UNITED STATES DISTRICT COURT

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, et al., Defendants.	NO: 13-CV-3016-TOR ORDER RE: CROSS MOTIONS FOR SUMMARY JUDGMENT

BEFORE THE COURT are the following motions: Defendant Cow Palace, LLC's Motion for Summary Judgment (ECF No. 190); Defendants The Dolsen Companies' and Three D Properties' Motion for Summary Judgment (ECF No. 191); Plaintiffs' Motion to Exclude Expert Testimony of Scott Stephen (ECF No. 193); Defendant Cow Palace, LLC's *Daubert* Motion to Exclude Testimony in

Reliance on the EPA Report and to Exclude EPA Report Under Rule 403 (ECF No. 200); Plaintiffs' Motion to Exclude Expert Testimony of James Maul (ECF No. 202); Plaintiffs' Motion to Exclude Expert Testimony of Michael Backe (ECF No. 206); Defendant Cow Palace LLC's Motion to Dismiss Under FRCP 12(b)(1) (ECF No. 209); Plaintiffs' Motion for, and Memorandum in Support of, Summary Judgment (ECF No. 211; *see* ECF No. 234-1 (praecipe)); and Cow Palace, LLC'S Motion to Strike Undisclosed Expert Testimony (ECF No. 237).

These matters were heard on January 6, 2015. Charles M. Tebbutt, Elisabeth A. Holmes, Daniel Snyder, Jessica L. Culpepper, and Blythe H. Chandler appeared on behalf of Plaintiffs. Debora K. Kristensen and Brendon V. Monahan appeared on behalf of Defendant Cow Palace. Ralph H. Palumbo appeared on behalf of Defendants Three D Properties and The Dolsen Companies. The Court has reviewed the motions and the file herein and heard from counsel, and is fully informed.

BACKGROUND

This is a case concerning Defendants' manure management practices and their effect on public health and the environment. Cow Palace Dairy ("Dairy"), located in Lower Yakima Valley, houses a large number of animals and must handle significant amounts of manure generated by its herd. The Dairy manages its manure in a variety of ways, including transforming it into compost and selling

it, temporarily storing it in several earthen impoundments, and applying it to agricultural fields as fertilizer.

In February 2013, Plaintiffs commenced the instant lawsuit alleging violations under the Resource Conservation and Recovery Act ("RCRA").[1] According to Plaintiffs, Defendants' manure management practices constitute open dumping of solid waste and cause an imminent and substantial danger to public health and the environment because when the manure is improperly managed and stored, as well as over-applied to agricultural fields, it is discarded and consequently contributes to high levels of nitrates in underground drinking water. ECF No. 1. In March 2013, the U.S. Environmental Protection Agency ("EPA") exercised its regulatory power under the Safe Drinking Water Act and entered an Administrative Order on Consent ("AOC") with Defendants to address the high levels of nitrates found in underground drinking water. ECF No. 38-1.

Presently before the Court are a variety of motions which can be reduced to the following issues: (1) whether Plaintiffs have Article III standing; (2) whether certain evidence, including expert testimony, should be limited or excluded from trial; (3) whether animal waste, when over-applied onto soil and leaked into groundwater, is a "solid waste" under RCRA; (4) whether the Dairy's manure

[1] Plaintiffs filed their Third Amended Complaint on October 6, 2014. ECF No. 180.

management, storage, and application practices constitute "open dumping" under RCRA; (5) whether the Dairy's manure management, storage, and application practices may cause or contribute to an imminent and substantial endangerment to public health and the environment; and (6) whether Cow Palace, LLC, Three D Properties, LLC, and The Dolsen Companies are all responsible parties under RCRA.

FACTS

A. Cow Palace Dairy

Cow Palace Dairy is located in the Lower Yakima Valley, in Granger, Washington. ECF Nos. 211-1 ¶ 2; 181 at 14. The Dairy can be characterized as a "large concentrated animal feeding operation" ("CAFO") as defined in relevant state and federal laws. 40 C.F.R. § 122.23; Wash. Admin. Code 173-224-030. In 2012, Cow Palace reported its herd size to number over 11,000, with 7,372 milking cows, 897 dry cows, 243 springers, 89 breeding bulls, and 3,095 calves predominately housed in open lot containment pens. ECF Nos. 190-1 ¶ 2; 211-1 ¶ 24; 220-1 (COWPAL002097). The Dairy produces milk, meat, crops, and manure, ECF No. 190-1 ¶ 6; however, Plaintiffs assert the manure "produced" at the Dairy is less of a product than the unwanted byproduct of its primary milk operations, ECF No. 286-1 ¶ 6.

Specifically regarding its manure, the Dairy, like other CAFOs, generates massive amounts of manure from its operation. According to estimates, the Dairy creates, on an annual basis, over 100 million gallons of this substance that must be managed: 61,026,000 gallons of manure-contaminated water from washing the cows and 40,383,850 gallons of liquid manure excreted by the herd.[2] ECF No. 226-1 (COWPAL000511). Defendants contend the Dairy's manure is a "valuable product" sold and used in a variety of ways both on the Dairy's property and elsewhere. ECF No. 190-1 ¶ 13. The manure is gifted to third parties, allegedly to foster goodwill and deepen commercial relationships; transformed into compost and sold to third parties; and applied to the Dairy's fields to fertilize crops, such as silage corn and alfalfa, which in turn is fed to the herd. *Id.* ¶¶ 17, 23-25, 27. Plaintiffs, however, question how "valuable" Defendants' manure really is considering it is given away for free to third parties, over-applied to fields, stored in lagoons that leak, and managed on permeable surfaces that allow its constituents to freely leach into the soil. ECF No. 286-1 ¶ 13.

1. Manure and the Nitrogen Cycle

The parties strongly debate whether the Dairy's manure management practices are contributing to the high concentrations of nitrate found in the

[2] These amounts do not include the estimated 4,485,900 gallons of storm water runoff. ECF No. 226-1 (COWPAL000511).

groundwater. Central to this debate is the nitrogen cycle; specifically, the process by which manure constituents convert to nitrates in the soil.

The nitrogen cycle is well-documented and understood; however, it is affected by many environmental factors, which can be roughly predicted and estimated, but not controlled. ECF Nos. 190-1 ¶¶ 36-37; 211-1 ¶ 32; 256-1 ¶ 32. Manure contains organic nitrogen and ammonium. Although influenced by certain conditions—such as soil temperature, moisture-content, and oxygen-content—some of these manure constituents are converted to nitrate.[3] ECF Nos. 190-1 ¶¶ 31-34; 211-1 ¶¶ 33, 38-39; 256-1 ¶ 33. Nitrate, as well as ammonium, is available to plants as fertilizer, providing important and beneficial nutrients. ECF Nos. 190-1 ¶¶ 31-34; 211-1 ¶¶ 33, 38; 256-1 ¶ 33. Although some nutrients are immediately available to plants, a "lag" between the time the manure is applied to the soil and when its nutrients decompose and become available for crop use is expected. ECF No. 256-1 ¶ 39; *see* ECF No. 226-1 (COWPAL000477). Further, at low temperatures, the conversion of manure constituents to nitrate slows or stops. ECF

[3] Some of the nitrogen in manure may be converted to ammonia gas, released into the atmosphere, and redeposited onto nearby fields. ECF No. 211-1 ¶ 40 (citing the testimony of Dr. Melvin, Defendants' expert, who agrees that "probably some of" the ammonia will be redeposited onto nearby fields through this conversion process).

Nos. 256-1 ¶¶ 33, 39; *see* 211-1 ¶¶ 33, 39 (noting that ammonium converts if soil temperatures are above four degrees centigrade and that the mineralization and nitrification process slows when soil temperatures drop below fifty degrees Fahrenheit).

Once converted, nitrate is a highly mobile element to the extent there is sufficient water in the soil to transport it. ECF Nos. 211-1 ¶¶ 32, 39; 256-1 ¶ 32. Accordingly, because of its highly mobile nature, any residual nitrate not consumed by plants is susceptible to leaching deeper into the soil from irrigation, precipitation, snowmelt, and additional manure applications. ECF Nos. 211-1 ¶ 33; 256-1 ¶ 33 (acknowledging that nitrate is highly mobile and can move through soil with sufficient water to transport it). Once nitrate has leached below the root zone of crops, it will, with the presence of water to transport it, continue migrating downward, toward groundwater.[4] ECF Nos. 211-1 ¶ 34; 256-1 ¶ 34; *see* ECF No. 211-1 ¶ 37 (citing the deposition of Defendants' expert, Dr. Melvin, ECF No. 228-1, who agreed that nitrates below root zones will "eventually" reach groundwater and that, with sufficient rainfall, manure applications "will probably leach through

[4] Defendants do not dispute the possibility that nitrates may eventually reach groundwater; however, they question the timeframe for such a process and whether the conditions for such migration are present underneath the Dairy's operations. ECF No. 256-1 ¶ 34.

the system before you ever get the plant to grow into that root zone"). That is, however, in the absence of conditions suitable to denitrification: the process by which nitrate is converted to nitrogen gas. ECF No. 211-1 ¶ 34.

The parties dispute whether the conditions underlying the Dairy are conducive to denitrification. In support of their assertion that denitrification is unlikely to occur, Plaintiffs put forth evidence of the soil types underlying Cow Palace, with the predominant soil type presenting little potential for any loss of nitrate through denitrification. *Id.* ¶ 35. Plaintiffs' expert, Dr. Byron Shaw, stated the following regarding the soils underlying the Dairy:

> The dominant soils in the area of Cow Palace include the Warden soil series, which is characterized as a well-drained soil with silt loam surface texture originating from wind blown loess. The subsoil grades from the loess to alluvial deposits, originating from soil erosion in the nearby Rattle Snake Hills, many of which are highly permeable. The combination of well-drained, moderate to high permeability soils with coarse subsoil layers makes ideal conditions for movement of nitrate and other contaminants to groundwater.

ECF No. 223 ¶ 49. Further, EPA gas analyses similarly showed no evidence of denitrification, and its continued monitoring data shows oxygen to be present in all monitoring wells, signifying little chance of denitrification. ECF No. 211-1 ¶ 35. Finally, one of Defendants' experts, Dr. Melvin, concurred that "probably very little" denitrification occurs in the soils underlying Cow Palace. *Id.* (citing ECF No. 228-1).

In response, Defendants proffer testimony from their soil scientist, Mr. Scott Stephen, who opined soil compacting from large farm machinery used at the Dairy would result in the top one to two feet of soil having the capacity to hold water for long periods of time; in turn, such standing water would create conditions conducive to denitrification. ECF Nos. 256-1 ¶ 35; 256-11. Mr. Stephen concedes that some of the soils underlying Cow Palace are classified as well-drained; however, he maintains that "[w]hile denitrification rates would not be expected to be considerable, the potential does exist." ECF No. 190-10, ex. 9 at 10-11 (opining that that the "choppers and large trucks . . . driven on the fields" results in "compaction layers . . . at depth[s] from 12-18 inches or deeper and can curb water drainage by slowing travel times as it tries to move through the denser zone(s)," which in turn can cause temporary "perched" water where denitrification can occur). Thus, considering all the evidence presented, denitrification is unlikely to occur in the soils underlying the Dairy, and even if the potential exists, the rate of occurrence ranges from "very little" to "not . . . considerable."

2. Dairy Nutrient Management Plan

To help manage Cow Palace's millions of gallons of yearly generated manure, Cow Palace Dairy is required, pursuant to Washington regulations, to obtain a Dairy Nutrient Management Plan ("DNMP").[5] ECF No. 211-1 ¶ 41. The

[5] Previously titled, "Dairy Waste Management Plan." *See* ECF No. 228-3.

Dairy's DNMP was approved in 1998 and subsequently updated in 2008 and 2012 due to increases in herd size and acreage. ECF No. 226-1(COWPAL000459). As stated in the DNMP itself,

> [t]he purpose of [the DNMP] is to provide the dairy manager with Best Management Practices (BMP's) for the production, collection, storage, transfer, treatment, and agronomic utilization of the solid and liquid components of dairy nutrients in such a manner that will prevent the pollution or degradation of state ground waters and surface waters.

Id. (COWPAL000467). Specifically, the DNMP aims to prevent contaminated nutrients from entering nearby surface waters and underlying aquifers and to "agronomically recycle the nutrients produced through soil and crops." *Id.*

The DNMP provides ample guidance on applying manure as a fertilizer in both the body of the plan and its numerous appendices.[6] As an initial matter, the DNMP cautions, in bold, that the "**[a]pplication rates discussed . . . are based on the average values listed previously, and may need to be adjusted according to the actual test results**." *Id.* (COWPAL000476) (emphasis in original). The DNMP further explains that the "[a]pplication rates are established by balancing nitrogen with crop nutrient requirements." *Id.*

[6] Previous versions of the Dairy's DNMP contained the same guidelines. *See* ECF Nos. 228-3; 229-1.

First, the DNMP requires the Dairy to test the nutrient content of the manure generated by its herd. Although the DNMP provides an "estimated nutrient content" of the liquid manure, the DNMP explicitly states that "[i]t is **required** that that the dairy manager test the nutrient residuals in the soil along with nutrient content of the liquid in the storages ponds and solid (dry) manure **before** land application." *Id.* (COWPAL000471, -478) (emphasis in original). Under the "Testing Requirements" section, the DNMP requires the following: "**Nutrient analysis** for all sources of organic and inorganic nutrients including, but not limited to, manure and commercial fertilizer supplied for crop uptake. Manure and other organic sources of nutrients must be analyzed annually for organic nitrogen, ammonia nitrogen, and phosphorus." *Id.* (COWPAL000478) (emphasis in original). Thus, although the DNMP lists an estimated nitrogen content of 1.51 pounds per 1,000 gallons of liquid manure, the DNMP explicitly requires the Dairy test the nutrient content of the liquid in its lagoons to verify its actual concentration.

Second, the DNMP requires the Dairy to test its soils for residual nutrients. Under the "Testing Requirements" subsection, the DNMP states that "[r]egular testing for soil nutrient availability is essential for proper nutrient management" decision making. *Id.* (COWPAL000478). According to the DNMP, "[s]oil tests should be completed as close as possible to the time of seeding for best results"

and are to be "completed on each field or management group for a starting point for nutrient and manure application recommendations." *Id.* The testing requirements include an "annual post-harvest soil nitrate nitrogen analysis," and "[i]f double cropping, a spring and a fall test should [be] completed prior to any manure application." *Id.*

Third, the DNMP instructs the Dairy to consider average crop yields when determining manure application. "When determining agronomic rates for manure application, it is important to choose achievable yield goals. Average yields for the past three to five years for each field should be used." *Id.* (COWPAL000477). The DNMP specifically lists the primary crops grown on Cow Palace's agricultural fields and provides each crop's nitrogen, phosphorus, and potassium "uptake." *Id.* However, it is very clear that the uptake amounts are merely estimates, as the DNMP expressly states, again in bold, "**[t]hese are guidelines only . . . farmers should vary timing and amounts of application depending on particular soil, crop type, [crop] needs, and weather conditions**." *Id.* (emphasis in original).

Finally, the DNMP provides guidance to the Dairy on application rates. Regarding application specifically, the DNMP notes that "[i]t is critical that the land application of the liquids from the storage ponds be scheduled agronomically throughout the growth period," and that "[t]he proper timing of nutrient application is an essential part of management." *Id.* (COWPAL000480). The application rate

depends, in part, on "infiltration characteristics of the soil," with the DNMP advising the Dairy that its fields predominately contain "a very deep, well-drained [type of] soil." *Id.* Although the DNMP recognizes the "lag time" regarding the conversion process, it also states that "some nutrients are available immediately" after a manure application, *id.* (COWPAL000477), and advises that "[c]aution should be taken when applying manure to fields with long histories of manure application," *id.* (COWPAL000480).

The DNMP summarizes the above guidelines in a list of "Do's" (sic). According to the DNMP, the Dairy should engage in the following practices: (1) "[t]ake manure nutrient concentration into account before applying to crops;" (2) "[t]ake soil nutrient levels into account before applying additional nutrients;" (3) "[a]pply nutrients based on realistic yield . . . goals, based on soils, precipitation, climate, available soil moisture, and yield history for the field;" (4) apply manure during periods of low precipitation and when winds are relatively calm; (5) "[a]void applying manure to bare ground," which "may cause nitrogen to leach into the ground water;" (6) "[s]oil test to determine the proper application of manure and any supplemental fertilizers;" and (7) "[m]aintain a record for each field showing the crop sequence, crop, soil test data, . . . kind and amount of nutrients applied, crop yields, and water applied." *Id.* (COWPAL000482).

Further, the DNMP provides several appendices to offer further guidance to the Dairy on Best Management Practices, including guidance on calculating agronomic manure application rates. *See* ECF No. 226-1; *see also* ECF No. 226-2 (COWPAL000577) (providing a bullet-point guidance sheet, titled "To Insure Proper Utilization, Follow These Guidelines," which similarly instructs the Dairy to "[p]erform a nutrient test of animal waste," "[t]est soils for nutrient levels," "[s]et realistic crop yield goals and apply animal waste to fit crop needs," and "[t]ime the application of animal waste so that neither surface or ground water contamination will occur").[7]

[7] Laurie Crowe, an employee of the South Yakima Conservation District, assists dairies in obtaining and implementing DNMPs. ECF No. 190-1 ¶ 4. In her deposition, Ms. Crowe attested that she was "sure" she had given Cow Palace Dairy guidance on how to implement its DNMP, specifically with regards to manure application. ECF No. 211-1 ¶ 64 (citing ECF No. 229-2). However, Defendants highlight that Ms. Crowe also testified that she had never provided advice to Mr. Boivin about how to take into account residual soil nitrate levels in the soil and that she had only "possibly" spoken about determining an agronomic rate of manure application. ECF No. 256-1 ¶ 64 (citing ECF No. 229-2).

