Conservation Service Standards**

11 The Land Grant University and Cooperative Extension system's body of knowledge has
12 since the 1930s been turned into civil engineering-like practice standards by the US Department
13 of Agriculture's Natural Resources Conservation Service (NRCS) (first called the Soil Erosion
14 Service, then the Soil Conservation Service, and then the NRCS). This work was carried out in
15 partnership with the USDA Agricultural Research Service and the Land Grant and Cooperative
16 Extension system. Today these NRCS standards are compiled nationally, but each of NRCS's
17 state organizations adapts these standards for use in their state, and only state practice standards
18 are used for the design of practices in their states. The standards are maintained, supplied and
19 used in electronic form.¹⁹

20 Since the 1930s, NRCS has worked through a network of county field offices, often in
21 partnership with local soil and water conservation districts. This work often took place
22 alongside, if not in direct relationship with, the local County Cooperative Extension Agent. Any
23
24

1 practices in a farmer's or rancher's "conservation plan" prepared by NRCS was designed
2 according to these practice standards.

3 **C. The Agricultural Waste Management Field Handbook**

4 NRCS first compiled the relevant national conservation practices standards for manure
5 and agricultural waste management into the Agricultural Waste Management Field Handbook
6 (AWMFH) in 1992.²⁰ The Handbook is used by the NRCS state organizations to develop their
7 own state practice standards. It is regularly updated and relied on today to guide NRCS, soil and
8 water conservation districts, and many non-federal agencies' work on manure management. The
9 AWMFH standards, like many other NRCS conservation practice design standards, are regularly
10 incorporated by reference into state or county guidelines, codes, and standards.²¹

11 **D. NRCS Comprehensive Nutrient Management Plans**

12 In 1998, the White House released a "Clean Water Action Plan" that guided the work of
13 several federal agencies, including EPA and USDA, on issues and matters related to surface
14 water quality. EPA and USDA subsequently developed the Unified National Strategy for
15 Animal Feeding Operations. That strategy set a goal to have animal feeding operations adopt
16 Comprehensive Nutrient Management Plans (CNMPs).²² NRCS defines a CNMP and its

17 _____
(...continued)

18 ¹⁹ See USDA-NRCS National Conservation Practice Standards webpage:

19 http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/references/?cid=nrcsdev11_001020.

20 ²⁰ See Part 651 - Agricultural Waste Management Field Handbook, USDA-NRCS e-Directives,
available at <http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=21430>.

21 ²¹ See, e.g., Ohio (<http://codes.ohio.gov/oac/901:10-2-04>); South Carolina
(<http://www.scdhec.gov/Agency/docs/water-regs/r61-43.pdf>); Taylor County, Wisconsin
(<http://www.co.taylor.wi.us/code/Chapter63.pdf>).

22 ²² That strategy states that:

23 USDA and EPA's goal is for AFO owners and operators to take actions to
24 minimize water pollution from confinement facilities and land application of
manure. To accomplish this goal, this Strategy is based on a national performance

(continued...)

1 purpose as identifying the conservation and environmental actions, including nutrient
 2 management, that a livestock operation would follow to reduce threats to water quality and
 3 public health.²³

4 **E. EPA's Application of NRCS Standards**

5 Given the depth and breadth of research, experience and use of the NRCS conservation
 6 practice standards related to animal manure management, EPA has relied heavily on the NRCS
 7 practice standards in establishing Clean Water Act (CWA) effluent limitation guidelines and
 8 permits for concentrated animal feeding operations (CAFOs). EPA's modern version of the
 9 CWA CAFO rule, initiated in 2001, and the land application area "Nutrient Management Plan"
 10 (NMP) provisions developed by EPA under the associated permitting rule, both relate directly to
 11

12 (...continued)

13 expectation that all AFOs should develop and implement technically sound,
 14 economically feasible, and site-specific Comprehensive Nutrient Management
 15 Plans (CNMPs) to minimize impacts on water quality and public health.

14 USDA-US EPA, Unified National Strategy for Animal Feeding Operations, at 5 (1999),
 15 available at <http://www.epa.gov/npdes/pubs/finafost.pdf>.