Thus, the DNMP provides extensive information and guidance to the Dairy on how to apply its manure in a way that is both most beneficial to its crops and least likely to cause environmental harm.

3. Land Application

One way the Dairy makes use of—or in Plaintiffs view, "gets rid of"—its millions of gallons of manure is by applying it to its agricultural fields as fertilizer. Out of Cow Palace's approximately 800 total acres, 533 acres are used for the application of manure to its crop fields. ECF No. 226-1 (COWPAL000467). After all, if "[p]roperly utilized, the manure generated by Cow Place Dairy has the potential to serve as a fertilizer for its crops. *Id.* (COWPAL000476).

Jeff Boivin, the general manager at Cow Palace Dairy, characterizes the DNMP as the "blueprint" for how he conducts manure management at Cow Palace and acknowledges that the DNMP contains "reference tools and best management practices" that he helps implement at the Dairy. ECF No. 132 ¶¶ 1, 11. Defendants contend Mr. Boivin "engaged in a series of calculations" when applying manure to the Dairy's agricultural fields. ECF No. 190-1 ¶ 49. Plaintiffs, on the other hand, strongly contest that Mr. Boivin engaged in any type of calculation when determining how much manure to apply to the fields. ECF No. 286-1 ¶¶ 48-49.

Considering Mr. Boivin's declaration, as well as his deposition testimony, it is clear that characterizing his practices as "engag[ing] in a series of calculations" is a stretch.

First, rather than calculating agronomic rates based on nutrient sampling, the Dairy used the "estimated" figure in the DNMP to determine application rates. ECF No. 211-1 ¶ 68.a (citing ECF No. 228-1); *see also* ECF Nos. 190-3 ¶ 58; 256-1 ¶ 68.a (admitting that Cow Palace Dairy historically applied manure based on the DNMP's estimate that the manure contained 1.5 pounds of nitrogen per 1,000 gallons, but asserting that it calculated manure applications with reference to manure sampling in 2014 and will continue to do so going forward). However, according to Cow Palace's records,[8] nutrient concentrations in the manure varied widely, with amounts ranging from 1.67 lbs/1000 gallons to 33.7 lbs/1000 gallons. ECF No. 211-1 ¶ 68.a (citing relevant records).

Second, rather than sampling concentrations from the specific impoundment that would be the source of the manure applied, the Dairy would only take sample concentrations from one lagoon. ECF No. 228-1 ("Q: "Just to clarify here, you used the main lagoon nutrient sampling for everything? A: Yes. Q: Regardless of

[8] Although the Dairy took and recorded manure samples, it admittedly did not actually take these samples into account when determining its application rates. ECF No. 286 at 3.

where the application actually came from? A: Yes."). According to recent sampling under the AOC, nutrient concentrations vary widely from lagoon to lagoon. *See* ECF No. 211-1 ¶ 68.a. (citing relevant sampling, ECF No. 228-1 (COWPAL009262-63)). Defendants do not dispute that, historically, the Dairy would only sample from the main lagoon, believing it to be representative of the other lagoons because the manure in the main lagoon was used to fill some of the other impoundments to provide for additional storage or application needs; however, in 2014, the Dairy maintains that it took samples from the specific lagoon sourcing the manure and will continue to do so going forward. ECF Nos. 256-1 ¶ 68.a; 256-16 ¶ 11.

Third, the Dairy failed to calculate applications with regard to actual residual manure constituents already present in the fields and available for crop fertilization. ECF No. 211-1 ¶ 68.b (citing ECF No. 228-1). Rather, as Mr. Boivin stated, the Dairy would consider the amount the crop could uptake, according to the DNMP estimates, and merely apply less than that estimate knowing the soil already contained residual levels. *See e.g.*, ECF No. 228-1 ("Q: Sir, is that an over application of manure . . . A: Not sure. Q: Why aren't you sure? A: Because I applied less than what the triticale would uptake . . . Q: But you didn't take into account what was already there, did you? A: Probably not. Q: Probably not or is it no? A: No."). Furthermore, the Dairy did not take spring soil samples when

double-cropping its fields, although as Mr. Boivin admitted, he understood the importance of these samples "to see what that crop utilized." ECF No. 211-1 ¶ 68.b (citing ECF No. 228-1). Defendants contend that the Dairy *did* take into account residual soil nutrient, as Mr. Boivin explained, by simply applying less manure than the crop was anticipated to need based on the DNMP. ECF No. 256-1 ¶ 68.b.

Plaintiffs cite to several instances in which the Dairy applied considerably more nitrogen than the crop could possible use; for example, in 2012, although soil samples from the top two feet of the soil column showed nitrate levels in excess of what the alfalfa crop could use, the Dairy proceeded to apply *7,680,000 gallons* of manure onto the already sufficiently fertilized field. ECF No. 304 at 3. Plaintiffs' expert Dr. Shaw cited numerous similar examples of non-agronomic applications, which resulted in *tens of millions of gallons* of manure applied to fields requiring no fertilization. *See* ECF No. 237-2 ¶¶ 76-78, 83-84, 101, 107, 109, 133, 144, 145, 149, 155, 157.

Fourth, the Dairy did not calculate application rates with reference to actual yield goals; rather, the Dairy relied upon the basic guidelines for crop removal rates as identified in the DNMP. ECF Nos. 211-1 ¶ 68.c; 228-1.

> Q: And, again, you've got at the top triticale at 250 and corn at 250. How did you come up with those numbers?
>
> A: From the Dairy Nutrient Management Plan.

Q: So did you take into account any of the past yields of crops from Field 2 in coming up with that number?

A: Yes.

Q: And there's no variability whatsoever?

A: Yes, there is variability.

Q: So why didn't the 250 number change?

A: Because I use an average of what our crops – what we get for our crops from our property.

Q: So the average for the last year was such that you didn't need to change the pounds of "N" utilized by the crops?

A: I probably could have changed them.

Q: But you didn't?

A: No.

Q: Tell me about the calculation you would do to figure out how to change that number.

A: Well, I could look at the yields of that field or all our fields and come up with . . . what the yields are expected to get these amount of "N" to be used . . . and then calculate from there.

Q: But you didn't do that here? . . .

A: No, I just used the number that the Dairy Nutrient Management Plan has listed there.

Q: Right the standard –

A: Yes.

Q: - - number.

ECF No. 228-1. Defendants contend they did calculate agronomic rates with reference to yield goals; that is, the yield goals listed in the DNMP. ECF No. 256-1 ¶ 68.c.

Fifth, Mr. Boivin admitted that the Dairy failed to keep track of the amount of irrigation water applied to each field and never produced an annual report, conceding that the only record the Dairy would have is its water bill. ECF No. 211-1 ¶ 68.e (citing ECF No. 228-1). As stated above, irrigation water can cause unused nitrate to migrate through the soil.

Finally, Mr. Boivin testified that on numerous occasions, the Dairy applied manure to "bare ground"—that is, where no crop was planted. *Id.* ¶ 72 (citing ECF No. 228-1). Plaintiffs' expert Dr. Shaw uncovered even more instances in the Dairy's records. *Id.* ¶ 73 (citing ECF No. 223 ¶ 29). Defendants do not dispute this practice but explain that it intentionally applied manure before the crop was planted in order to ensure the manure constituents had sufficient time to convert to plant-available nutrients and to avoid damaging crops with the application. ECF No. 256-1 ¶¶ 72-32. Further, Plaintiffs highlight several instances in the Dairy's logbooks that suggest the Dairy applied manure to the fields until the lagoon was emptied, presumably, given the timing in late fall in an effort, to prepare for winter storage needs. ECF No. 211-1 ¶ 71. Defendants question how dispositive this

evidence is, asserting that the Dairy applied manure according to DNMP guidance and merely noted when the lagoon was emptied. ECF No. 256-1 ¶ 71.

According to Mr. Boivin, the Dairy has followed the same manure management practices, as detailed above, since at least 2003. ECF No. 211-1 ¶ 69 (citing ECF No. 228-1).

In further support of its contention that the Dairy's land application of manure was not agronomic, Plaintiffs provide the following additional evidence. First, post-harvest soil sampling, conducted by both parties, showed consistently high nitrate, phosphorous, and potassium levels. *Id.* ¶ 77 (citing ECF No. 223 ¶¶ 31-40). Specifically, Plaintiffs' samples taken below crop root zones in the 3 to 5 foot range showed very high nitrate and phosphorous levels, which will continue to migrate toward the underlying aquifer.[9] *Id.* ¶ 77.b; *see also* ECF No. 305-4 at 4-5

[9] Although Defendants do not dispute these levels, they reiterate that nitrates will only reach groundwater if water is present to transport it and that, considering the thickness of the vadose zone, it could take decades for water to percolate through this zone, if ever. ECF No. 256-1 ¶ 77. The vadose zone is defined as that area from the surface of the ground to the water table. Defendant's expert Dr. Melvin, although in disagreement about the time it would take for this nitrate to reach groundwater acknowledges that these nitrates below the effective rooting zone are "destined" to reach groundwater. ECF No. 228-1 ("Q: 'Once nitrate leaches below

(discussing recent post-harvest soil samples which demonstrate excess concentrations of nitrate in the Dairy's agricultural fields). Second, testimony by Dr. Melvin shows that even Defendants' expert agrees that the Dairy's applications were not agronomic. ECF Nos. 211-1 ¶ 80; 228-1 ("Q: Sir, do you believe that Cow Palace's applications of manure were agronomic? A: Not really. Q: So it is your opinion that they were not agronomic? A: At that time they weren't . . . .").

It should be noted that both parties agree that applying more manure nutrients to a crop that already has sufficient fertilizer is unnecessary and/or wasteful and will not necessarily result in a better crop yield. ECF Nos. 211-1 ¶ 79; 256-1 ¶ 79.

4. Lagoon Storage

Cow Palace Dairy stores the millions of gallons of liquid manure generated annually from its herd in a series of earthen impoundments, spanning just over 9 acres, which include four storage ponds, two settling basins, a safety debris basin, and several catch basins (collectively, "lagoons" or "impoundments"). ECF No.

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the root zone of the crops it is destined to reach groundwater.' Do you disagree with that statement? A: Yes. Well let me put a time horizon on that. It takes a long time to get down there. Q: So 'destined,' the word, would you agree that its' destined at some point to reach groundwater? A: I suppose it is. Everything's got to be somewhere.").

226-1 (COWPAL000468); *see also* ECF No. 212 ¶ 16 (citing the EPA report, ECF No. 222-1, which estimates the lagoon surface area at 400,000 square feet, or 9.2 acres). In total, the Dairy has the capacity to store only approximately 40 million gallons. ECF No. 226-1 (COWPAL000468). During winter months, "when application may not be possible" due to environmental conditions, the DNMP estimates the Dairy needs at least 30 million gallons of available manure storage. *Id.* (COWPAL000474, -475, -479).

The Natural Resource Conservation Service ("NRCS"), within the United States Department of Agriculture, issues guidance for construction of storage lagoons, such as the Dairy's impoundments. The NRCS standards are merely guidelines, rather than legal requirements governing waste storage facilities. *See* ECF No. 190-11. Generally, NRCS standards recommend that storage lagoons and ponds be lined with any material, including compacted soil, so long as the lagoon meets certain permeability requirements.[10] ECF Nos. 190-1 ¶ 70; 286-1 ¶¶ 69-70. However, when an impoundment is placed above an aquifer—a practice not recommended unless there is no reasonable alternative—the NRCS standards suggest that "additional measures of safety from pond seepage," such as a clay or

[10] Under the AOC, Cow Palace is required to prove that each of its lagoons and storage ponds meet NRCS' permeability requirements. ECF No. 190-1 ¶ 71; *see* ECF No. 38-1 at 12.

synthetic liner, should be considered. ECF Nos. 211-1 ¶ 87; 256-1 ¶ 87. Underlying the Dairy's lagoons is an aquifer used for residential drinking water. ECF Nos. 211-1 ¶ 85; 256-1 ¶ 85 (highlighting that the aquifer is 30 to 190 feet below the ground).

Save for one lagoon, Defendants do not have complete documentation for each lagoon.[11] ECF No. 190-1 ¶ 78. However, Defendants admit that none of the Dairy's lagoons have a synthetic liner. ECF No. 181 ¶ 52. Although Cow Palace asserts that SYCD documentation demonstrates that it had a "*practice* of designing its lagoons and ponds in accordance with guidelines in place at the time," that Laurie Crowe of the SYCD inspected the lagoons and opined that they "*appeared*" to meet NRCS standards, and the DNMP states the lagoons meet NRCS standards, these assertions cannot be affirmatively established. ECF Nos. 190-1 ¶ 78 (emphasis added); 256-1 ¶ 86; 286-1 ¶ 78. For instance, although Lagoon 1 documentation suggests that the lagoon was "designed to have a bentonite clay liner," ECF No. 190-1 ¶ 80, it cannot be established that it was actually built with a clay liner or that the clay liner was reinstalled when this lagoon was deepened in the 1990s, ECF No. 286-1 ¶ 80.

[11] The Dairy has documentation demonstrating conformance with NRCS standards for Lagoon 4 only. ECF No. 228-2 (DAIRIES000910-11).

Conformance with NRCS standards aside, Plaintiffs have also presented evidence that the lagoons are not structurally sound. Although Defendants contend that Cow Palace "actively maintains its lagoons and storage ponds," ECF No. 190-1 ¶ 68, Mr. Boivin testified during his deposition that the lagoons at Cow Palace frequently dry and crack and have been subject to repeated freezing and thawing during the winter months. ECF No. 211-1 ¶ 90 (citing ECF No. 228-1). Further, Plaintiff's expert Mr. Erickson personally observed areas in the Dairy's lagoons that were substantially eroded and impacted by vegetation. *Id.* ¶ 91. Finally, when drilling nearby monitoring wells, personnel observed "bubbling" in one of the lagoons, which Plaintiffs contend signifies very permeable subsurface and discrete vertical flow paths. *Id.* ¶ 100; *see* ECF No. 256-1 ¶ 100 (failing to respond).

Plaintiffs' expert Mr. Erickson provided estimates of leakage for each lagoon. Due to lacking information, Mr. Erickson relied upon the following assumptions when calculating seepage: (1) for liner thickness, a compacted soil liner of one foot, which is the same thickness of the soil liner estimated by Defendants' lagoon expert, Mr. Trainor; (2) for the amount of liquid in each lagoon, a 50% figure; (3) for permeability of the soils compromising the liner, a permeability of 1 x 10-7 cm/s. ECF No. 211-1 ¶ 97 (citing ECF No. 212 ¶¶ 24, 27-

28). Using Darcy's Law,[12] Mr. Erickson made the following, purportedly conservative, leakage estimates from the Dairy's lagoons: (1) Lagoon 1: 3,830 gallons per day or 460,000 gallons per year; (2) Settling Basins: 564 gallons per day, or 200,000 gallons, per year, per basin; (3) Lagoon 2: 1,018 gallons per day, or 185,000 gallons per year; (4) Lagoon 3: 763 gallons per day, or 91,000 gallons

[12] "Darcy's Law is the principle that governs the fluid movement in lagoons and the subsurface." ECF No. 212 ¶ 20. According to Mr. Erickson, "[i]t is the equation that describes how fluid moves through porous media" and the Agricultural Waste Management Field Handbook ("AWMFH") uses a mathematical variation of the principle to determine seepage rates. *Id.* ¶¶ 19, 20. Defendants maintain that Darcy's Law is a tool used to compare lagoon designs rather than actual seepage rates and thus should not be used to estimate actual seepage. ECF No. 256-1 ¶ 93 ("In some cases, the total seepage from a pond may be of interest, particularly for larger ponds in highly environmentally sensitive environments. In those cases, more elaborate three-dimensional seepage computations using sophisticated-element computer programs may be warranted.") (quoting the AWMFH).

per year; (5) Lagoon 4: 416 gallons per day, or 50,600 gallons per year;[13] (6) NW Catch Basin: 831 gallons per day; (7) NE Catch Basin: 193 gallons per day; and (8) Pond: 6,777 gallons per day, or 2.47 million gallons per year. *Id.* ¶ 98 (citing ECF No. 212 ¶¶ 28, 34, 39, 43, 48, 64, 69, 74). Thus, according to Plaintiff's expert, the Dairy's lagoons leak, on an annual basis, millions of gallons of manure. Defendants dispute the reliability of these calculations based on the method used and assumptions made. ECF Nos. 256-1 ¶¶ 93, 94, 98; 256-8, ex. 6 (Rebuttal report of Defendants' expert, Michael Backe, agreeing that Mr. Erickson's calculations are "theoretically correct, but fundamentally flawed").[14] That being said, although the parties dispute the magnitude of leakage, the fact that the lagoons leak is not genuinely in dispute.

Plaintiffs also assert that borings drilled between two of the Dairy's lagoons—borings which found high levels of nitrate at depths as great as 18 feet, as well as ammonium and phosphorus—evidence horizontal seepage between the

[13] Mr. Erickson varied the liner permeability between 5.7 x 10-8 cm/sec and 8.84 x 10-7 cm/sec when calculating Lagoon 4 seepage rates based on actual laboratory testing of the lagoon permeability conducted in 2004. ECF No. 212 ¶¶ 46-48.

[14] In his deposition, Mr. Trainor agreed that, assuming a seepage flux of 1 x10-7 cm/s and a one-foot liner, the lagoons would leak 924 gallons of manure per day, per acre of lagoon. ECF No. 211-1 ¶ 97.d (citing ECF No. 229-2).

lagoons and possible impact on groundwater. ECF No. 212 ¶ 57. Although the manure constituent levels dropped below 18.2 feet, they were still present at depths as great as 47 feet. *Id.* Defendants' expert, Dr. Melvin, acknowledged that this evidence could indicate horizontal seepage from the lagoons and that such seepage could result in "some impact" on groundwater. ECF No. 211-1 ¶ 102 (citing ECF No. 228-1). Defendants dispute the significance of these findings and instead contend that nitrate penetration, although admittedly mobile in nature, is limited to the upper few feet of soil. ECF Nos. 256-1 ¶¶ 101-102; 256-3 (Rebuttal report of Defendants' expert, Dr. Melvin, concluding that there is "little or no nitrate leaching vertically to the groundwater that lies some 100 ft. + below the basins but there had been some horizontal migration between the two basins").

Plaintiffs also presented samples from beneath another dairy's nearby abandoned lagoon to provide further support for evidence of leakage from the lagoons.[15] Plaintiffs advanced two borings, the second one of which was advanced 45 feet, into an abandoned manure storage lagoon, a lagoon of similar design and construction as Cow Palace lagoons and above similar soil. ECF No. 212 ¶¶ 77-78. Sampling from these borings evidenced substantial concentrations of nitrate, phosphorus, and ammonium in the first two feet of underlying soil. *Id.* ¶¶ 82-83.

[15] To prevent any accidental contamination, this Court did not permit Plaintiffs to drill for soil samples beneath the Dairy's lagoons. *See* ECF No. 136.

While Mr. Erickson noted that levels of nitrate and phosphorus decline after the first two feet, he noted their presence, without other sources of such contaminants, indicates that the Haak Lagoon was a source of contamination. *Id.* ¶ 86. In addition, Mr. Erickson noted the presence of perched groundwater, which Plaintiffs interpret as providing direct evidence that preferential pathways of contaminate migration exist below the lagoon. ECF No. 211-1 ¶¶ 104-105. Defendants interpret this evidence as showing declining concentrations of nitrates and thus minimal, if any, contributions of nitrates to groundwater and further question the significance of the perched groundwater. ECF No. 256-1 ¶¶ 104-105.

Although Defendants dispute the rate of seepage and nitrate accumulation around and beneath the lagoons, the parties do not genuinely dispute that both events are occurring. Plaintiffs highlight testimony of Defendants' experts who conceded that the lagoons are "potentially" leaking and contributing "some amount of nitrate" to the environment but refused to admit the leakage was "significantly" contributing to groundwater contamination. ECF No. 211-1 ¶ 106 (citing Trainor deposition, ECF No. 229-2); *see* ECF No. 229-2 (deposition of Mr. Backe conceding, in response to whether the lagoons leak, that "[e]verything that has a hydraulic conductivity [a.k.a. permeability] term to it implies that there is flow through" and that he has never seen a study showing "there is no seepage from a lagoon").

5. Composting & Cow Pen Contamination

Cow Palace composts solid manure on natural, unlined soil. ECF Nos. 190-1 ¶ 91; 211-1 ¶ 108; 212 at ¶ 88. According to the DNMP, Cow Palace generates 35,000 tons of finished compost each year that is used for light orchard application. ECF No. 190-5, ex. 3 at 5. Plaintiffs contend the composting practice allows for manure constituents to seep out of the solid manure into the soil, with the leaching aided by the high moisture content of the manure. ECF No. 211-1 ¶ 109. During his site visit, Plaintiffs' expert Mr. Erickson observed high liquid content of the solid manure being composted. *Id.* ¶ 109. Plaintiffs' 18-foot core sample of the soil beneath the composting area indicated vertical migration of nitrate, ammonium, and phosphorus. *Id.* ¶¶ 110-11.

In response, Defendants contend that Plaintiffs' sample shows "rapid attenuation" of the manure constituents, and at any rate, the boring was merely advanced to 18 feet, not to the depth of the groundwater. ECF No. 256-1 ¶ 110. Moreover, Defendants justify its composting operation by explaining that it is referenced in its DNMP and is inspected by the Washington State Department of Agriculture. *Id.* ¶ 108. The DNMP provides that "[a]ny run-off . . . from the stockpiled manure will be controlled at all times by whatever means the dairy manager deems necessary. . ." ECF No. 190-5, ex. 3 at 5. Defendants have not identified any means used to control the wet manure from leaching nitrates straight

to native ground during the composting process used to generate 35,000 tons of dried manure.

The Dairy's herd lives and is fed in open containment pens on unlined native soil. ECF No. 190 at 18. Plaintiffs contend such operations allow manure constituents to leach into the permeable soil, which statement they support with sampling conducted by both parties demonstrating high levels of nitrate in the soil underlying the cow pens. ECF No. 286 at 19 (citing ECF No. 286-5 ¶¶ 166-69). Although the parties dispute the extent of the contamination in the cow pens, Defendants acknowledge that manure "might seep through the soil surface." ECF No. 190-1 ¶ 90.

6. Evidence of Groundwater Contamination

There is no dispute that the groundwater at or near Cow Palace Dairy is contaminated. Data shows high levels of nitrate contamination, with many of the nitrate concentrations exceeding the maximum contaminant level, 10 mg/L, as established by the EPA. ECF Nos. 211-1 ¶ 113; 213-1, ex. C (summarizing groundwater data). It is Plaintiffs' contention that the nitrate in the manure at the Dairy, when not used by the crops as fertilizer and without conditions conducive to denitrification, migrates deeper into the soil, moving past crop root zones and eventually reaching groundwater. ECF No. 211-1 ¶ 114. As detailed above, Defendants maintain that denitrification is possible in the soils underlying the

Dairy; but even if the nitrate continued to migrate, it could take many decades to move through the vadose zone and finally reach the groundwater, if ever. ECF No. 256-1 ¶ 114.

The Dairy, located at the northern end of the Lower Yakima Valley, is bounded to the north by the basalt ridges of Rattlesnake Hills. ECF No. 211-1 ¶¶ 26, 30. There are two main aquifer types in the area: one deeper basalt aquifer underlying the sedimentary deposits and the other a relatively shallow alluvial aquifer. *Id.* ¶ 28. According to the U.S. Geological Service, the deeper aquifer is believed to be semi-isolated from the shallower aquifer, as well as local stream systems, and eventually discharges to the Columbia River. *Id.* ¶ 28. The shallower aquifer eventually discharges to the Yakima River, *id.* ¶ 28; however, it is contested where the aquifer and river meet, the amount of water the aquifer contributes to the River, and the water quality of the river at this intersection, ECF No. 256-1 ¶ 28.

The Valley's groundwater is influenced by a variety of sources. Precipitation is the primary source of groundwater recharge in the area, with most natural groundwater recharge occurring in the winter and early spring months. ECF No. 211-1 ¶ 29. Irrigation water, both from irrigation canals and application practices, also influences groundwater recharge, *id.*; however, Defendants contest whether the Dairy's activities affect the underlying aquifer, ECF No. 256-1 ¶ 56.

Sediments in the region greatly influence groundwater movement, with grain size affecting groundwater velocities. ECF No. 211 ¶ 30. Plaintiffs contend water movement through the sediments tends to follow preferential flow paths composed of coarse sediments; as a result, one well located along a preferential flow path may draw its water from a particular source, whereas a neighboring well, located along a different preferential flow path, may draw its water from a different source that has differing water chemistry.[16] *Id*.

In support of their contention that Defendants are contaminating the groundwater, Plaintiffs use data generated from the Dairy's AOC. The site model for the project shows nitrate contamination in the groundwater can originate from Cow Palace's unlined manure storage lagoons, manure land applications that exceed agronomic rates, and infiltration from the compost areas and confinement pens. *Id.* ¶ 114; *see* ECF No. 223 ¶ 55 (conceptualization of site model).[17] Because of the steep gradient in the topography in the area, which results in high groundwater flow, Plaintiffs focused on data generated from the monitoring wells. ECF No. 211-1 ¶¶ 120-24. Plaintiffs examined the following evidence to

[16] Defendants dispute the existence, or at least proof thereof, of any preferential pathways underlying the Dairy's operations. ECF No. 256-1 ¶ 30.

[17] Defendants assert that this model cannot be used as proof of any fact. ECF No. 256-1 ¶ 115.

determine whether the nitrates found in the groundwater are actually originating from Cow Palace Dairy: (1) the presence of tracer chemicals associated with cow manure, such as chloride, sodium, phosphorus, sulfate, magnesium, calcium, bicarbonate, and ammonia; (2) the presence of dairy-related pharmaceuticals found in the groundwater, such as monensin; (3) and any potential upgradient sources of nitrate contamination. *Id.* ¶¶ 116-18.

First, Plaintiffs presented evidence showing downgradient monitoring wells with high nitrate levels, with concentrations ranging from 5.8 mg/L to 234 mg/L, as well as tracer chemicals associated with cow manure. *Id.* ¶ 124. Second, EPA testing found that the same dairy-related pharmaceuticals, including monensin, in downgradient wells were also present in the Dairy's lagoons, manure piles, and application fields; monensin was not found in upgradient monitoring wells. *Id.* ¶ 117.[18] Finally, Plaintiffs located no major upgradient sources of nitrate, with the exception of a handful of agricultural fields. *Id.* ¶ 119. Plaintiffs determined these agricultural fields are not a likely major nitrate contributor given the relatively low nitrate concentrations observed in upgradient wells. *Id.* Further, upgradient wells showed small amounts of nitrate, ammonia, dairy pharmaceuticals, and other tracer

[18] According to Plaintiffs' expert, this antibiotic was first used on livestock in the United States in the 1970s. ECF No. 223 ¶ 58.

chemicals associated with cow manure, with the most representative of upgradient wells showing no impact by human-influenced sources. *Id.* ¶ 121. Plaintiffs' expert did recognize that two dairies, not party to the instant suit, may have applied manure to one of their few agricultural fields upgradient to Cow Palace. ECF No. 237, ex. 1 ¶¶ 188, 191(f).

Defendants greatly dispute the significance of the well data. First, Defendants fault Plaintiffs for not considering other sources of nitrate, such as the long history of irrigation in the Yakima Valley, septic systems, and upgradient agricultural sources. ECF No. 256-1 ¶ 116. In Defendants' view, the high nitrate levels, considering the depth of the vadose zone, is from an historical plume moving through rather than a new plume currently being created. *Id.* Second, Defendants contend that the results of pharmaceutical tracers are "mixed at best": some tracers were found in both upgradient and downgradient wells, in some cases the concentrations decreased downgradient of the dairies, and some were found in wells without nitrate. *Id.* ¶ 117.

Third, Defendants dispute that the wells analyzed by Plaintiffs are most representative or that they show any "significant contribution" from the Dairy. *Id.* ¶¶ 121-24. Regarding upgradient monitoring wells, Plaintiffs assert YVD-02 is the most appropriate upgradient well, whereas Defendants contend DC-01, which is immediately upgradient to the Dairy, is more appropriate. ECF Nos. 211-1 ¶ 121;

256-1 ¶ 121; *see* ECF No. 223 ¶ 65 (map depicting well locations). Plaintiffs chose YVD-02 because it has not been impacted by human-influenced sources; DC-01, on the other hand, is not fully hydrologically upgradient from Cow Palace Dairy and other sources of nitrogen loading. ECF Nos. 211-1 ¶¶ 121-122; 223 ¶ 61 (noting that although DC-01 is also identified as an upgradient monitoring well, that well is "approximately 220 feet lower in surface topographical elevation than YVD-02, and is likely influenced by some of the agricultural fields located above and upgradient of it"). Defendants' expert Mr. Trainor maintains that DC-01 is more representative because it provides contaminant inputs to the site from other upgradient sources. ECF No. 256-6.

Regarding downgradient monitoring wells, Plaintiffs provide data from a number of downgradient wells, YVD-09, YVD-10, YVD-14, YVD-15, DC-03, DC-03D, evidencing high nitrate levels from the Dairy's operations, as well as the other cluster dairies not party to this litigation. ECF No. 211-1 ¶ 124. Plaintiffs acknowledge that some downgradient wells show low nitrate levels, such as DC-07, but assert that these wells are influenced and diluted by cleaner water sources, such as excess irrigation water. *See* ECF No. 237-2 ¶¶ 222-23.

Finally, Defendants fault Plaintiffs for not demonstrating preferential pathways and for not establishing the time it would take for nitrate to reach groundwater from the Dairy. ECF No. 256-1 ¶ 126. Plaintiffs concede that the

amount of time it would take for excess nitrate to reach groundwater is "highly variable." ECF No. 211-1 ¶ 125. That being said, they maintain that preferential pathways exist because of the differing densities of subsurface soils, which indicates nitrates may travel to groundwater via a shorter path in one location than it would in another. Thus, considering that conditions underneath Cow Palace are not conducive to denitrification, it is a "virtual certainty" that nitrate observed in the subsurface will reach groundwater. ECF Nos. 211-1 ¶ 125; 223 ¶ 48. Importantly, Defendants' experts do not dispute that nitrates may reach the groundwater, given sufficient water to help transport nitrates through the vadose zone; rather, they harp on the possibility that migration could take decades and that Plaintiffs have failed to establish the timeframe it would take. ECF Nos. 256-1 ¶ 126; 256-3, ex. 1 at 1. It is worth noting that Cow Palace Dairy has operated on this site for about 40 years. ECF No. 223 ¶ 105.

Regarding nitrate movement, Plaintiffs note, and Defendants do not dispute, that nitrate movement is determined by the rate of water movement, which in turn is influenced by the soil texture and amount of water escaping the root zone. As a result, the amount of water moving through the vadose zone of the agricultural fields is largely dependent on irrigation management; thus, Cow Palace's irrigation practices have a strong effect on the rate that water, and with it, nitrates, will move through the soil. ECF No. 211-1 ¶ 126; *see* 256-1 (failing to contest).

According to data obtained by both Defendants and the EPA, groundwater recharge can occur fairly rapidly.[19] First, water table elevation monitoring demonstrates that the water table fluctuates widely, in some instances by upwards of three feet over a ten-day period. ECF Nos. 211-1 ¶ 127; 223 ¶ 102. According to Plaintiffs' expert Dr. Shaw, these types of fluctuations would not be present if groundwater recharge were taking many decades. ECF Nos. 211-1 ¶ 127; 223 ¶ 102. Defendants' experts agreed that such water table variability means a seventy-year recharge estimate is probably not accurate, and that seasonal fluctuations in water table are evidence that seasonal surface activities are influencing groundwater. *See* ECF Nos. 228-1; 229-2.

Second, wide variability in groundwater temperature indicates that groundwater recharge is occurring fairly rapidly. According to Plaintiffs' expert Dr. Shaw, this variability in water temperatures would not be occurring if recharge were taking decades. ECF Nos. 211-1 ¶ 128; 223 ¶ 103. Defendants' expert, Dr.

[19] The EPA report opined that of the "approximately 312 to 367 tons of nitrate . . . at the three-foot depth . . . past the root zone," in the application fields of various dairies, including Cow Palace, "much of this nitrate will eventually end up in groundwater." ECF No. 229-2 (DAIRIES019335-336) (also noting that implementation of the consent order can help mitigate this issue).

Melvin, agrees that these temperature changes indicate that groundwater recharge is "probably" occurring more quickly than seventy years.[20] ECF No. 228-1.

Third, the presence of modern dairy-related pharmaceuticals such as those used at Cow Palace Dairy in downgradient groundwater provides further evidence that groundwater recharge can and is occurring rapidly. ECF Nos. 211-1 ¶ 129; 223 ¶ 104. Defendants' expert, Dr. Melvin, concedes that the presence of pharmaceuticals in groundwater is a "possible" indication that groundwater is younger than seventy years. ECF No. 228-1.

Fourth, EPA's age-dating of wells showed that the average age of groundwater was 31.6 years, age-dating that Dr. Melvin does not dispute. According to Plaintiffs' expert, Mr. Shaw, this is the average age of the water itself, not the date the water became contaminated. ECF Nos. 211-1 ¶ 130; 223 ¶ 105.

In sum, Plaintiffs suggest the contamination found in the groundwater, as evidenced by the well testing, along with evidence of relatively rapid recharging groundwater, demonstrates the Dairy's operations contribute to the current levels of contamination.

[20] Mr. Melvin's opinion that if could take up to seventy years for groundwater recharge is an estimate based on a model from his 1969 dissertation. ECF No. 228-1 (Melvin deposition discussing expert report and dissertation model).

Defendants overarching response to this evidence is that such groundwater recharge cannot quantify the Dairy's contribution to the contamination, so the significance of the Dairy's contribution remains a disputed issue of fact. ECF No. 256-1 ¶¶ 127-30. That being said, Defendants' experts concede that there is a "potential" that Cow Palace Dairy has some impact on groundwater and that it is "certainly possible" that the Dairy's manure applications could be the source of contaminants observed in nearby well water. ECF Nos. 211-1 ¶ 131; 229-2; *see* ECF No. 228-1 ("Q: "[I]s it more likely than not that Cow Palace could be the cause of this contamination? . . . A: Yes.").

7. Evidence of Surface Water Contamination

Plaintiffs also contend that the Dairy's operations are contributing to surface water contamination. In support, Plaintiffs highlight soil and area topography maps which show a strong drainage pattern running from northeast to southwest through the application fields with several intermittent or ephemeral streams present. ECF No. 211-1 ¶ 36. According to Plaintiffs, this creates a significant potential for runoff and pollution of downstream surface waters. *Id*. Further, Plaintiffs point to the interconnectedness of the contaminated shallow groundwater and nearby surface waters and cite to expert reports that agree the groundwater underlying the Dairy will eventually reach the Yakima River. ECF No. 286 (citing ECF No. 286-9). In response, Defendants dispute that there is any evidence of

surface water runoff, but rather contend Cow Palace is specifically designed to prevent such occurrence, with catch basins to prevent any contaminated runoff from leaving the field. ECF Nos. 190-1 ¶¶ 94-100; 256-1 ¶ 36.