16 ²³ NRCS's technical guidance states:

17 Conservation planning is a natural resource problem-solving process. The process
 18 integrates ecological (natural resource), economic, and production considerations in
 19 meeting both the owner's/operator's objectives and the public's natural resource protection
 20 needs. This approach emphasizes identifying desired future conditions, improving
 21 natural resource management, minimizing conflict, and addressing problems and
 22 opportunities. Comprehensive nutrient management plans (CNMPs) are developed in
 23 accordance with NRCS conservation planning policy and rely on the planning process
 and established conservation practice standards.

20 A CNMP identifies management and conservation actions that will be followed to meet
 21 clearly defined soil and water conservation goals, including nutrient management, on an
 22 animal feeding operation (AFO). Defining soil and water conservation goals and
 23 identifying measures and schedules for attaining these goals are critical to reducing
 potential and actual threats to water quality and public health from AFOs. The CNMP fits
 within the total resource management objectives of the entire farm/animal feeding
 operation.

24 USDA NRCS, Comprehensive Nutrient Management Planning Technical Guidance, Section 600.50,
 available at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_003305.pdf.

1 NRCS's CNMP standards as well as Cooperative Extension standards and guidelines for manure
2 used on crops.

3 In December 2004, EPA issued a document titled "Managing Manure Nutrients at
4 Concentrated Animal Feeding Operations" (*Managing Manure*).²⁴ This document is designed to
5 provide additional technical information for carrying out EPA's revised regulatory requirements
6 for NPDES permitting of CAFOs.²⁵ *Managing Manure's* technical appendices (appendices D-O)
7 all contain extensive references to Cooperative Extension publications and NRCS practice
8 standards and guidelines. *Managing Manure* advises farmers to follow NRCS's conservation
9 practices manual and consult with their state or local Cooperative Extension Office.²⁶

10 **IV. Manure Management Standards Were Devised by Highly Specialized Experts**

11 The body of science, guidelines, and technical standards in place today for the design,
12 management and operation of manure storage, handling and crop application systems were
13 developed by agricultural and conservation and environmental research and policy professionals
14 and experts, working through their respective institutions and organizations.

15 A recent NRCS fact sheet states that NRCS "works with farmers, ranchers and forest
16 landowners across the country to help them boost agricultural productivity and protect our
17 natural resources through conservation."²⁷ The scope of that work is considerable.²⁸ While the
18 scope and focus of NRCS has evolved since the agency began, its focus on providing farmers

19
20 ²⁴ US EPA, *Managing Manure Nutrients at Concentrated Animal Feeding Operations* (2004).
21 EPA-821-B-04-009.

22 ²⁵ *See id.* at 1-1.

23 ²⁶ *See id.* at N-1.

24 ²⁷ See NRCS-GeneralFactsheet.pdf-15, available at
http://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1265824&ext=pdf.

1 and ranchers with solutions to the practical natural resource and environment challenges they
2 face has not.²⁹

3 The USDA Agricultural Research Service (ARS) and the USDA National Institute of
4 Food and Agriculture (NIFA, formerly the Cooperative Extension Service), also develop
5 solutions for farmers and ranchers. For example, the mission of the division of ARS that today
6 houses and guides its work on animal agriculture and the environment supports researchers at 70
7 locations who develop technologies and strategies for farmers.³⁰

8 The mission of USDA-NIFA, whose programs “propel cutting-edge discoveries from
9 research laboratories to farms . . . and ensure scientific discoveries reach the people who can put
10 them to use,” is comparably focused.³¹ NIFA includes a program area focused on water quality,
11 including an emphasis on animal manure management.³² During the previous four decades,
12 these organizations have been instrumental in the development of manure management
13 standards, including those adopted by EPA in the CAFO rule. The value of this work for
14 environmental protection was acknowledged in 2002 by EPA when it wrote:

15 Continued research by USDA, state agencies and universities has led to advances
16 in technologies and management practices that minimize the potential
17 environmental degradation attributable to discharge and runoff of manure and
18 wastewater. Today, there are many more practicable options to properly collect,

19 (…continued)

20 ²⁸ *Id.* (“Over the past four years, working with our partners, NRCS has put conservation on more
21 than 216 million acres of land, obligating more than \$15 billion.”)

22 ²⁹ See “80 Years Helping People Help the Land: A Brief History of NRCS,” available at
23 http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/about/history/?cid=NRCS143_021392.