8. Adverse Health Effects

Plaintiffs' suit asserts that the Dairy's manure management practices present an imminent and substantial endangerment to public health because of the nitrate contamination in the groundwater. To help prevent adverse health effects, the EPA has set the maximum contaminant level for nitrates in drinking water at 10 mg/L. ECF No. 211-1 ¶¶ 133-34; 213 ¶ 6. Plaintiffs point to a number of health risks associated with exposure to nitrate, including both chronic exposure and exposure below the MCL, such as increased risk of various types of cancer, as well as hyperthyroidism and increased mortality from strokes and heart disease. ECF Nos. 211-1 ¶¶ 134-36; 213 ¶¶ 6-8. Exposure primarily occurs from consuming drinking water, cooking with water, brushing teeth, and ingesting water while bathing, showering, or using pools. ECF No. 211-1 ¶ 137.

The wells of some of Plaintiffs' members who live near the Dairy have levels of nitrate in excess of the EPA's MCL. ECF Nos. 211-1 ¶ 139; 213 ¶ 13 (noting that one standees' well showed nitrate levels as high as 64.6 mg/L). Further, Defendants' samples of 115 residences in the area, pursuant to the AOC,

showed 66 residences exceeding the MCL. ECF Nos. 211-1 ¶ 140; 213 ¶ 15 (noting that two of these residences had nitrate levels which exceeded 50 mg/L).

In response, Defendants contend that Plaintiffs overstate the threat of nitrate exposure, that the MCL is set for the most sensitive members of the population, and that Plaintiffs fail to take into account dosage and sensitivity. ECF No. 256-1 ¶¶ 135-39. Most alarmingly, Defendants seem to suggest that because young infants in the area, the most sensitive population, are not currently suffering from methemoglobinemia, the risk of nitrate contamination in the groundwater is not great. *Id.* ¶¶ 134, 141.

Whether or not Plaintiffs have overstated the risk of nitrate contamination, it is worth noting that Defendants recently installed reverse osmosis units in all Dairy employee housing from which the employees would obtain their drinking water. ECF No. 211-1 ¶ 14 (citing deposition of Vern Carson, safety director for the Dolsen Companies, ECF No. 229-2).

9. Administrative Order on Consent

In response to a series in a local Yakima Valley newspaper, *Yakima Herald Republic*, discussing the issue of groundwater contamination in the region, the EPA sampled drinking water wells and potential sources of excess nitrate contamination in the area. ECF No. 200 at 2. From February through April 2010, the EPA collected samples from three possible sources—dairies, irrigated

croplands, and residential septic systems—to investigate the contribution of various land uses to the high nitrate levels in groundwater. ECF No. 204-2. At the conclusion of its study, the EPA, acknowledging the study's limitations, ultimately determined that the cluster dairies, of which Cow Palace Dairy is a part, are the likely source of excess nitrate levels in the downgradient drinking-water wells, estimating that the dairies account for approximately 65 percent of the contamination. *Id.* (attributing 30 percent of the contamination to the irrigated croplands and 3 percent to the residential septic systems). The EPA published its final, revised report in March 2013. *Id.*

Around this time, Cow Palace Dairy entered into an Administrative Order on Consent ("AOC") with the EPA. ECF No. 190-1 ¶ 83; *see* ECF No. 38-1. The AOC sets forth a series of actions that the Dairy must take, including the following: (1) provide a permanent, safe alternative drinking water supply to residents with wells that exceed maximum contaminant levels within a one-mile radius (MCLs), (2) take specific actions to further control potential sources of nitrogen at the Dairy, (3) establish a network of monitoring wells to measure the effectiveness of the nitrogen source reduction actions, and (4) ensure effective

nutrient management at the Dairy to reduce the introduction of nitrate to an underground source of drinking water. ECF No. 190-1 ¶ 85.[21]

The EPA recently issued an update in December 2014 to its AOC, concluding that data collected under the AOC supports its previous finding that the dairies, including Cow Palace Dairy, are the chief source of nitrate contamination in the area. ECF No. 305-4 at 8 ("Comparison of the nitrate levels in the upgradient monitoring wells with those along the downgradient edge of the Dairies properties indicate that there is heavy nitrate loading of the drinking water aquifer occurring within the Dairies' footprint."). Specifically regarding the level of contribution from the residential septic systems compared to the dairies, the EPA's update includes the following excerpt:

> Based on available information, the contribution from residential septic systems to nitrate contamination in the monitoring and residential drinking water wells downgradient of the Dairies is negligible. Livestock generate significantly more waste than humans. The amount of nitrogen generated by the 224 residential septic systems on and within one mile downgradient of these Dairies is insignificant relative to the amount of nitrogen produced by the Dairies. **A three-person residence generates about 30 pounds of nitrogen per year**. By comparison, the USDA Agricultural Waste Management Field Handbook estimates that **a single lactating cow produces about 1 pound of nitrogen per day or 365 pounds of nitrogen per year**. In 2009, the Dairies reported having more than 24,000 animals, not all of which are lactating cows. The total amount

[21] Plaintiffs contest whether these actions are sufficient to protect human health and the environment. ECF No. 286-1 ¶ 85.

> of nitrogen generated by these 224 residential septic systems is **less than one-tenth of one percent** of the total amount generated by these Dairies.

Id. (emphasis added). Cow Palace Dairy alone has more than 7,000 milking cows. ECF No. 220-1 (COWPAL002097).

B. Parties

Plaintiffs are two non-profit corporations, bringing suit on behalf of their organizations and individual members. Community Association for Restoration of the Environment ("CARE") is a public interest corporation dedicated to informing Washington state residents about activities that endanger the health, welfare, and quality of life for current and future residents. In furtherance of its mission, CARE serves as an advocate to protect and restore the economic, social, and environmental resources of the region. ECF No. 52 at 2-23. Center for Food Safety ("CFS") is also a public interest corporation, organized under the laws of Washington D.C., whose mission is to protect the environment and human health from harmful food production technologies, including the negative impacts of industrial agricultural technologies. ECF No. 49 at 3.

Plaintiffs are suing the following seemingly separate, but factually interrelated entities: Cow Palace, LLC, a Washington limited liability company, ECF No. 220 at 24; Three D Properties, LLC, a Washington limited liability

company, ECF No. 220-1; and The Dolsen Companies, a Washington corporation, *id.*

Cow Palace has one member, The Dolsen Companies, and Bill Dolsen serves as the registered agent. ECF Nos. 181 at 4; 220 at 24. The Dairy's DNMP lists The Dolsen Companies as the owner/operator of the Dairy. ECF No. 226-1 (COWPAL000459). Bill Dolsen serves as the President, Chairman, and Director of The Dolsen Companies; Adam Dolsen serves as Vice President and Director. ECF No. 220-1. Three D Properties has one manager: Bill Dolsen. *Id.*

On November 7, 2013, several months after Plaintiffs commenced this action, Dolsen Companies transferred sixteen parcels to Cow Palace, parcels on which the Dairy operates. ECF No. 229-4. Cow Palace did not pay any money for this land, and neither company made any tax payments as a result of the transfer. ECF No. 281-1 ¶ 2. Three D owns approximately 50 percent of the land on which Cow Palace operates, including parcels previously owned by Adam Dolsen but also transferred on November 7, 2013. ECF Nos. 229-2; 229-4.

Upon careful review, it becomes readily apparent that these three entities are interconnected, with the Dolsens serving as the core and common link. Bill Dolsen, as manager of Three D and registered agent for Cow Palace, has primary authority for decisions involving real property acquisitions by Cow Palace and Three D. ECF No. 229-4. Although Mr. Boivin is the manager of the Dairy and

"top person in charge" of operations, he "ultimately reports" to Bill Dolsen. ECF Nos. 281-2, ex.3, ex.6. For instance, shortly after there was a breach in one of the Dairy's lagoons from nearby drilling, Mr. Boivin contacted Bill Dolsen, who instructed Mr. Boivin to stop drilling. ECF No. 281-2, ex.3.[22] Employees at the Dairy understand Mr. Boivin to be one of their supervisors, and Bill Dolsen to be the "boss" of Mr. Boivin. ECF No. 281-2, ex. 7.

Both Dolsens met or spoke with Washington State Department of Agriculture and Secretary of Agriculture representatives on behalf of the Dairy. ECF Nos. 281-1 ¶ 14; 309 ¶ 14. Specifically regarding the Dairy's manure management practices, Adam and Bill Dolsen represented the Dairy in negotiations with the EPA. ECF No. 281-2, ex. 3, ex. 8. In fact, it was the Dolsens, along with Mr. Boivin, who made the final decision to accept the AOC the Dairy entered into with the EPA. ECF No. 281-2, ex. 8 ("Q: Who from Cow Palace was the principal who gave authorization to make settlement proposals to EPA? A: It was between myself and my father and Jeff Boivin. Q: Was it a collaboration among the three of you? A: Yes."). Adam Dolsen testified that he allowed EPA access to the Cow

[22] Similarly, Mr. Boivin contacted Adam Dolsen when there was a breach in one of the lagoons. ECF No. 281-2, ex. 8.

Palace site and worked with other dairies in implementing the AOC's requirements. ECF Nos. 281-1 at 6; 309 at 10.

Adam Dolsen has authority to fire managers of Cow Palace, authority which he shares with his father. ECF No. 281-2, ex. 8. Indeed, in his deposition, Adam Dolsen referred to these employees as "our employees."[23] *Id.* Defendants maintain that any actions that Adam Dolsen has taken with respect to the Dairy have been done in his capacity as President of Cow Palace, a position to which Bill Dolsen, as Manager of Cow Palace, appointed him. ECF Nos. 308 ¶ 4; 309 ¶ 18. However, Adam Dolsen's deposition reveals the following:

Q: What is your title in the Dolsen Companies?

A: Vice president.

Q: As Vice president what are your decision-making powers?

A: Just, I guess, depends on what the decision is.

Q: What types of decisions are you involved in?

A: Mostly employee-related decisions.

Q: Hiring and firing?

A. To some extent.

Q: When you say employee, please define what you mean by that.

[23] Bill Dolsen similarly referred to the dairy employees as "work[ing] for us." ECF Nos. 281-2, ex. 3

A: Employee.

Q: Employee decisions, you said.

A: I make decisions that are relevant to the employees that are employed at Dolsen Companies.

Q: So does that include the Cow Palace?

A: Yes.

Q: Do you hire and fire at the Cow Palace?

A: I have hired people at the Cow Palace.

Q: Are you responsible for determining whether to fire someone at the Cow Palace?

A: Yes, but I guess it depends on who it is.

Q: If it's a management person - -

A: Yes.

Q: -- is that your responsibility?

A: Yes.

Q: Do you share that responsibility with anyone else?

A: Yes.

Q: Who?

A: My father, HR, and depending on if there is a manager above them.

ECF No. 281-2, ex 8.

Dolsen Companies receives and maintains a number of records regarding the Dairy, including manure transfers, offsite manure applications, compost transfers, laboratory analyses of liquid manure samples, annual yields of crops grown on the Dairy's agricultural fields, as well as records of safety meetings, inspections, and incident reports involving injuries at the Dairy. ECF Nos. 229-2; 229-3. Mr. Boivin travels to the Dolsen Companies office once a month for these records. ECF No. 281-2. Further, several Dolsen Companies employees, including Bill and Adam Dolsen, perform numerous functions for the Dairy, including conducting meetings for the Dairy's employees focusing on OSHA compliance, equipment safety, and animal safety; overseeing corporate records, such as annual reports and tax returns; performing annual review and renewal of the Dairy's insurance policy; discussing financial implications of purchases and sales of major assets; reviewing monthly financial statements for the Dairy; making "employee-related decisions" such as hiring and firing Dairy employees; and meeting with management one or two times per month. ECF Nos. 229-2; 229-4. Finally, it was Adam and Bill Dolsen, along with Vern Carson, safety director for the Dolsen Companies, who made the decision to install reverse osmosis units in all Dairy employee housing around 2011 or 2012, from which the employees would obtain their drinking water. ECF No. 211-1 ¶¶ 14-15 (citing Carson deposition, ECF No. 229-2).

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DISCUSSION

I. Standards of Review

A. Rule 12(b)(1) Dismissal

When addressing a motion to dismiss for lack of subject matter jurisdiction, the court is not bound by the plaintiff's factual allegations. Pursuant to Rule 12(b)(1), the Court "may 'hear evidence regarding jurisdiction' and 'resolv[e] factual disputes where necessary.'" *Robinson v. United States*, 586 F.3d 683, 685 (9th Cir. 2009) (quoting *Augustine v. United States*, 704 F.2d 1074, 1077 (9th Cir. 1983)). A Rule 12(b)(1) motion may be either facial, where the court's inquiry is limited to the allegations in the complaint; or factual, where the court may look beyond the complaint to consider extrinsic evidence. *Safe Air for Everyone v. Meyer*, 373 F.3d 1035, 1039 (9th Cir. 2004). "If the moving party converts 'the motion to dismiss into a factual motion by presenting affidavits or other evidence properly brought before the court, the party opposing the motion must furnish affidavits or other evidence necessary to satisfy its burden of establishing subject matter jurisdiction.'" *Wolfe v. Strankman*, 392 F.3d 358, 362 (9th Cir. 2004) (quoting *Safe Air*, 373 F.3d at 1039). Accordingly, in deciding jurisdictional issues, the court is not bound by the factual allegations within the complaint. *Augustine*, 704 F.2d at 1077.

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B. Summary Judgment

Summary judgment may be granted to a moving party who demonstrates "that there is no genuine dispute as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). The moving party bears the initial burden of demonstrating the absence of any genuine issues of material fact. *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986). The burden then shifts to the non-moving party to identify specific facts showing there is a genuine issue of material fact. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 256 (1986). "The mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient; there must be evidence on which the [trier-of-fact] could reasonably find for the plaintiff." *Id.* at 252.

For purposes of summary judgment, a fact is "material" if it might affect the outcome of the suit under the governing law. *Id.* at 248. A dispute concerning any such fact is "genuine" only where the evidence is such that the trier-of-fact could find in favor of the non-moving party. *Id.* "[A] party opposing a properly supported motion for summary judgment " 'may not rest upon the mere allegations of denials of his pleading, but . . . must set forth specific facts showing that there is a genuine issue for trial.'" *Id.* at 248 (internal quotation marks and citation omitted); *see also First Nat'l Bank of Ariz. v. Cities Serv. Co.*, 391 U.S. 253, 288-89 (1968) (holding that a party is only entitled to proceed to trial if it presents

sufficient, probative evidence supporting the claimed factual dispute, rather than resting on mere allegations). Moreover, "[c]onclusory, speculative testimony in affidavits and moving papers is insufficient to raise genuine issues of fact and defeat summary judgment. *Soremekun v. Thrify Payless, Inc.*, 509 F.3d 978, 984 (9th Cir. 2007). In ruling upon a summary judgment motion, a court must construe the facts, as well as all rational inferences therefrom, in the light most favorable to the non-moving party, *Scott v. Harris*, 550 U.S. 372, 378 (2007), and only evidence which would be admissible at trial may be considered. *Orr v. Bank of Am., NT & SA*, 285 F.3d 764, 773 (9th Cir. 2002).

II. Motion to Dismiss Pursuant to 12(b)(1)

Defendant Cow Palace moves to dismiss this action, pursuant to Rule 12(b)(1), asserting that Plaintiffs have failed to establish standing. ECF No. 209. Plaintiffs, asserting that there is no genuine dispute as to their standing, move this Court to grant summary judgment as to this issue. ECF No. 211.

To satisfy Article III's standing requirements, the plaintiff must show the following three elements: (1) the "plaintiff must have suffered an injury in fact—an invasion of a legally protected interest which is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical;" (2) there must be a "causal connection between the injury and the conduct complained of—the injury has to be "fairly traceable" to the challenged action of the defendant, and not the

result of the independent action of some third party not before the court;" and (3) "it must be likely, as opposed to speculative, that the injury will be redressed by a favorable decision." *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560–61 (1992) (internal quotation marks and citations omitted). "An association has standing to bring suit on behalf of its members when its members would otherwise have standing to sue in their own right, the interests at stake are germane to the organization's purpose, and neither the claim asserted nor the relief requested requires the participation of individual members on the lawsuit." *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs.*, 528 U.S. 167, 181 (2000).

Here, Defendant Cow Palace does not dispute that the interests at stake are germane to Plaintiffs' organizational interests, nor that personal participation by individual standees is unnecessary. Rather, the core of Defendant Cow Palace's challenge is whether any standee can establish individual standing.

This Court concludes that at least CARE has organizational standing to proceed.[24] First, considering CARE's organizational mission, the interests at stake in the action are germane to its organizational goals. Second, this case does not require the individual participation by each standee. Finally, CARE's individual members have standing to sue. Although Defendant Cow Palace greatly disputes

[24] Because CARE has standing, this Court need not address whether CFS also has Article III standing. *See Sierra Club v. EPA*, 762 F.3d 971, 978 (9th Cir. 2014).

that Plaintiffs have established the causation and redressability requirements of the standing doctrine, this Court is unconvinced.

First, Plaintiffs have sufficiently established that one or more of its members has suffered an injury in fact. Although Defendant Cow Palace states that "CARE fails to establish all three factors of the standing test," it fails to brief why the standees' purported harm does not satisfy the injury-in-fact requirement. ECF No. 209 at 11-12. To demonstrate that its individual members have suffered an injury-in-fact, Plaintiffs highlight the declarations of its members whose recreational and aesthetic interests in the Yakima River watershed are being adversely affected by manure pollution and whose health and property interests are adversely affected by nitrate contamination of their homes' well water. ECF No. 257 at 809; *see* ECF Nos. 50, 52, 53, 216, 218. For example, Helen Reddout, a member of CARE, declares that her recreational, aesthetic, health, and property interests are adversely affected by the Dairy's manure mismanagement. ECF No. 52. Ms. Reddout lives 1.5 miles downgradient from Cow Palace Dairy, obtains her drinking water from groundwater which is contaminated with levels of nitrate that exceed the MCL, has had to purchase bottled water as a result of the contamination, and is concerned about the health impacts from nitrate consumption. *Id.* at 7-8. Further, Ms. Reddout asserts that, because of the Dairy's alleged impact to the water quality of the Yakima River, she no longer swims or wades in the Yakima River, no longer

gathers edible plants near the River, and no longer engages in bird watching. *Id.* at 4-7.

As demonstrated by the numerous statements presented by Plaintiffs, its members' recreational, aesthetic, health, and property interests present cognizable injuries for purposes of standing. Because Plaintiffs have sufficiently demonstrated that its members "use the affected area and are persons 'for whom the aesthetic and recreational values of the area will be lessened' by the challenged activity," *Laidlaw*, 528 U.S. at 183 (quoting *Sierra Club v. Morton*, 405 U.S. 727, 735 (1972)), they have documented injury in fact.

Second, with regards to causation, this Court finds that the standees' injuries are "fairly traceable" to the Dairy's operations. Defendant Cow Palace asserts that Plaintiffs have failed to support a causal connection between Cow Palace's management and handling of manure and the standees' injury. ECF No. 209 at 14-15 (asserting that standees neither state "with any degree of certainty that any of his or her alleged health problems was attributable to Cow Palace's conduct" nor can they trace their aesthetic and recreational injuries to Cow Palace's conduct). To support their contention that their members' injuries are fairly traceable to the Dairy's conduct, Plaintiffs cite to the upgradient, onsite, and downgradient nitrate sampling demonstrating that Cow Palace Dairy's manure application, storage, and management practices have contributed to nitrate contamination in the

groundwater. ECF No. 257 at 11; *see* ECF No. 211-1 ¶¶ 116-124 (noting wells upgradient of Cow Palace Dairy had very little nitrate but wells downgradient showed high levels of nitrate and other tracers associated with cow manure). Plaintiffs contend they are not required to show the "particular manure pollution molecules" that are affecting standees originated from Cow Palace Dairy, a showing that is more demanding than that required to establish liability under RCRA; rather, they assert they have satisfied their burden by merely demonstrating there is manure leaking from the Dairy's operations into the groundwater and such manure pollution is causing or contributing to groundwater contamination and relatedly the standees' injuries. ECF No. 257 at 11.

Defendant Cow Palace's opening brief heavily relied on *Washington Environmental Council v. Bellon*, 732 F.3d 1131(9th Cir. 2013), in which standees were seeking to compel the state to regulate greenhouse gas emissions from several Washington oil refineries. As the Ninth Circuit held, the "chain of causality between Defendants' alleged misconduct and [plaintiff's] injuries is too attenuated" as it merely "consists of a series of links strung together by conclusory, generalized statements of contribution, without any plausible scientific or other evidentiary basis that the refineries' emissions are the source of their injuries." 732 F.3d at 1141-42. However, unlike in *Bellon* where the standees merely provided "vague, conclusory" statements about how the refineries' emissions

would cause them injury, *id.* at 1142, Plaintiffs' standees provide specific statements of current and imminent harm to their recreational, aesthetic, health, and property interests. Further, unlike in *Bellon* where the standees attempted to show localized harm in the global climate change context, *id.* at 1143, Plaintiffs' standees are attributing harm to a confined valley of finite polluters with localized water pollution. Finally, unlike in *Bellon* where the Washington refineries' contributions to greenhouse gases was not meaningful in relation to worldwide emissions, *id.* at 1143-44, Plaintiffs' standees have presented convincing evidence demonstrating that the Dairy is a meaningful, although not sole, contributor to nitrate contamination in the area.

Plaintiffs here are not required to prove that the exact nitrate molecules from Cow Palace Dairy are contributing or causing the standees' injuries. As the Ninth Circuit has stated, "the threshold requirement of traceability does not mean that plaintiffs must show to a scientific certainty that defendant's effluent caused the precise harm suffered by the plaintiffs in order to establish standing." *Nat. Res. Def. Council v. Sw. Marine, Inc.*, 236 F.3d 985, 995 (9th Cir. 2000) (internal quotation marks and citations omitted). "[R]ather than pinpointing the origins of particular molecules, a plaintiff must merely show that a defendant discharges a pollutant that causes or contributes to the kinds of injuries alleged in the specific geographic area of concern." *Id.* (internal quotation marks and citations omitted).

As Plaintiffs aptly note, the underlying cause of action merely requires Plaintiffs to demonstrate that Defendants' practices have or are "contributing" to the pollution; not that Defendants conduct is the only cause or that, as established by a degree of certainty, the standees' injuries stem from Defendants' conduct. ECF No. 257 at 13. Courts cannot "raise the standing hurdle higher than necessary showing for success on the merits in an action." *Laidlaw*, 528 U.S. at 181. Thus, Defendant Cow Palace's contention, suggesting that Plaintiffs must demonstrate causation to a degree of certainty, a showing greater than required to establish liability under RCRA, is a threshold not mandated by the standing doctrine and one this Court declines to impose. Further, as previously stated by this District, the fact that other sources also contribute to pollution offers "no shield" to a defendant polluter; that is, a plaintiff need not sue every polluter but merely must show that the defendant caused a part of the injury. *CARE v. Bosma*, 65 F.Supp.2d 1129, 1141 (E.D. Wash. 1999), *aff'd*, 305 F.3d 943 (9th Cir. 2002).

Finally, with regards to redressability, this Court finds that a favorable ruling by this Court would surely provide at least some "incremental benefit," if not more, in addition to the measures already provided for in the AOC. Defendants assert that the AOC is already addressing any injuries alleged and even if the AOC provides narrower relief, Plaintiffs' have failed to establish how any "incremental benefit" from its additional demands for relief would address its members' injuries.

ECF No. 209 at 17. Plaintiffs assert that the relief they are seeking is broader than the AOC; thus, a ruling in their favor would likely help alleviate the alleged injury. ECF No. 257 at 16-20.

As previously stated in this Court's past Order Denying Defendant Cow Palace's Motion to Dismiss,[25] the relief "sought by CARE . . . differs from the requirements of the Consent Order in multiple areas," including immediately lining the lagoons and providing drinking water to residents within a more expansive, three-mile, down-gradient radius. ECF No. 72 at 18, 23. Thus, if Plaintiffs prevail and Cow Palace Dairy is ordered to line its lagoons, among other measures, contamination will decrease and Plaintiffs' injuries will be, at the very least, incrementally redressed.

This Court finds there is no genuine issue of material dispute as to Plaintiffs' standing; accordingly, Defendant Cow Palace's Motion to Dismiss (ECF No. 209) is **DENIED** and Plaintiffs' Motion for Summary Judgment (ECF No. 211), as to this issue, is **GRANTED**.

[25] This Court notes that Defendant Cow Palace already raised the issue of Plaintiffs' standing, as it relates to redressability, in a previous motion filed over one year ago. ECF No. 38 at 17-20 (contending that because Plaintiffs are seeking relief that has already been granted by the AOC, they fail to state a claim and, for the same reason, lack standing).

III. Evidentiary Issues

A. Daubert Motions

Expert witness testimony is governed by Federal Rule of Evidence 702, which provides:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

In Daubert v. Merrell Dow Pharmaceuticals, 509 U.S. 579, 597 (1993), the Supreme Court directed trial courts to perform a "gatekeeping" function to ensure that expert testimony conforms to Rule 702's admissibility requirements. The district court has "broad discretion in determining the admissibility of evidence and considerable leeway in determining the reliability of particular expert testimony." *Id.* When considering the admissibility of expert testimony, the court first determines whether the witness is "qualified as an expert by knowledge, skill, experience, training, or education," Fed. R. Evid. 702, and then examines whether the proffered testimony is both relevant and reliable, *Daubert*, 509 U.S. at 583.

Daubert identifies four non-exclusive factors a court may consider in assessing the relevance and reliability of expert testimony: (1) whether a theory or technique has been tested; (2) whether the theory or technique has been subjected to peer review and publication; (3) the known or potential error rate and the existence and maintenance of standards controlling the theory or technique's operation; and (4) the extent to which a known technique or theory has gained general acceptance within a relevant scientific community. *Id.* at 593-94. These factors are not to be applied as a "definitive checklist or test," but rather as guideposts which "may or may not be pertinent in assessing reliability, depending on the nature of the issue, the expert's particular expertise, and the subject of his testimony." *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 150 (1999). The ultimate objective is to "make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Id.* at 152.

Plaintiffs move this Court to limit or exclude the testimony of Defendant Cow Palace's experts Mr. Stephen, Mr. Maul, and Mr. Backe. ECF Nos. 193, 202, 206. Defendant Cow Palace moves this Court to exclude any expert testimony that relies on the EPA's report, "Relation Between Nitrate in Water Wells in the Lower Yakima Valley, Washington." ECF No. 200.

i. Scott Stephen

Plaintiffs first move to exclude the testimony of Defendant Cow Palace's expert, Scott Stephen, a soil scientist. ECF No. 193.

First, Plaintiffs contest Mr. Stephen's qualification to testify in fields of hydrology, hydrogeology, or toxicology. Plaintiffs contend that Mr. Stephen, who holds only an undergraduate degree in soil science and no education, training, or experience in the fields of hydrology, hydrogeology, of toxicology, should not be permitted to offer opinions in these areas. *Id.* at 4. Specifically, Plaintiffs challenge Mr. Stephen's ability to opine as to "whether higher nitrates in subsoils cause higher nitrates in area water and wells, whether nitrates found below the root zone have the ability to leach further, whether there is water movement in Cow Palace fields below the root zone, the impact of manure on water quality, the extent of groundwater contamination, or the various pathways that nitrate can reach human populations" or to challenge a myriad of Dr. Shaw's conclusions. *Id.* at 5. Rather, according to Plaintiffs, Mr. Stephen's expertise is limited to "understanding the dynamics of soil as a medium for growing crops" and "[a]nything to do with soil and the cropping system." *Id.* at 4 (citing ECF No. 194-2).

Second, Plaintiffs challenge whether Mr. Stephen's opinions in the area of soil science are reliable. *Id.* at 6. Plaintiffs assert that Mr. Stephen's testimony

should be limited to that of a fact witness, regarding the tasks he has been hired to perform for the Dairy, rather than as an expert on soil science. *Id.* at 9. In support, Plaintiffs assert the following:

- Mr. Stephen did not review all relevant records to reach his conclusion that the Dairy's manure should be characterized as a fertilizer, rather than a discarded material, *id.* at 7; *see* ECF No. 195-1 at 2 ("In my opinion, nothing within the Shaw report proves that Cow Palace was applying manure for any other purpose than for use as a fertilizer.");

- Mr. Stephen opined that there is no agreed-upon definition of "agronomic rate" but rather that each Dairy must make its own interpretations as how to implement its DNMP, an opinion Plaintiffs find particularly troubling considering Mr. Stephen was hired to help the Dairy implement its DNMP, ECF No. 193 at 7; *see* ECF No. 195-2 ("I think the guidance is there, but there's a lot of information to go through that can be complicated . . .");

- Although Mr. Stephen was retained to opine as to whether the Dairy's manure applications were agronomic, his knowledge of the manure applications only go back to the beginning of his tenure, which began in 2013, ECF No. 193 at 8;

- Mr. Stephen's opinions as to whether the Dairy agronomically applied manure do not account for residual nitrate in the soil, *id.*;

- Mr. Stephen has minimal experience, which primarily includes sampling-related responsibilities, has never authored any publications, has either never testified or has not testified within the last four years, and bases his opinions on reading materials, rather than experience, training, or education, *id.* at 8-9.

In defense of Mr. Stephen, Defendant Cow Palace maintains that Mr. Stephen is a university-educated and locally-trained soil scientist and thus a qualified expert.

First, Defendants assert that Plaintiffs have not objected to anything in Mr. Stephen's original report; thus, Mr. Stephen should be free to testify about opinions in his original report. ECF No. 244 at 5-6. Second, Defendants maintain that Mr. Stephen's report did not reach an opinion as to whether Cow Palace's past manure applications were agronomic, but when pushed to opine as to past practices in his deposition, he stated, based on his review of data only as far back as 2011, it would be "fair to say" Cow Palace's applications since that time have been agronomic. *Id.* at 6-7. Third, Defendants maintain that Mr. Stephen's opinions are admissible as a rebuttal to the opinions of Plaintiffs' expert, Dr. Shaw, rather than affirmative opinions that are designed to meet any relevant standard of scientific rigor. *Id.* at 7-9. Finally, Defendants contend that Mr. Stephen's education in soil science, soil physics, soil biology, environmental science, soil chemistry, and soil microbiology render him qualified to opine about nitrate migration below the root zone. *Id.* at 9-11.

This Court finds Mr. Stephen sufficiently qualified to testify as a soil expert in order to survive the Court's gatekeeping function pursuant to *Daubert*. As Defendant Cow Palace notes, Rule 702 is "broadly phrased and intended to embrace more than a narrow definition of qualified expert." *Hangarter v. Provident Life & Acc. Ins. Co*, 373 F.3d 998, 1015 (9th Cir. 2004) (quoting *Thomas v. Newton Int'l Enters.*, 42 F.3d 1266, 1269 (9th Cir. 1994)). Mr. Stephen's training and education

is in soil physics, soil biology, environmental science, soil chemistry, and soil microbiology. ECF No. 195-2 at 10-11. Regarding his professional experience, Mr. Stephen has over 18 years of experience working as a Professional Consultant in his role as a soil scientist. ECF No. 194-2 at 2. He has years of practical experience "helping dairies use agronomic principles to achieve nutrient management goals" in the Yakima Valley. *Id.* Accordingly, Mr. Stephen is sufficiently qualified—given his knowledge, skill, and practical experience—to provide expert testimony about the nature of the nitrogen cycle, the use of manure as a fertilizer and soil conditioner, manure applications to soil, crop rotation, and nutrient management in regards to agronomic rate, and the current management of the Dairy under the AOC. *Id.* That being said, although Mr. Stephen is qualified to testify as a soil scientist, his opinions are limited to those that are within his relevant area of expertise; that is, although this Court recognizes that there may be some overlap in the soil science and hydrology/hydrogeologist disciplines, it appears Mr. Stephen is not qualified to testify about water movement through the vadose zone, the impact of manure constituents on water quality, the extent of groundwater contamination, or the various pathways that nitrate can reach human populations. *See* ECF No. 195-2.

This Court also finds Mr. Stephen's opinions sufficiently reliable and relevant that they are admissible in these proceedings. *See* Fed. R. Evid. 702 (allow scientific knowledge by a qualified expert if it will "assist the trier of fact to

understand the evidence or to determine a fact in issue"). Mr. Stephen's opinions regarding agronomic application of manure are relevant to this case and Mr. Stephen's opinions are helpful given his practical training and experience in the Yakima area. Further, Mr. Stephen's opinions on whether the Dairy has agronomically applied manure since 2011, based on his review of relevant records and his personal knowledge of the Dairy's application since his tenure started in 2013, are relevant and will assist the Court. That being said, Plaintiff is free to examine and critique the accuracy of Mr. Stephen's opinions and the bases therefor to aid this Court's determination of what weight to give to his opinions.

ii. James Maul

Plaintiffs also move to exclude the testimony of Defendant Cow Palace's expert, James Maul, a hydrogeoloist and licensed geologist. ECF No. 202.

First, Plaintiffs challenge Mr. Maul's opinions as unreliable regarding his critiques of the EPA Report, Dr. Shaw's report, and Mr. Erickson's report. *Id.* at 3. In support, Plaintiffs assert that Mr. Maul failed to consider all available data before forming his opinions. *Id.* For instance, Mr. Maul admitted that he had only reviewed some of the available data—such as results of groundwater monitoring wells around the Dairy, U.S. Geological Survey information about the depth of the aquifer underlying the Dairy, and the first two phases of the EPA's investigation

upon which its final report was predicated—when determining whether the Dairy was contributing to nitrate contamination. *Id.* at 4-6.

Second, Plaintiffs challenge Mr. Maul's qualification to opine as to certain topics. Specifically, Plaintiffs challenge whether Mr. Maul is qualified to opine as to whether historical agricultural practices are the source of current contamination. *Id.* at 7-8. Further, Plaintiffs challenge Mr. Maul's qualification to opine about the public health impacts of nitrate exposure. *Id.* at 9.

In defense, Defendant Cow Palace maintains that Mr. Maul is a qualified expert whose opinion is based on sufficient facts and data. Given his experience and specialized knowledge, Defendant Cow Palace asserts that Mr. Maul is qualified to examine the reliability of the EPA's report and the expert testimony that relies upon its data and findings. ECF No. 277 at 4-5. Further, Defendant Cow Palace maintains that Mr. Maul's testimony is based on his education and training, extensive experience, and review of relevant documents. *Id.* at 6. Defendant Cow Palace maintains that Mr. Maul's task was merely to determine whether the EPA collected sufficient data to support its conclusions, not to independently review all of the data himself, develop his own site model, and affirmatively disprove each of EPA's conclusions. *Id.* at 6-7. As such, Defendant Cow Palace asserts that Mr. Maul should be permitted to refute the EPA report and, relatedly, the basis for Plaintiffs' conclusions. *Id.* at 8.