24 ³⁰ See About ARS “Natural Resources and Sustainable Agricultural Systems,” available at
<http://www.ars.usda.gov/pandp/locations/NPSLocation.htm?modecode=02-02-00-00>.

³¹ For information about NIFA, see <http://nifa.usda.gov/about-nifa>.

³² See <http://nifa.usda.gov/program/national-water-quality-program>.

1 store, treat, transport, and utilize manure and wastewater than there were in the
2 1970s, when the [previous] regulations were instituted.³³

3 The manure management standards EPA adopted in the new CAFO rule directly reflect,
4 and are largely the result of, technical and operational standards developed by the USDA
5 agencies, Land Grant Universities and the Cooperative Extension System.

6 **V. This Court Must Consider the Public Interest While Crafting Injunctive Relief that**
7 **is Narrowly Tailored**

8 In determining whether to issue a permanent injunction, the Court must balance the
9 competing claims of injury and consider the public interest. *See Weinberger v. Romero-Barcelo*,
10 456 U.S. 305, 311-12 (1982); *see also Sierra Club v. Penfold*, 857 F.2d 1307, 1318 (9th Cir.
11 1988). Generally, injunctive relief must be narrowly tailored “to restrain no more than what is
12 reasonably required to accomplish its ends.” *Kenner v. Convergys Corp.*, 342 F.3d 1264, 1269
13 (11th Cir. 2003); *see also Friends of the Earth, Inc. v. Laidlaw*, 528 U.S. 137, 196 (2000)
14 (“[F]ederal courts should aim to ensure the framing of relief no broader than required by the
15 precise facts.”). More specifically, injunctive relief under RCRA § 7002 must be “necessary” to
16 abate any imminent and substantial endangerment. 42 U.S.C. § 7002(a)(1)(B).

17 As discussed above, the agricultural sector relies on manure to support farming
18 operations. Over many decades, land grant universities, cooperative extension services, and
19 NRCS have developed effective standards for manure management that are designed to protect
20 the environment, yet be sufficiently economically feasible that farmers can actually implement
21 them on a wide scale. Those standards are what are “reasonably required to accomplish” the
22 goal of requiring the use of environmentally protective manure management practices. *Kenner*,
23 342 F.3d at 1269. Accordingly, any injunctive relief should be carefully tailored to incorporate

24 ³³ US EPA, Environmental and Economic Benefit Analysis of Final Revisions to the National
Pollutant Discharge Elimination System Regulation and the Effluent Guidelines for Concentrated
(continued...)

1 these national and state standards, which are expertly designed to minimize losses of manure
 2 nutrients to surface water and groundwater as the manure is recycled as valuable fertilizer.
 3 Those standards are written to provide practical and clear guidance for proper farming practices.
 4 As explained below, these standards are suitable even though they recognize (and in fact,
 5 because they explicitly take into account) that, when supplying nutrients from either chemical
 6 fertilizers or manure to crops for crop production, the elimination of all losses of nutrients to
 7 surface water and groundwater is unattainable.

8 **VI. These National and State Standards Properly Do Not Seek to Totally Eliminate**
 9 **Unintended Losses of Manure Nutrients**

10 As detailed above, national and state standards for manure management have been
 11 designed by experts who apply both the latest scientific knowledge and extensive experience
 12 with American agriculture. Those standards are designed to effectively protect the environment,
 13 but for the reasons explained below, they do not attempt to impose the unattainable goal of
 14 reducing nutrient losses to zero. Below is a more detailed discussion of these standards for
 15 ponds and lagoons, application of manure to croplands, composting, and containment pens.

16 **A. Seepage of Liquids into Aquifers is a Function of Permeability, Depth of**
 17 **Liquid and Subsurface Thickness and Permeability**

18 Seepage of nutrients out of facilities downward into subsurface soil is a function of the
 19 permeability of the materials at the bottom of the facility and the depth of the liquid that is above
 20 the bottom surface, which creates hydraulic pressure.³⁴ Manure solids commonly add greater

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 (...continued)

Animal Feeding Operations, EPA-821-R-03-003, at 1-8 (2002).

22 ³⁴ “Seepage from these structures has the potential to pollute surface water and underground
 23 aquifers. The principal factors determining the potential for downward and/or lateral seepage of
 24 the stored wastes are the: permeability of the soil and bedrock horizons near the excavated limits
 of a constructed waste treatment lagoon or waste storage pond; depth of liquid in the pond that
 furnishes a driving hydraulic force to cause seepage, and thickness of low permeability horizons

(continued...)