This Court finds that Mr. Maul is sufficiently qualified to testify as an expert hydrogeologist in order to pass through the Court's gatekeeping function. Mr. Maul was educated as a geologist, has thirty years of practical experience as a hydrogeologist, and is currently licensed in the state of Washington. ECF No. 278 at 1-2. Throughout this tenure, Mr. Maul has participated and overseen numerous "projects designed to identify sources of particular contaminants." *Id.* at 2. Specifically, he has worked on a number of projects with EPA oversight and is thus familiar with the standard procedures that should be followed and data collected. *Id.* Accordingly, Mr. Maul is sufficiently qualified to opine as to the reliability and sufficiency of the EPA report. ECF No. 203-1 at 1. That being said, Mr. Maul is not a toxicologist and thus is not qualified to assess the accuracy of the EPA report, as it touches on public health impacts of nitrate contamination. Although Mr. Maul may opine that the Report is scientifically unreliable, in general, he is not qualified to assess its reliability in areas outside of his expertise, such as toxicology.

This Court also finds Mr. Maul's opinions sufficiently reliable and relevant to these proceedings. *See* Fed. R. Evid. 702 (permitting scientific knowledge by a qualified expert if it will "assist the trier of fact to understand the evidence or to determine a fact in issue"). Defendant Cow Palace hired Mr. Maul specifically to assess the reliability of the EPA report and determine whether sufficient data

supports its conclusions. Although Plaintiff faults Mr. Maul for not reviewing and independently verifying all the available data underlying EPA's report, Rule 702 does not espouse such a high standard. Moreover, Plaintiffs' objection loses sight of Mr. Maul's limited expert role in critiquing the overall reliability of the Report based on methods used and data supporting its conclusions. This Court recognizes the limited bases for Mr. Maul's opinions, such as the fact that "[d]ata collected after the EPA drafted the Report is not relevant to Mr. Maul's task," ECF No. 277 at 6, and so will consider that limited bases when weighing his testimony with the other available and relevant evidence.

iii. Michael Backe

Plaintiff also seeks to exclude testimony of Defendant Cow Palace's expert, Michael Backe, a hydrogeologist. ECF No. 206. Specifically, Plaintiffs seek to exclude testimony critiquing Mr. Erickson's estimation of the amount of waste leaking from the Dairy's lagoons and reporting results of soil and water testing conducted at the two neighboring properties of Plaintiffs' standees. *Id.* at 2.

First, Plaintiffs challenge Mr. Backe's analysis as lacking rigor and failing to comport with scientific method. *Id.* at 4. Plaintiffs fault Mr. Backe for failing to review all relevant data before offering his rebuttal opinion as to Mr. Erickson's seepage estimates. *Id.* at 4-6. For instance, although Mr. Backe criticized Mr. Erickson's assumptions regarding the thickness of the lagoon liners, he

acknowledged that he did not look at data relevant to determine the liner thickness, data relevant to conductivity for soils in the region, data relevant to determining soil permeability, or information about the impacts of well drilling. ECF No. 282 at 2-3. Further, although Mr. Backe opined that a "water balance method" would be a more reliable way to determine seepage, neither Mr. Backe or any other expert performed any water balancing testing. ECF No. 206 at 7.

Second, Plaintiffs challenge Mr. Backe's "observations" of the standees' properties as irrelevant and unhelpful. *Id.* Specifically, Mr. Backe reported the results of nitrate detected in sampling at the standees' properties but failed to offer any perspective on what the sampling indicates. *Id.* at 8; *see* ECF No. 208 ("I did not make any evaluation as to what they mean other than just reporting what we found.").

In response, Defendant Cow Palace maintains Mr. Backe's opinions are sufficiently reliable and relevant to this matter. Regarding Plaintiffs' argument that Mr. Backe failed to review all available data, as well as gather his own data to support the assertion that a water balance method is more reliable, Defendant Cow Palace asserts that Mr. Backe's role as a rebuttal expert is merely to disprove Plaintiffs' conclusions. ECF No. 236 at 4-6. Regarding the relevance of Mr. Backe's testimony about the results of his inspections of the standees' properties,

Defendant Cow Palace asserts that such testimony is relevant to show the existence of nitrates from sources other than the Dairy. *Id.* at 8-10.

This Court finds Mr. Backe's opinions are sufficiently reliable and relevant to this matter in order to pass through the gatekeeping function this Court must apply. Again, Plaintiffs fault Defendants' expert for not reviewing all available data or coming to conclusions based on their own data, but Rule 702 does not set such a demanding standard. As one of Defendants' experts, Mr. Backe was assigned to rebut the assumptions, data, and findings of Plaintiffs' expert Mr. Erickson. ECF No. 207-1. Although Mr. Backe must be sufficiently qualified to provide this testimony and his testimony must be relevant and helpful to the trier of fact, he need not develop alternative, affirmative opinions in order to adequately rebut the evidence presented by Plaintiffs—that is not Defendants' burden. That being said, this Court recognizes the limited bases for Mr. Backe's rebuttal opinions regarding Mr. Erickson's findings and so considers that limited bases when weighing his testimony with the other available and relevant evidence.

Regarding Mr. Backe's testimony about the results of soil samples taken from the standees' nearby properties, this Court determines Mr. Backe's findings are relevant to whether the Dairy is or has contributed to the nitrate contamination in the groundwater. Although Plaintiffs suggest that Mr. Backe did not opine as to the meaning of these results, his expert rebuttal report explicitly states that "[t]he

presence of [nitrate and other chemicals at the standees' properties] are likely the result of both individual and regional agricultural historical practices throughout the Lower Yakima Valley." *Id.* at 20. As such, although the evidence may have limited value considering RCRA's standard, the testimony helps rebut Plaintiffs assertion that the Dairy is contributing to the nitrate contamination in the area.

Accordingly, this Court declines to categorically exclude the testimony of Messrs. Stephen, Maul, or Backe; however, their testimony may be of limited value, as indicated above.

iv. Expert Testimony Relying on EPA Report

Defendant Cow Palace moves to exclude all expert testimony that relies on the EPA Report, "Relation Between Nitrate in Water Wells in the Lower Yakima Valley, Washington." ECF No. 200. Generally, Defendant Cow Palace challenges the report as not meeting *Daubert's* reliability standards because the techniques and methods used are not scientifically sound, cannot be independently verified, were not subject to meaningful peer review, and have an unknown error rate. *Id.* at 6-15.

In defense, Plaintiffs maintain that the report, upon which Dr. Shaw's, Dr. Lawrence's, and Mr. Erickson's testimony relies, should not be excluded. ECF No. 250. First, Defendant Cow Palace failed to identify the testimony it seeks to exclude; instead, it attacks the reliability of the report in general and asks the Court

to sift through the hundreds of pages of expert report materials to determine which testimony should be excluded. *Id.* at 4. Second, Plaintiffs reassert their previous *Daubert* Motion contending that Mr. Maul's opinions, opinions upon which Defendant Cow Palace's motion primarily relies, are unreliable. *Id.* at 5. Third, Plaintiffs contend that this Court should give the EPA report deference given that it is a scientific determination of a federal agency within its expertise. *Id.* at 8-9. Finally, Plaintiffs contend that the *Daubert* reliability factors are inapplicable to the Report. *Id.* at 10-12.

This Court finds Plaintiffs' experts' testimony, which relies in part on the EPA report, is reliable. As an initial matter, Rule 702 and *Daubert's* flexible checklist of reliability factors provide guidance to the court when assessing whether, in general, the reasoning or methodology underlying the testimony is reliable. Specific to experts Erickson, Lawrence, and Shaw, the Court acknowledges that the EPA report is only one publication and data set upon which these experts rely. *Id.* at 10 (noting that these experts also relied on the well data provided under the AOC). Further, the *Daubert* factors are meant to provide a helpful, not definitive, checklist when determining the reliability of expert testimony. *See Kumho Tire Co.*, 526 U.S. at 151. Even so, the EPA report expressly qualifies its findings based on the assumptions made; like other government reports, the EPA Report's verification process is aided by agency

review and public comment; and finally, considering the report is a compilation of the EPA's technical analysis, judgments, and findings "based on an evaluation of complex scientific data within the agency's technical expertise," *see Envtl. Def. Ctr., Inc. v. EPA*, 344 F.3d 832, 869 (9th Cir. 2003), this Court finds some level of deference to its reliability is warranted. *See Chem. Mfrs. Ass'n v. EPA*, 919 F.2d 158, 167 (D.C. Cir. 1990) ("It is not the role of courts to second-guess the scientific judgments of the EPA, and [courts] give considerable latitude to the EPA in drawing conclusions from scientific and technological research, even where it is imperfect or preliminary.") (internal quotation marks and citations omitted). Accordingly, this Court declines to exclude the expert testimony of Plaintiffs' experts who rely, in part, upon some of the underlying data from the EPA report.

B. EPA Report

Defendant Cow Palace seeks to exclude the EPA report itself, in addition to any expert testimony that relies on it, as unfairly prejudicial under the evidentiary rules. ECF No. 200 at 16. Pursuant to Federal Rule of Evidence 403, a "court may exclude relevant evidence if its probative value is substantially outweighed by a danger of . . . unfair prejudice. . . ." Fed. R. Evid. 403. In support of its motion, Defendant Cow Palace contends that, because the science underlying the report is so flawed, its admission would prejudice an inquiry into whether the Dairy is a likely source of contamination in the groundwater. ECF No. 200 at 16. In

response, Plaintiffs highlight that Rule 403 maintains a limited role in a bench trial, Defendant Cow Palace's criticisms of the Report are unfounded, and Defendant Cow Palace has failed to explain what unfair prejudice it will suffer.

As Plaintiffs aptly note, Rule 403 has a limited role, if any, in a bench trial. *See E.E.O.C. v. Farmer Bros. Co.*, 31 F.3d 891, 898 (9th Cir. 1994) (citing *Gulf States Utils. Co. v. Ecodyne Corp.*, 635 F.2d 517, 519 (5th Cir. 1981) (noting that excluding relevant evidence in a bench trial is an illogical and "useless procedure" because a judge in a bench trial can exclude any improper inferences from certain evidence in reaching a decision). Although this Court acknowledges the possibility of bias that the EPA report might represent, it is only a portion of what Plaintiffs rely on to demonstrate that the Dairy is contributing to the nitrate contamination in the groundwater. Accordingly, this Court does not find that its probative value is substantially outweighed by the danger of unfair prejudice.

C. Motion to Strike Undisclosed Testimony

In the final evidentiary motion before the Court, Defendant Cow Palace moves to strike certain testimony of Dr. Shaw, Mr. Erickson, and Dr. Lawrence, which it asserts were not timely disclosed. ECF No. 237. Pursuant to Federal Rule of Civil Procedure 26(a)(2), an expert's written report must contain "a complete statement of all opinions the witness will express and the basis and reasons for them." Fed. R. Civ. P. 26(a)(2)(B)(i). Further, "[a] party must make these

disclosures at the times and in the sequence that the court orders." *Id.* at 26(a)(2)(D). "If a party fails to provide information or identify a witness as required by Rule 26(a) or (e), the party is not allowed to use that information or witness to supply evidence on a motion, at a hearing, or at a trial, unless the failure was substantially justified or harmless." *Id.* at 37(c)(1).

Defendant Cow Palace faults Plaintiffs for offering new and previously undisclosed expert testimony for the first time in their Motion for Summary Judgment. ECF No. 237 at 4. Although the deadlines to submit expert reports and rebuttal reports was, respectively, September 22, 2014, and October 20, 2014, Plaintiffs filed new declarations from Dr. Shaw, Mr. Erickson, and Dr. Lawrence on November 17 and 18 in support of their Motion for Summary Judgment. *Id.* at 3.

The Court has thoroughly reviewed the submissions by both parties and cannot conclude that Defendant Cow Palace was in any way harmed or prejudiced by these allegedly undisclosed opinions. The opinions expressed in the declarations contain similar, sometimes verbatim, recitations of what was expressed in the original expert reports. *Compare* ECF No. 237-2 ¶ 180 ("These studies indicate that the likely source of high nitrates is most closely tied to recent agricultural activities."), *with* ECF No. 241 ¶ 52 ("These studies indicate that the likely source of high nitrates is most closely tied to recent agricultural activities.").

However, even when the declaration varied the wording of the opinion, there can be no doubt that Defendants were on notice of the experts' opinions and the basis for each. *Compare* ECF No. 237-2 ¶ 20 (Dr. Shaw characterized the Dairy's manure applications as exceeding "agronomic rates"), *with* ECF No. 240 ¶ 19 (Dr. Shaw characterized the Dairy's manure applications as done "without regard to crop fertilization needs"). Although the Court acknowledges there were a few instances in which the material cited in the declarations could not be found in the original expert report, this information either came from Cow Palace's own records or was discussed in the experts' depositions and thus Cow Palace had the opportunity to question the witnesses on these issues. Because Defendant Cow Palace has failed to show how it has suffered any harm or prejudice because of the purportedly new opinions presented in Plaintiff's experts' declarations, Fed. R. Civ. P. 37(c)(1), this Court declines to strike any of this testimony.

IV. Cross Motions for Summary Judgment

Defendants move for summary judgment on all Plaintiffs' claims as against all Defendants. ECF Nos. 190, 191. Plaintiffs move for summary judgment on the following RCRA issues: (1) animal waste that is over-applied onto soil and that leaks into groundwater is a "solid waste" under RCRA; (2) conditions at Cow Palace Dairy exist that may cause or contribute to an imminent and substantial endangerment; (3) conditions at Cow Palace Dairy exist that violate RCRA's ban

on open dumping; and (4) all named Defendants are responsible parties under RCRA. ECF No. 211 at 3.

A. Resource Conservation and Recovery Act

"[The Resource Conservation and Recovery Act] is a comprehensive statute that governs the treatment, storage, and disposal of solid and hazardous waste… so as to minimize the present and future threat to human health and the environment." *Meghrig v. KFC Western, Inc.*, 516 U.S. 479, 483 (1996) (internal quotation marks and citation omitted). Congress enacted RCRA to, in part, ensure that waste that is unavoidably generated is "treated, stored, or disposed of so as to minimize the present and future threat to human health and the environment." 42 U.S.C. § 6902(b). Although the EPA maintains primary responsibility for enforcing the provisions of RCRA, the statute provides for "citizen suits" against persons who allegedly violate its requirements. *Id.* § 6972.

Plaintiffs are seeking to hold Defendants liable under two of RCRA's provisions.[26] First, RCRA outlaws the disposal of solid waste in a manner that constitutes "open dumping." *Id.* § 6945(a). Second, RCRA prohibits any person

[26] The parties do not contest that Plaintiffs have satisfied RCRA's pre-suit requirements under 42 U.S.C. § 6972(b)(2)(A), and that there is no state or federal RCRA proceedings that would preclude Plaintiffs' action under 42 U.S.C. § 6972(b)(1)(B), (b)(2)(B), (b)(2)(C).

from causing or contributing to the creation of an imminent and substantial endangerment to human health or the environment. *Id.* § 6972(a)(1)(B). Plaintiffs contend that Defendants' handling, storage, and disposal of manure has contributed to an imminent and substantial endangerment to human health and the environment and violated RCRA's ban on "open dumping."

1. Imminent and Substantial Endangerment

The imminent and substantial endangerment provision of RCRA provides that a civil action may be commenced against "any person . . . who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment." *Id.* § 6972(a)(1)(B). To establish liability, Plaintiffs must demonstrate the following: (1) a "person," as defined under RCRA, has "contributed" or "is contributing" to, (2) the "past or present handling, storage, treatment, transportation, or disposal of" any "solid or hazardous waste," and (3) the waste in question "may present an imminent and substantial endangerment to health or the environment." *See Ecol. Rights Found. v. Pac. Gas & Elec. Co.*, 713 F.3d 502, 514 (9th Cir. 2013) (citation omitted).

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2. Open Dumping

A civil action may also be brought against "any person . . . who is alleged to be in violation of any permit, standard, regulation, condition, requirement, prohibition, or order which has become effective" under RCRA. 42 U.S.C. § 6972(a)(1)(A). RCRA prohibits "any solid waste management practice or disposal of solid waste . . . which constitutes the open dumping of solid waste." *Id.* § 6945(a). In turn, RCRA defines "open dump" as "any facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 6944 of this title and which is not a facility for disposal of hazardous waste." *Id.* § 6903(14). Further, "disposal" is defined as "the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste . . . or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters." *Id.* § 6903(3).

The EPA promulgated criteria to clarify what practices may violate RCRA's open dumping prohibition. 40 C.F.R. pt. 257. The regulations state that a facility cannot "contaminate an underground drinking water source beyond the solid waste boundary." *Id.* § 257.3-4(a). In turn, EPA defines "contaminate" to mean introducing a substance that would cause a substance in the groundwater to exceed the maximum contaminant level ("MCL") or increase existing MCL exceedance.

Id. § 257.3-4(c)(2)(i)-(ii). The EPA has set the MCL for nitrates at 10 mg/L. *Id.* § 141.62.

The parties do not dispute that the Dairy is neither a qualified landfill nor a facility for the disposal of hazardous waste. Thus, to prevail on their open dumping claim, Plaintiffs must establish the following: (1) a solid waste is managed or disposed at the Dairy (2) that "contaminates" an "underground drinking water source"[27] (3) beyond the solid waste boundary. *See S. Road Assocs. v. Int'l Bus. Machines Corp.*, 216 F.3d 251, 257 (2d. Cir. 2000); *see also Parker v. Scrap Metal Processors, Inc.*, 386 F.3d 993, 1012 (11th Cir. 2004).