1 impermeability to the soil-liquid interface through a clogging of the pores of the soil mass by
2 manure particles and the dead bacteria that result under anaerobic conditions. Some states allow
3 for this property in the calculation of liner design.³⁵

4 The term used to describe the interplay of the forces of permeability, hydraulic pressure,
5 and depth of material is “specific discharge,” which is a measure of the actual flow rate of liquid
6 through a cross section as opposed to the permeability of the cross section itself.³⁶ There is a
7 well-defined engineering equation derived from “Darcy’s Law” that is used to calculate an
8 estimate of the actual flow rate.³⁷ The shallower the depth of the liquids, the lower the hydraulic
9 pressure and therefore the lower the actual rate of flow. This equation is instrumental in
10 determining how a waste storage or treatment facility should be designed to reduce the risk of
11 contamination of an aquifer. It also has obvious implications for the design of animal housing
12 and manure composting areas, where downward hydraulic pressure will be near zero.

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21 (...continued)

22 between the boundary of the lagoon bottom and sides and the distance to the aquifer or water
23 table.” AWMFH at 10D-1.

24 ³⁵ *Id.*

³⁶ *Id.*

³⁷ This equation and its use, with practical examples is presented in detail in AWMFH at 10D-12
to 10D-13.

1 **B. Losses of Liquid Manure from a Pond or Lagoon**³⁸

2 NRCS national design standards for liquid waste treatment lagoons³⁹ or waste storage
3 facilities⁴⁰ that handle manure liquids and process wastewater provide a risk management
4 analysis for addressing the inevitable losses of some portion of the liquids they hold. These
5 practice standards provide that the facilities should either (a) be located in soils with an
6 acceptably low permeability or (b) be lined. These practice standards refer the user to the USDA
7 NRCS Agricultural Waste Management Field Handbook (AWMFH), for more in-depth
8 discussion of engineering and design.

9 The standards discuss liners made of various materials, each of which must be designed
10 to achieve a specified low (but not zero) rate of permeability. Relative to the risks associated
11 with this permeability and the hydraulic pressure created by the depth of the liquids in the
12 facility, the AWMFH explains:

13 The procedures in appendix 10D to the AWMFH provide a rational approach to
14 selecting an optimal combination of liner thickness and permeability to achieve a

15 ³⁸ Storage ponds and treatment lagoons represent two distinct classes of liquid manure
16 management, although they are commonly assumed to have the same function. That is not the
17 case, even though their design standards are similar and in some respects identical. A “waste
18 treatment lagoon” is designed to function as a waste treatment system, predominately using
19 bacteria that live in anaerobic environments. The bacteria consume the manure solids and in the
20 process change the composition and chemistry of the materials. Phosphorous generally remains
21 in the lagoon in the sludge that settles to the bottom, composed of the dead bacteria. The liquid
22 component contains nitrogen, which generally remains soluble and is used as a fertilizer, along
23 with some phosphorous which also supplies crop nutrition. Waste storage facilities, ponds or
24 pits perform a holding function, without intent of treating the material in any way. The
differences become obvious when the manure materials are withdrawn for land application, as in
the case of a storage facility where 100 percent of the material is removed, including all the
nitrogen and phosphorous in the unit, and applied for crop production. In the case of the
treatment lagoon, a sufficient volume of liquids is left in the lagoon to support its ongoing
biological activity.

22 ³⁹ USDA NRCS, Conservation Practice Standard – Waste Treatment Lagoon, Code 359,
23 available at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026002.pdf.

24 ⁴⁰ USDA NRCS, Conservation Practice Standard – Waste Storage Facility, Code 313, available
at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026465.pdf.