Accordingly, because of the substantial overlap in these two claims, this Court's analysis will proceed as follows: (1) whether the manure at the Dairy, when over-applied to land, stored in lagoons that leak, and managed on unlined, permeable soil surfaces, constitutes the "handling, storage, treatment, transportation, or disposal of . . . solid waste;" (2) whether the manure

[27] There is no dispute that groundwater is an "underground drinking water source." 40 C.F.R. § 257.3-4(c)(4), nor that the MCL for nitrate is 10 mg/L, *id.* § 141.62. Plaintiffs' brief does not address whether the Dairy's practices also contaminate surface water, as defined under EPA regulations, *see* ECF No. 211 at 11-13, 27-28; therefore, this Court's analysis of their open dumping claim is limited to an analysis of the Dairy's alleged contamination of groundwater.

"contaminates" the groundwater or surface water, and relatedly whether this water is "beyond the solid waste boundary;" (3) whether, if the nitrates are reaching water, this contamination is posing an "imminent and substantial endangerment" to human health or the environment; and (4) whether the Defendants are all responsible parties under RCRA.

3. Whether Defendants' Manure Can be Characterized as a "Solid Waste" Under RCRA

Under RCRA, the definition of "solid waste" includes "any garbage, refuse, . . . and other *discarded material*, including solid, liquid, semisolid or contained gaseous material resulting from … agricultural operations…." 42 U.S.C. § 6903(27) (emphasis added). Although RCRA does not define "discarded material," the Ninth Circuit has interpreted the term according to its ordinary meaning, as "to cast aside; reject; abandon; give up." *Safe Air*, 373 F.3d at 1041.[28]

[28] Further, the court in *Safe Air* found the reasoning of several extra-circuit cases persuasive in identifying whether a material qualifies as "solid waste," particularly "(1) whether the material is 'destined for beneficial reuse or recycling in a continuous process by the generating industry itself;' (2) whether the materials are being actively reused, or whether they merely have the potential of being reused; (3) whether the materials are reused by its original owner, as opposed to use by a salvager or reclaimer." *Id*. at 1043 (internal citations omitted).

As the Ninth Circuit has recently articulated, in reference to RCRA's legislative history, "[t]he key to whether a manufactured product is a 'solid waste,' then, is whether that product 'has served its intended purpose and is no longer wanted by the consumer.'" *Ecological Rights*, 713 F.3d at 515 (*citing* H.R. Rep. No. 94-1491(I) at 2 (1976)). Specifically with regards to manure, both RCRA's legislative history and EPA's supporting regulations explicitly state that RCRA's provisions do not apply to agricultural wastes, but only to the extent the wastes are "returned to the soil as fertilizers or soil conditions." 40 C.F.R. § 257.1(c)(1) (EPA regulations stating that RCRA provisions "do not apply to agricultural wastes, including manure and crop residues, returned to the soil as fertilizers or soil conditions"); *see Safe Air*, 373 F.3d at 1045-46 (noting that RCRA's legislative history explicitly states that "[a]gricultural wastes which are returned to the soil as fertilizers or soil conditioners are not considered discarded materials") (citing H.R. Rep. No. 94-1491(I) at 2 (1976), reprinted in 1976 U.S.C.C.A.N. 6238, 6240).

In its July 2013 Order Denying Defendants' Motion to Dismiss, this Court found that manure could plausibly be considered "solid waste"—as a legal matter—when it is over-applied to fields and managed and stored in ways that allow it to leak into the soil because at that point, the manure is no longer "useful" or "beneficial" as a fertilizer. ECF No. 72 at 11. In so finding, this Court declined to adopt Defendants' blanket interpretation that manure, used as a fertilizer, can

never be considered a "solid waste" under RCRA. Rather, this Court determined that the issue of whether manure can be considered a solid waste hinges, factually, on whether the manure is handled and used in such a manner that its usefulness as a fertilizer is eliminated. In so deciding, this Court acknowledged the practical ramifications of determining when manure becomes "discarded" or ceases to be "useful or beneficial," *see Safe Air*, 373 F.3d at 1042; *Ecological Rights*, 713 F.3d at 515, as well as the express declarations of Congress and the EPA that RCRA does not apply to agricultural wastes "returned to the soil as fertilizers," *see Safe Air*, 373 F.3d at 1045-46.

At that early stage in the proceedings, considering Plaintiffs' allegations that Defendants applied manure in amounts well beyond what the crop would use as a fertilizer, this Court could envision circumstances that manure, although generally a useful fertilizer, could be used or handled in a way that its otherwise useful purpose as a fertilizer was eliminated or disregarded and thus transformed into a discarded material. As aptly stated by the court in *Water Keeper Alliance, Inc. v. Smithfield Foods, Inc.*, "no blanket animal waste exception excludes animal waste from the 'solid waste' definition. Instead, the determination of whether defendants 'return' animal waste to the soil as [fertilizer] is a functional inquiry focusing on defendants' use of the animal waste products rather than the agricultural waste definition." 2001 WL 1715730, at *4-5 (E.D.N.C. Sept. 20, 2001) ("The question

of whether defendants return animal waste to the soil for fertilization purposes or instead apply waste in such large quantities that its usefulness as organic fertilizer is eliminated is a question of fact."). ECF No. 72 at 11-13. After all, if Congress intended to exclude *all* agricultural wastes from RCRA's provisions, it would not have qualified its exception with the phrase, "which are *returned to the soils as fertilizers* or soil conditioners," *see Safe Air*, 373 F.3d at 1045-46, nor allowed for the possibility that "solid waste" originate from "agricultural operations," *see* 42 U.S.C. § 6903 (27).

Plaintiffs acknowledge that manure can generally be a useful product when stored and subsequently used as fertilizer and sold to third parties; rather, they assert that the facts here demonstrate Defendants discarded manure by applying it to agricultural fields without regard to crop fertilization needs, and abandoned the manure when storing it in lagoons that leak and managing it on unlined, native soils. ECF No. 211 at 15-25.

In response to the contentious issue of whether manure can ever be characterized as a solid waste, Defendants' again cite to sundry precedent, previously identified in their Motion to Dismiss, to establish the following principles: (1) using a material is not waste under RCRA even if some portion escapes into the environment; (2) in determining whether a material is waste, courts do not engage in a "rigorous, point-by-point determination of whether every

portion of the material actually serves its intended purpose on every occasion it is used, and then declare one portion waste and the other not;" (3) RCRA does not require that fertilizer be used at some "theoretical minimum effective rate" or "perfect rate" in order to guarantee no escapement or over-application; and (4) RCRA was not intended to regulate farmers' storage or use of fertilizer. ECF Nos. 190 at 7-10; 191 at 8. On the contrary, Defendants maintain that the manure generated, stored, and used at the Dairy is a useful product, sold and gifted to third parties, and eventually applied to agricultural fields to fertilize crops. ECF No. 190 at 11-19.

This Court now turns to the evidence submitted regarding Defendants' land application, storage, and composting of manure.[29]

i. Land Application

Plaintiffs assert excess manure applied onto agricultural fields constitutes "discarded material" because such waste cannot effectively be used by crops as fertilizer and therefore has no beneficial use nor is it used as it was intended to be used. ECF No. 211 at 16. Defendants maintain, *inter alia*, that manure was applied with reference to the DNMP with the purpose to fertilize crops and any

[29] This Court finds insufficient briefing on the issue of whether the manure excreted from the cows in the confinement pens is a solid waste. As such, this issue is reserved for trial.

failure in interpreting the DNMP's requirements does not establish that the Dairy's applications constituted discard. ECF No. 256 at 11-13.

This Court finds there is no triable issue that when Defendants excessively over-apply manure to their agricultural fields—application that is untethered to the DNMP and made without regard to the fertilization needs of their crops—they are discarding the manure and thus transforming it to a solid waste under RCRA. Because the excess manure is not "returned to the soil as fertilizers," it is not exempt from RCRA's provisions. *See Safe Air*, 373 F.3d at 1045-46. Although Defendants' failure to adhere to the DNMP and implement its Best Management Practices is not actionable under RCRA, it provides strong evidence that the Dairy's application of manure was not "useful" or "beneficial" but rather constituted discard. *Id.* at 1042; *Ecological Rights*, 713 F.3d at 515

First, the evidence presented demonstrates Defendants failed to use manure nutrient analyses or consider average crop yields when determining manure applications. Although they may have taken samples of the manure, samples from the main lagoon only, the analyses obtained were not actually taken into account when determining application rates. Rather, Mr. Boivin admitted that the Dairy merely referenced the estimates as listed in the DNMP when determining how much manure to apply. ECF No. 211-1 ¶ 68.a (citing ECF No. 228-1); *see also* ECF Nos. 190-3 ¶ 58; 256-1 ¶ 68.a. For instance, when determining how much

manure to apply based on nitrate concentration, Mr. Boivin admitted to merely referencing the DNMP's *estimated* concentration of 1.5 lbs/1000 gallons, as opposed to *actual* concentrations of the Dairy's manure, which ranged from 1.67 lbs/1000 gallons to 33.7 lbs/gallons. ECF No. 211-1 ¶ 68.a.

Second, the uncontroverted evidence presented demonstrates that Defendants failed to account for residual manure already present in the soil when determining how much manure to apply. As Mr. Boivin admitted in his deposition, Defendants applied manure, millions of gallons of manure, to fields that were already sufficiently saturated with nitrates from previous applications. *Id.* ¶ 68.d (citing Boivin deposition, ECF No. 228-1). As such, any additional applications could not be used as fertilizer by the crops.[30] For instance, Mr. Boivin

[30] Although Plaintiffs highlight Defendants' application of manure to bare ground where no crop was planted, ECF No. 211-1 ¶ 72 (citing ECF No. 228-1), this Court recognizes that the DNMP, although it suggests avoiding applications to bare ground, also notes that there is a lag time between when the manure is applied and when the constituents break down into beneficial fertilization nutrients. ECF No. 226-1 (COWPAL000477). Plaintiffs also highlight that Defendants applied manure on numerous occasions until the lagoons were empty, ECF No. 211-1 ¶ 71; however, this Court questions how dispositive this particular evidence is,

acknowledged that on one particular occasion, although samples from the top two feet of the soil column showed nitrate levels in excess of what the alfalfa crop could use as fertilizer, the Dairy proceeded to apply *7,680,000* gallons of manure onto the already sufficiently fertilized field. ECF No. 304 at 3. Plaintiffs' expert Dr. Shaw cited numerous similar examples of non-agronomic applications, which alone resulted in tens of millions of gallons of manure applied to fields requiring no fertilization. *See* ECF No. 237-2 ¶¶ 76-78, 83-84, 101, 107, 109, 133, 144, 145, 149, 155, 157. This provides further uncontroverted evidence that Defendants' manure was not "returned to the soil as fertilizer," considering the crop could not possibly use the manure constituents as fertilizer.

Defendants do not rebut this compelling evidence with anything more than a conclusory allegation that Cow Palace calculated its manure applications with reference to the DNMP. ECF No. 256-1, ¶ 55. The uncontroverted evidence shows otherwise— that none of the parameters for that application algorithm were calculated or followed in practice.

Finally, the excessively high levels of manure constituents in the Dairy's agricultural fields, based on post-harvest soil sampling by both parties, indicate that Defendants had applied manure at rates in excess of what the crop actually

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considering, in theory, the lagoons could have been pumped empty before the fields were completely fertilized.

could or did use. Specifically, samples taken below crop root zones—that is, the soil depth where no crop roots are present to use manure constituents as fertilizer—showed very high nitrate and phosphorous levels.[31] ECF No. 211-1 ¶ 77.

Accordingly, because Defendants manure applications were not only untethered to DNMP's Best Management Practices but done without regard to crop fertilization needs, presumably in an effort to discard their excess supply, the otherwise beneficial purpose of manure as fertilizer was eliminated and the manure discarded.

ii. Lagoons

Plaintiffs also assert that the otherwise beneficial manure stored in the Dairy's several lagoons is transformed into "solid waste" under RCRA when it leaks into the soil and accumulates in the environment, losing all beneficial fertilization and commodity purposes. ECF No. 211 at 21. Defendants maintain

[31] The EPA's most recent update to its AOC—which directs the dairies, including Cow Palace, to maintain soil nitrate in to the top two feet of soil below 45 parts per million—found three of Cow Palace Dairy's fields in excess of this concentration based on 2013 post-harvest soil sampling. ECF No. 305-4 at 4-5. Spring 2014 sampling showed similar results. *Id.* at 5; *see also id.* at 6 (noting that the hundreds of tons of nitrate found in the third foot of soil, which cannot be effectively used by most crops, "has effectively been lost to the environment.").

that the lagoons are constructed, maintained, and operated to NRCS standards, which allow for permeability, and merely serve as temporary storage until the manure can be applied as useful fertilizer. ECF No. 256 at 7-8, 14-15.

The Ninth Circuit recently addressed a similar problem of whether a non-hazardous material was transformed into a solid waste when it escapes into the environment as an expected consequence of its intended use. In *Ecological Rights*, an environmental group asserted that PCP-based wood preservative that leaked, spilled, and dripped from utility poles constituted a solid waste under RCRA. 713 F.3d at 514. In concluding that is it not, the Ninth Circuit held that the "PCP-based wood preservative that is released into the environment as a natural, expected consequence of its intended use—as a preservative for wooden utility poles—is not *automatically* 'solid waste' under RCRA's definition of that term.'" *Id.* at 518 (emphasis added).

That being said, the Ninth Circuit expressly emphasized that it was *not* deciding "whether or under what circumstances PCP, wood preservative, *or another material* becomes a RCRA 'solid waste' when it accumulates in the environment as a natural, expected consequence of the material's intended use." *Id.* (emphasis added). Referencing persuasive authority, the Ninth Circuit indicated that there could be circumstances in which a material that accumulates in the environment, long after it had served its intended purpose, could meet RCRA's

statutory definition of "solid waste." *Id.* (citing, among other precedent, *Conn. Coastal Fishermen's Ass'n*, 989 F.2d 1305, 1316 (2d. Cir. 1993)) (holding that "materials left to accumulate long after they had served their intended purpose"—specifically, five million pounds of lead bullets and 11 million pounds of clay target debris accumulated for nearly 70 years at a firing range—met RCRA's statutory definition of solid waste") (internal quotation marks omitted). Thus, the Ninth Circuit left open the possibility that such accumulated material could properly be characterized as a solid waste.

Here, the manure leaking from Defendants' lagoons is not a natural, expected consequence of the manure's use or intended use but rather a consequence of the poorly designed temporary storage features of the lagoons. The consequence of such permeable storage techniques, thus, converts what would otherwise be a beneficial product (the stored manure) into a solid waste (the discarded, leaching constituents of manure) under RCRA because the manure is knowingly abandoned to the underlying soil. *Ecological Rights*, 713 F.3d at 515 (noting the plain meaning of "discarded" includes "abandon"). Save for one lagoon, Defendants possess limited documentation to evidence that lagoons were actually constructed to meet NRCS standards. However, even assuming the lagoons were constructed pursuant to NRCS standards, these standards specifically allow for permeability and, thus, the lagoons are designed to leak. ECF Nos. 190-1

¶ 70; 286-1 ¶¶ 69-70.

Moreover, considering the specific circumstances regarding Defendants' lagoons, which allow manure to leak and accumulate into the soil, potentially at the rate of millions of gallons annually, this Court also finds such dangerous accumulations to be the type contemplated by the Ninth Circuit in *Ecological Rights*; thus, this manure is discarded and properly characterized as a solid waste under RCRA. Plaintiffs have presented indisputable evidence that such leaking is leading to dangerous accumulations of nitrates in the deep soil between the lagoons that eventually will reach the underlying aquifer. Although there is a genuine dispute as to the magnitude of the leaking, there can be no dispute that the lagoons are leaking and thus allowing nitrate to accumulate in the soil at rates possibly higher than three million gallons per year. ECF No. 212 ¶¶ 28, 34, 39, 43, 48, 64, 69, 74. As evidenced by sampling between impoundments, nitrates were found at depths as great as 47 feet, evidencing horizontal seepage between the lagoons. *Id.* ¶ 57. Further, although Plaintiffs were not permitted to take samples beneath the Dairy's lagoons, samples beneath a nearby abandoned lagoon—a lagoon of similar design and construction and overlying similar soil type—evidence concentrations of nitrate, phosphorus, and ammonium. *Id.* ¶¶ 77- 78, 82-83. Because the soils underlying the Dairy are not conducive to denitrification, the nitrate that accumulates as a result of the leaking lagoons will continue to leach into the soil

and migrate toward the underlying aquifer. Accordingly, because the manure stored in the Dairy's lagoons is accumulating in the environment—possibly at accumulation rates of millions of gallons per year—as a consequence of the lagoons' storage design, it is properly characterized as a discarded material and thus a "solid waste" under RCRA.

iii. Composting

Finally, Plaintiffs assert that Defendants knowingly discard manure when they compost manure on unlined, native soils, which allow for leaching and accumulation of nitrate below the surface. ECF No. 211 at 24-25. Plaintiffs' sampling showed manure nutrients had leached deep into the soil underlying the composting operation, and once leached, Defendants could no longer put the substance to its beneficial use. *Id.* at 25. Defendants maintain that they do not discard manure simply by composting it on the bare ground. ECF No. 256 at 9-10.