1 relatively economical, but effective, liner design. It recognizes that manipulating
 2 the permeability of the soil liner is usually the most cost-effective approach to
 3 reduce seepage quantity. While clay liners obviously allow some seepage, the
 4 limited seepage from a properly designed site should have minimal impact on
 the quality of ground water.⁴¹

5 The conservation practice standards for Waste Treatment Lagoons (“WTL CPS”) and
 6 Waste Storage Facilities (“WSF CPS”) explicitly reflect this risk management approach. For
 7 example, the WTL CPS discusses four “potential impact categories for liner seepage” that deal
 8 with groundwater, soil and rock conditions that create greater vulnerability to environmental
 9 damage.⁴² In response, the WTL CPS prescribes the following:

10 Consideration should be given to providing an additional measure of safety from
 11 lagoon seepage when any of the potential impact categories listed in Table 3 may
 be affected. Should any of the potential impact categories listed in Table 3 be
 12 affected, consideration should be given to the following:

- 13 • A clay liner designed in accordance with procedures of AWMFH, Appendix 10D
 with a thickness and coefficient of permeability so that specific discharge is less
 than 1×10^{-6} cm/sec.
- 14 • A flexible membrane liner
- 15 • A geosynthetic clay liner (GCL) flexible membrane liner
- 16 • A concrete liner designed in accordance with slabs on grade criteria, Waste
 Storage Facility (313), for fabricated structures requiring water tightness.⁴³

17 The AWMFH develops this risk mitigation approach to dealing with specific discharge
 18 potential. The Handbook provides specific guidance as to where a specific kind of liner must be
 19 used, taking into account (a) specific discharges of various designs; (b), the degree of risk to
 20 groundwater supplies and wells given their proximity, distance and type; and (c) the vulnerability

21 ⁴¹ USDA NRCS, Animal Waste Management Field Handbook (210–VI–AWMFH, rev. 1, March
 22 2008), 10D–2 and 3, *available at* <http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17767.wba>.

23 ⁴² USDA NRCS, Conservation Practice Standard – Waste Treatment Lagoon, Code 359, at 4,
available at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026002.pdf.

24 ⁴³ *Id.* at 4. A comparable discussion is found in the WTL CPS.

1 of the site to seepage losses, given the rock, soils and height of groundwater. The higher the
 2 degree of risk and the higher the degree of vulnerability, the more impermeable the liner it
 3 recommends.⁴⁴

4 Note that the referenced clay liner in the WTL CPS has a permeability of 1×10^{-6} , a rate of
 5 loss of liquids from the lagoon of 924 gallons per day per acre of facility. While the WTL CPS
 6 does not list the coefficients for the other liner materials, those systems, also have non-zero rates
 7 of loss (albeit considerably smaller in the case of the high density polyethelene liner). Below are
 8 loss rates for four liner materials that are discussed in these and other comparable waste storage
 9 standards.

Material	Clay ⁴⁵	Geosynthetic Clay ⁴⁶	High Density Polyethylene ⁴⁷	Concrete ⁴⁸
Permeability	10^{-6}	10^{-7} to 10^{-10}	10^{-13}	10^{-10}

12 **C. The Risk of the Movement of Nutrients in the Soil Profile Under Composting**
 13 **Systems is Considerably Lower than for Waste Storage Facilities**

14 NRCS describes numerous benefits of composting manure.⁴⁹ It directs that composting
 15 generally be conducted on “a concrete pad, or in a well-drained location with firm ground.” The

17 ⁴⁴ AWMFH, Page 10-25.

18 ⁴⁵ See NRCS, Code 359, at 4, available at
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026002.pdf.

19 ⁴⁶ Estornell, P., Daniel, D.E., Hydraulic Conductivity of Three Geosynthetic Clay Liners, Journal
 20 of Geotechnical Engineering, Vol. 118, No. 10, at 1592-1606 (Oct. 1992).

21 ⁴⁷ See Ploy-Flex, available at <http://www.poly-flex.com/index.html>.

22 ⁴⁸ Nawy, E.G., Concrete Construction Engineering Handbook, at 5-10 (2008, 2nd Ed).

23 ⁴⁹ It reduces “odor and fly problems,” the “volume of the manure,” it makes it “easier to
 24 transport and spread,” it can be sold or used on other farms,” the “nutrients in compost are
 released more slowly than from raw manure” and it “provides a way to store manure until you
 are ready to spread it.” USDA NRCS, Composting Manure (2009), available at
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1167345.pdf.

1 ground “must be hard and dry enough for a tractor to work around the pile in all weather.”⁵⁰ Any
2 composting facility designed or funded by NRCS must meet the applicable NRCS conservation
3 practice, which is designed to protect groundwater.^{51, 52}

4 The risk of movement of liquids containing manure nutrients through the bottom of a
5 windrow compost system into the soil is small, a conclusion that is confirmed by applying the
6 logic of Darcy’s Law and the specific discharge potential equation. As discussed above,
7 estimates of the specific gradient through the bottom of a waste storage facility liner are based on
8 the properties of the materials, and the volume of liquid pushing downward. That volume and
9 weight of liquid creates the downward pressure that can force small quantities of liquid through
10 the bottom. The downward hydraulic pressure in a windrow compost system will be negligible
11 because the compost is moist but not saturated. The composting process requires the materials to
12 be wet enough to facilitate bacterial activity, but not so wet that the pile becomes anaerobic and
13 the rapid composting process is stopped.⁵³ Any excess liquid is not contained and would tend to
14 run horizontally along the “well-drained, firm ground” at the surface, not vertically downward.
15 Absent any significant hydraulic pressures in a compost system, the risk of the downward

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18 ⁵⁰ *Id.*

19 ⁵¹ A facility is to be located “on a base of low permeability soils, concrete, or other liner material
20 that will not allow contamination of ground water.” USDA NRCS, Composting Facility Practice
21 Standard, Code 317, *available at*
22 http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_026122.pdf.

23 ⁵² “If a compost facility is not protected from the weather, it should be sited to minimize the risk
24 to ground water.” AWMFH, 10-57.

25 ⁵³ “*Moisture*—the moisture content of the compost mixture should be monitored periodically
during the process. Low or high moisture content can slow or stop the compost process. High
moisture content generally results in the process turning anaerobic and foul odors developing.
High temperature drives off significant amounts of moisture, and the compost mix may become
too dry, resulting in a need to add water.” AWMFH, 10-68.

1 movement of liquids carrying nutrients in a properly located and designed compost facility is
2 small.

3 **D. Containment Pens Pose Small Seepage Risks**

4 Design standards for containment pens focus primarily on protection of surface water
5 quality. Those standards also direct that they not be located in areas with a high water table due
6 to the risk of groundwater contamination.^{54, 55} Researchers have found that an active
7 containment pen with a manure pack contributes no more nitrogen to ground water than the
8 adjacent cropland.⁵⁶ The potential for nitrogen loss will be even lower when the containment
9 pens regularly remove manure for storage or treatment, such as for composting or solids
10 management, at another location. Darcy's Law and the factors for estimating specific discharge
11 potential indicate that the risk of downward movement of nutrients from a properly surface
12 drained containment pen will be small. Water will flow over the surface of the containment pen,
13 and the hydraulic pressure will be minimal. These factors will reduce the risk of groundwater
14 contamination.

15 **E. Nutrients are Always Present in the Soil Profile After Harvest Even When
16 Ideal Nutrient Management Planning Practices are Used**

17 That nutrients always remain in the soil after a crop is harvested is an unavoidable
18 consequence of plant growth, soil biological activity, and the ubiquity of nutrients in these
19 systems. In fact, nutrients remain in the soil after harvest not only under the very best nutrient
20 management practices, but also when crops are grown *without fertilizers*. Nitrogen moves

21 ⁵⁴ USDA NRCS, Heavy Use Area, Conservation Practice Standard, Code 561.

22 ⁵⁵ Mink, L.L. et al., The Selection and Management of Feedlot Sites and Land Disposal of
Animal Waste in Boise Valley, Idaho, Ground Water, Vol. 14, No. 6 (1976).

23 ⁵⁶ Minnesota Pollution Control Agency, Feedlot Issues: Animal Waste Liability Account,
Incident Reporting and Contingency Action Plan, at 7 (1999), *available at*
24 <http://www.pca.state.mn.us/index.php/view-document.html?gid=3632>.

(continued...)

1 downward out of the soil profile even beneath permanent vegetation. Thus the risk of nutrient
 2 loss is unavoidable. Risks due to uncontrollable factors are managed, not eliminated. One of the
 3 primary goals of nutrient management planning is to reduce these risks.

4 CNMPs are the central tool that NRCS has developed for controlling the amount of
 5 residual nutrients after harvesting. NRCS has specific technical standards—the 590 Nutrient
 6 Management Standard⁵⁷—to properly budget and supply nutrients for crop production while
 7 protecting air, water and soil quality.⁵⁸ As with all other NRCS conservation practice standards,
 8 each state NRCS organization adapts the national standard to create a state standard.⁵⁹

9 These estimates are not, however, expected to precisely predict plant needs and uptake,
 10 which determine the remaining amount of nitrogen in the soil.⁶⁰ Research in Minnesota looking
 11 at the movement of nitrogen out of tile drained fields over many years shows that mobility of

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 14 ⁵⁷ “Criteria for the CNMP Nutrient Management Element shall include all proposed applications
 15 of manure and other needed nutrients to meet the Nutrient Management conservation practice
 standard (code 590).” NRCS CNMP Technical Criteria, part 304.2, *available at*
<http://directives.sc.egov.usda.gov/viewerFS.aspx?hid=25686>.

16 ⁵⁸ USDA NRCS National Nutrient Management Standard, Code 590, *available at*
http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1046177.pdf

17 ⁵⁹ In developing its 590 standard, Wisconsin NRCS, for example, defines the term “budgeting,”
 18 to explain the role of estimates of nutrient removal now and for future crop years and that
 adjustments are made over time: “Document present and prior year’s crop, estimated nutrient
 19 removal by these crops and known nutrient credits. When nutrients are applied for future crop
 needs in the rotation, implement a tracking process to allow adjustment of subsequent nutrient
 20 applications so that the total amount of nutrients applied to the farm or tract complies with this
 standard and is documented in the plan.” USDA NRCS Wisconsin 590, *available at*
http://datcp.wi.gov/uploads/Farms/pdf/590_final.pdf.

21 ⁶⁰ “In the soil, mineral N is vulnerable to a complex variety of processes brought about by the
 22 interactive effects of weather and soil microbes. Some of these processes may cause the loss of
 available N. Therefore, the quantity of mineral N in soil and the changes in availability are
 23 generally unpredictable.” Beagle, D. Durst, P.T., Nitrogen Fertilization of Corn (2003),
 Pennsylvania State University Extension, *available at*
 24 <http://extension.psu.edu/plants/crops/grains/corn/nutrition/nitrogen-fertilization-of-corn>.

1 nitrogen in the soil with water leads to downward movement of nitrogen *under any*
 2 *circumstance*,⁶¹ including when crops are produced without added fertilizers, when crops are
 3 fertilized at agronomic usage rates, and even when crops are replaced with perennial, unfertilized
 4 vegetation.⁶²

5 Unpredictable weather is a primary reason that even the best estimates of nitrogen
 6 availability and use invariably miss the mark. The effects of drought on these systems
 7 dramatically illustrates this point. Drought in the growing season stunts crop growth, reducing
 8 nutrient uptake and leaving excess nutrients in the soils. The challenge is to predict how much of
 9 those excess nutrients will be present in the subsequent crop year.^{63, 64}

10
 11 ⁶¹ Agricultural stormwater moves through the soil profile and into drain tiles, which convey the
 12 water away from the field. In the absence of drain tiles, that water would continue to move
 downward and would include some soluble nitrogen from the plant root zone.

13 ⁶² “Corn grown without the addition of N fertilizer lost around 10 lb. nitrate-N/A annually
 14 (Randall and Vetsch, 2011). Loss rates from soybeans (which received no N fertilizer) were
 15 nearly identical (Table 1). Generally, annual losses with row crops, where corn received near-
 16 optimum rates of N, ranged from 15 lb. nitrate-N/A (Table 1) on the low end at Waseca to 40
 17 lb/A on the high end (Table 2) at Lamberton during four wet years. A separate project at the
 18 SROC using larger plots located approximately one mile away confirmed annual losses ranging
 from approximately 10 to 18 lb./A (Sands, et.al., 2008). Over the 40+ years of drainage research
 at the ROCs the only method shown to drastically reduce nitrate loss was to use perennial
 vegetation.” Brad Carlson, B. Vetsch, J. Randall, G., Nitrates in Drainage Water in Minnesota
 (2013), University of Minnesota Extension, *available at*
http://www.extension.umn.edu/agriculture/water/publications/pdfs/nitrates_in_drainage_format_d_final.pdf.

19 ⁶³ “Decision making is more complicated for fields in which a drought has severely affected the
 20 corn crop and the amount of nitrogen taken up was reduced. Large amounts of unused nitrate-N
 21 are probably left in these fields. The problem is to determine how much of that nitrate is likely
 to be available the following year. While there are no sure-fire methods, it is possible to estimate
 this amount.” Five Post-Drought Strategies, A Special Report By Farm Progress, at 9 (2014),
available at <http://farmprogress.com/whitepaper-five-post-drought-strategies-better-2013-5>.

22 ⁶⁴ “Under drought conditions, there is the possibility that the drought stressed crop did not use all
 23 of the nitrogen that as applied. This unused (or residual or excess) N will remain in the soil
 profile until it is used by another crop or leached. Situations with the greatest potential for
 excess N to remain in the soil profile after the 2012 crop include fields with drought stressed
 24 corn, where manure was applied for the 2012 crop, or where forage legumes were grown in

(continued...)

1 One of the key tools for reducing this risk is to apply no more of the nutrients than a best
2 estimate of what the crop can productively use, given assumed average weather, reasonable yield
3 goals, and the amount of plant-available nutrients that will be already present in the soil. Even if
4 these nutrients are applied at the agronomic rate determined under a sound nutrient management
5 plan, however, and even if the weather conforms to the average conditions assumed in the
6 estimates, there will still be nutrients left in the soil post-harvest. These residual nutrients are not
7 an intentional consequence of a farmer's practices, but a natural, inevitable consequence of plant
8 growth.

9 CONCLUSION

10 Inevitably some nutrients will remain in the soil profile even when ideal nutrient
11 management planning practices are implemented. Because total elimination of nutrient losses is
12 not attainable, managing the risk of such losses is the real goal. A robust body of national and
13 state manure management standards has been developed by government and university experts
14 over decades, and those standards are constantly being updated. They apply the latest scientific
15 knowledge and field experience to identify the most effective yet attainable agricultural practices

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22 2011. If fall, winter, and early spring rainfalls are normal or below normal, it is likely that
23 unused N from 2012 will still be in the soil profile in spring 2013 and be available for the 2013
24 crop." Laboski, C.A.M, Wondering how much nitrate might be left in the soil from the 2012
crop? (2013), University of Wisconsin Extension, *available at*
http://ipcm.wisc.edu/download/wcm-pdf/WCM2013/WCM20_2%20with%20flyer.pdf

1 for environmental protection. The public interest is well served by farmers who implement those
2 standards, which should be used to define practices required by any injunctive relief in this case.

3 DATED: May 4, 2015

Respectfully submitted,

4 *Of counsel:*

/s/ Jeff Slothower

Ellen Steen

Jeff Slothower, WSBA #14526

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CERTIFICATE OF SERVICE

I hereby certify on May 4, 2015, I electronically filed the foregoing with the Clerk of the Court using the CM/ECF System, which will send notification of such filing to all counsel of record.

DATED this 4th day of May 2015.

/s/ Jeff Slothower
Jeff Slothower, WSBA #14526

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UNITED STATES DISTRICT COURT FOR THE
EASTERN DISTRICT OF WASHINGTON

COMMUNITY ASSOCIATION FOR)
RESTORATION OF THE)
ENVIRONMENT, INC., a Washington Non-)
Profit Corporation and CENTER FOR)
FOOD SAFETY, INC.,)
a Washington, D.C. Non-Profit Corporation,)

Plaintiffs,

v.

COW PALACE, LLC, a Washington)
Limited Liability Company, THE DOLSEN)
COMPANIES, a Washington Corporation,)
and THREE D PROPERTIES, LLC, a)
Washington Limited Liability Company,)

Defendants.

No. 13-CV-3016-TOR

**[PROPOSED]
ORDER GRANTING LEAVE
TO FILE AN AMICUS BRIEF**

Considering the Motion for Leave to Submit Brief as *Amici Curiae* filed by American Farm Bureau Federation, National Cattlemen’s Beef Association, U.S. Poultry & Egg Association, United Egg Producers, and National Council of Farmer Cooperatives (together, the “Agricultural Associations”), and all related materials, **IT IS HEREBY ORDERED** that:

The Motion for Leave to Submit Brief as *Amici Curiae* is **GRANTED** and the Agricultural Associations’ brief is deemed properly filed on the date on which this Order is entered.

SO ORDERED on this ____ day of _____, 2015.

[PROPOSED]
Hon. Thomas O. Rice
United States District Judge