Here, this Court finds that the manure in the unlined composting area is both knowingly abandoned and accumulating in dangerous quantities and thus a solid waste. As with the lagoons, this Court finds that leaching into the soil is a natural and intended consequence of preparing (on unlined soil) the manure for later use as compost, not while *actually using* it for its beneficial purpose as a fertilizer. The consequence of such unlined composting surfaces converts what would otherwise be a beneficial product (the composted manure) into a solid waste (the discarded,

leaching constituents of manure) under RCRA because the manure is knowingly abandoned to the underlying soil. *Ecological Rights*, 713 F.3d at 515 (noting the plain meaning of "discarded" includes "abandon"). Moreover, sampling of the soil beneath the composting area indicates that manure constituents are accumulating in the underlying soils without the possibility of denitrification or crop uptake to help mitigate these accumulations. As such, these dangerous accumulations of nitrate will continue to migrate toward the underlying aquifer. By purposefully composting wet manure on open, native soil which causes manure constituents to leach into and accumulate in the soil, Defendants have discarded those constituents as a solid waste under RCRA.

Accordingly, because Plaintiffs have demonstrated that no reasonable trier of fact, upon reviewing the record here, could dispute that Defendants' excessive application of manure onto agricultural fields, untethered to the DNMP or the fertilization needs of the crops; and storage and composting of manure in ways that result in dangerous accumulations of nitrate in the environment, transformed its manure, an otherwise beneficial and useful product, into a discarded material and thus a RCRA solid waste.

This Court now turns to the issue of whether Defendants' handling, storage, and disposal of the manure contaminated the environment.

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4. Whether the Dairy's Operations May be Contaminating the Environment

i. Groundwater

Plaintiffs assert that nitrate from the manure, over-applied and leaking from the impoundments and compost area, is reaching groundwater. ECF No. 211 at 26. Defendants fault Plaintiffs for failing to provide any opinion regarding the time it would take for nitrates to migrate through the relatively thick vadose zone and reach the aquifer, as well as failing to quantify the Dairy's contribution. ECF No. 256 at 15-16. Defendants maintain that the groundwater testing is merely detecting an historic nitrate plume, considering the agricultural history of the Yakima Valley, or otherwise affected by other sources, such as septic systems and irrigated croplands. *Id.* at 15-17.

There is no triable issue as to whether the Dairy's operations are contributing to the high nitrate levels in the groundwater. Although the parties dispute the significance of the Dairy's contribution and the time it will take for the nitrates in soils underlying Cow Palace to reach the groundwater, there can be no genuine dispute that the nitrates beneath the crop root zones at the Dairy will continue to migrate through the vadose zone to the underlying aquifer. *See* ECF Nos. 211-1 ¶ 131; 229-2; *see also* ECF No. 228-1 ("Q: "[I]s it more likely than not that Cow Palace could be the cause of this contamination? . . . A: Yes.").

First, sampling by Plaintiffs, the EPA, and Defendants all demonstrate excess levels of nitrate in the groundwater, with concentrations as high as 234 mg/L in one monitoring well. *See* ECF Nos. 213-1, ex. C; 223 ¶¶ 67-94. Although Defendants fault Plaintiffs for "cherry-picking" the well data, AOC monitoring wells downgradient of the Dairy evidence high nitrate levels frequently in excess of the MCL. On the other hand, upgradient well data that has not been impacted by human-influenced nitrogen sources, evidences small amounts of nitrates. ECF No. 223 ¶ 121. Further, the presence of tracer chemicals and dairy pharmaceuticals, the same pharmaceuticals detected at the Dairy, in downgradient wells also indicates that the Dairy's operations are contributing to the high nitrate levels in the groundwater. ECF No. 211-1 ¶ 117.

Second, besides the purely hypothetical musings of Defendants' soil expert, Scott Stephen, the soils underlying the Dairy are not conducive to denitrification considering the predominant soils present little potential for any loss of nitrate through denitrification. ECF Nos. 211-1 ¶ 35; 223 ¶ 49. As such, given the highly mobile nitrates found below the crop root zones as well as the highly permeable soils underlying the Dairy, the nitrates will migrate to the aquifer with water, be it from rainfall, snowmelt, irrigation practices, or more liquid manure to help transport it. Even Defendants' expert Dr. Melvin has conceded this eventuality. ECF No. 228-1.

Finally, Plaintiffs have presented ample evidence that groundwater recharge is occurring relatively rapidly. Frequent temperature and water table level fluctuations, along with EPA's age-dating of wells and the presence of modern-day dairy pharmaceuticals, corroborate the assertion that surface activities are rapidly impacting groundwater activities and that groundwater recharge is most likely nowhere near the 70-year timeline previously opined by Dr. Melvin.[32] ECF No. 211-1 ¶ 127-28. Even if Defendants contend such contamination could take "decades," Cow Palace Dairy has operated at its site for approximately 40 years. ECF No. 223 ¶ 105. Accordingly, Defendants activities are contributing to the contamination of the groundwater.

Although Defendants attempt to minimize their contribution by pointing to other nitrogen-loading sources, such as residential septic systems, the EPA's most recent data set under the AOC demonstrates just how significant the Dairy's contribution is. "Whereas a three-person residence generates about 30 pounds of nitrogen per year . . . a single lactating cow produces about 1 pound of nitrogen per day or 365 pounds of nitrogen per year." ECF No. 305-4 at 8. While there are 224 residential septic systems within one mile downgradient of the cluster Dairies,

[32] It is worth noting that Dr. Melvin, upon being presented evidence of the fairly rapid rate of groundwater recharge, conceded that his 70-year recharge timeline was probably not accurate. ECF No. 228-1.

Cow Palace Dairy has more than 7,000 milking cows alone. *Id.* Its entire herd produces over 100 million gallons of manure per year, with millions of those gallons leaking from its lagoons and compost area, and being applied to fields that cannot possibly use the substance as fertilizer. Given these numbers, any attempt to diminish the Dairy's contribution to the nitrate contamination is disingenuous, at best.

That being said, the statutory standard does not require that Plaintiffs quantify Defendants' contribution or demonstrate that Defendants are the sole cause of the contamination; rather, Plaintiffs need only show that the Dairy's operations "contributed" or are "contributing" to disposal of solid waste which "may" be posing a serious threat to public health. *See* 42 U.S.C. §§ 6903(3), 6972(a)(1)(B); *see also* 40 C.F.R. § 257.3-4(a) (defining contaminating to mean causing that groundwater to exceed the MCL *or cause a further increase* in groundwater that already exceeds the MCL).

Accordingly, a reasonable trier-of-fact, given the evidence presented, could come to no other conclusion than that the Dairy's operations are contributing to the high levels of nitrate that are currently contaminating—and will continue to contaminate as nitrate present below the root zone continues to migrate—the underlying groundwater.

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ii. *Surface Water*

Plaintiffs also assert that Defendants' activities are contaminating surface water, both through the interconnectedness of contaminated shallow groundwater and nearby surface waters, and directly from surface runoff. ECF No. 286 at 20. Defendants question what evidence Plaintiffs have produced to demonstrate any surface water discharge and whether surface waters have been affected by the Dairy's operations. ECF No. 190 at 19.

Because of disputed issues of material fact regarding whether the Dairy's operations are affecting surface water in the area, this Court reserves this issue for determination at trial.

iii. Contamination "Beyond the Solid Waste Boundary"

Plaintiffs assert that contamination from the Dairy extends beyond the "solid waste boundary," which is defined as the "outermost perimeter" of where waste is disposed. ECF No. 211 at 28 (citing 40 C.F.R. § 257.3-4(c)(5)). Because it is undisputed that groundwater beneath the Dairy generally flows to the south and southwest, any nitrates that migrate into the underlying aquifer will either be extracted from a well or eventually discharged to surface water. *Id.* As discussed above, well data downgradient of the Dairy evidences high nitrate concentrations, concentrations to which the Dairy's operations may be contributing. Accordingly,

nitrate contamination extends beyond the "outermost perimeter" of where the Dairy discards its manure and thus, there is no genuine dispute that the Dairy's activities are contaminating an area "beyond the solid waste boundary."

5. Whether Contamination Poses a Substantial and Imminent Endangerment to Health or the Environment

Plaintiffs assert that the excess nitrate levels found in the groundwater, a result of contamination from the Dairy's operations, may present an imminent and substantial endangerment to health or the environment.[33] First, "courts have emphasized the preeminence of the word 'may' in defining the degree of risk needed to support" liability under RCRA. *Me. People's Alliance v. Mallinckrodt, Inc.*, 471 F.3d 277, 288 (1st Cir. 2006). Second, the term imminent "does not require a showing that actual harm will occur immediately so long as the risk of threatened harm is present." *Price v. U.S. Navy*, 39 F.3d 1011, 1019 (9th Cir. 1994). Third, an endangerment is "substantial" when it is "serious." *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1021 (10th Cir. 2007). Finally, a substantial endangerment does not require proof of actual harm but rather "a threatened or potential harm." *Price,* 39 F.3d at 1019. "[I]f an error is to be made

[33] Plaintiffs also assert that Dairy's operations are creating a risk of harm to the environment—that is, the groundwater and surface water—although the full extent of contamination and migration is unknown. ECF No. 211 at 31-32.

in applying the endangerment standard, the error must be made in favor of protecting public health, welfare, and the environment." *Burlington N.*, 505 F.3d at 1021 (internal quotation marks and citation omitted).

The EPA set the nitrate MCL at 10 mg/L because of the serious health risks, such as various types of cancer, that arise when water is consumed at or above this level. *See* 56 Fed. Reg. 3526 (Jan. 30, 1991). Plaintiffs contend that there is evidence that exposure even below this level may present a risk to public health. ECF No. 211 at 29. As evidenced by Defendants' own testing pursuant to the AOC of residences within one-mile of the Dairy, 66 of the 115 residences tested exceeded the MCL for nitrates, with some residences exceeding 50 mg/L. ECF No. 213 ¶ 14. Further, Dolsen Companies' independent testing of dairy employee housing confirmed the presence of high concentrations of nitrates in the drinking water in the area; seven of the eight residences exceeded the MCL, the highest having nitrate concentrations at 72.8 mg/L, and the one non-exceeding residence having nitrate concentrations at 9.18 mg/L. *Id.* ¶ 15.

Alarmingly, Defendant Cow Palace's briefing seems to suggest that this Court wait to act until a young infant in the area is first diagnosed with methemoglobinemia, a health effect that occurs at the lowest dose of nitrate consumption. ECF No. 256 at 17 (asserting that because "effects on the most sensitive endpoint in the most sensitive population is not occurring in the Yakima

Valley," whether nitrates in the groundwater present an imminent and substantial endangerment is in dispute). Or alternatively, the steps the Dairy has already taken "reduce" any threat that nitrate contamination may pose because of the reverse osmosis filter systems the Dairy has offered to provide or maintain for nearby residents. *Id.* at 17-18.

Defendants again misstate the requirements of RCRA. Congress provided that a party violates RCRA when its actions "may" be endangering public health, welfare, or the environment. *Me. People's Alliance*, 471 F.3d at 288. Further, proof of actual or immediate harm is not necessary; rather, Plaintiffs need only present evidence that the contamination currently poses "threatened or potential harm." *Price*, 39 F.3d at 1019. The undisputed facts are that residential wells downgradient of the Dairy exceed the maximum contaminant level, as established by the EPA, and even if the Dairy's AOC obligations are helping to "reduce" the risk of the adverse health effects of the nitrate-contaminated water to nearby residents, the risk still remains to these residents, as well as to those beyond this limited one-mile downgradient zone. Considering their installation of reverse osmosis units in all Dairy employee housing, this Court questions whether Defendants truly believe the risk of nitrate contamination to be overstated. ECF No. 211-1 ¶¶ 14-15 14. Accordingly, there can be no dispute that the Dairy's

operations may present an imminent and substantial endangerment to the public who is consuming the contaminated water.[34]

6. Defendants' Liability

A private party may bring suit under RCRA "against any person . . . including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility, who has *contributed or who is contributing* to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present any imminent and substantial endangerment to health or the environment."[35] 42 U.S.C. § 6972(a)(1)(B) (emphasis added). The Ninth Circuit has defined "contribute" to mean "lend assistance or aid to a common purpose," "have a share in any act or effect," "be an important factor in," or "help to cause."

[34] Because the Court finds the Dairy's manure presents a risk of harm to human health, it may also necessarily present a risk of harm to the environment.

[35] RCRA defines the term "person" as "an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body and shall include each department, agency, and instrumentality of the United States." 42 U.S.C. § 6903(15). The parties do not dispute that each Defendant meets the definition of "person" under RCRA.

Hinds Invs., L.P. v. Angioli, 654 F.3d 846, 850 (9th Cir. 2011). "[T]o state a claim predicated on RCRA liability for 'contributing to' the disposal of hazardous waste, a plaintiff must allege that the defendant had a measure of control over the waste at the time of its disposal or was otherwise actively involved in the waste disposal process." *Id.* at 852. Congress intended that the term "contribution" be "liberally construed," and such term includes "a share in any act or effect" giving rise to disposal of the wastes that may present an endangerment. *United States v. Aceto Agric. Chems. Corp.*, 872 F.2d 1373, 1383-84 (2d Cir. 1989).

As an initial matter, Cow Palace, Dolsen Companies, and Three D Properties are all past or present owners of the land on which the Dairy operates. Dolsen Companies previously owned 425 acres of land on which the Dairy operates but transferred those parcels—which included cow pens, milking barns, composting area, the majority of the lagoons, and almost half of the agricultural fields—to Cow Palace after this litigation commenced. Three D and Cow Palace are current owners, with Three D owning approximately fifty percent of the land used by the Dairy, some of which Adam Dolsen transferred to Three D after this litigation commenced. Thus, all three Defendants are "past or present owners" of the land under RCRA. *See* 42 U.S.C. § 6972(a)(1)(B).

Although Three D and Dolsen Companies hold themselves out as mere "passive landowners," with no involvement in or control of the Dairy's operational

practices, ECF No. 191 at 12-13, there is no genuine issue surrounding whether all three entities had some "measure of control" over the Dairy's manure management. Most telling, Mr. Boivin testified that although he is "the top person in charge at Cow Palace Diary" he "*ultimately reports*" to Bill Dolsen. Such evidence strongly indicates that Bill Dolsen—as President, Chairman, and Director of The Dolsen Companies, sole manager of Three D Properties, and registered agent for Cow Palace—exercises "some measure of control" of the Dairy on behalf of all three entities. Further uncontroverted evidence showing the interconnected relationship of these three entities, with the Dolsens at the core, includes the following:

- The Dolsen Companies is listed as the owner/operator of the Dairy on its DNMP;
- Bill Dolsen, has primary authority for decisions involving real property acquisitions by Cow Palace and Three D;
- Both Dolsens used their authority to accept the AOC affecting Dairy's operations and either met or spoke with other state and federal regulatory representatives;
- Both Dolsens were contacted when there was a breach in one of the lagoons;
- Adam Dolsen, as Vice President of Dolsen Companies, had the authority to fire and hire management at the Dairy and met with management one or two times per month;
- The Dolsen Companies receives and maintains numerous records regarding the Dairy, including manure transfers, offsite manure

applications, compost transfers, laboratory analyses of liquid manure samples, annual yields of crops, and various safety and inspection records.

- Adam and Bill Dolsen, along with Vern Carson, safety director for the Dolsen Companies, made the decision to install reverse osmosis units in all Dairy employee housing around 2011 or 2012, from which the employees would obtain their drinking water.

Taken as a whole, there can be no doubt that each of these entities, although legally separate, maintain or maintained some "measure of control" over the Dairy's operations or "share[d] in any act or effect" of the Dairy's management practices. *Hinds*, 654 F.3d at 850; *Aceto*, 872 F.2d at 1383-84. Although Defendants seek to hide behind the legally separate entities, Defendants' abject failure to respect the corporate divisions when managing the Dairy's operations necessarily results in all three forms being held responsible. Accordingly, Defendants The Dolsen Companies, Three D, and Cow Palace are all responsible parties under RCRA.[36]

[36] As this stage in the proceedings, this Court need not determine, generally, what remedies are available under RCRA to Plaintiffs here and, specifically, for which actions each Defendant, as past and current owners of the site, are responsible. 42 U.S.C. § 6972(a) (empowering courts to "restrain any person who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste . . ., to order such

7. Conclusion

In conclusion, this Court finds no genuine issue of material fact that Defendants' application, storage, and management of manure at Cow Palace Dairy violated RCRA's substantial and imminent endangerment and open dumping provisions and that all Defendants are responsible parties under RCRA. This Court reserves remedial issues, as well as the other remaining issues as discussed above, for trial.

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person to take such other action as may be necessary, or both . . ., and to apply any appropriate civil penalties" available under RCRA); *see Meghrig*, 516 U.S. at 483 (holding that "RCRA is not principally designed to effectuate the cleanup of toxic waste sites or to compensate those who have attended to the remediation of environmental hazards"); *but see Express Car Wash Corp. v. Irinago Bros., Inc.*, 967 F.Supp. 1188, 1192 (D. Or. 1997) ("The Supreme Court's decision in *Meghrig* thus defines the two endpoints of the RCRA citizen suit continuum: a plaintiff facing an imminent threat from hazardous waste, when no remediation has yet taken place, clearly can sue RCRA for an injunction to force appropriate parties to clean up the contamination."); *see also Tanglewood E. Homeowners v. Charles-Thomas, Inc.*, 849 F.2d 1568, 1574 (5th Cir. 1988) ("The remedies package of [RCRA] includes civil penalties, injunctive relief, and attorney's fees.").

ACCORDINGLY, IT IS HEREBY ORDERED:

1. Defendant Cow Palace, LLC's Motion for Summary Judgment (ECF No. 190) is **DENIED**.

2. Defendants The Dolsen Companies' and Three D Properties' Motion for Summary Judgment (ECF No. 191) is **DENIED**.

3. Plaintiffs' Motion to Exclude Expert Testimony of Scott Stephen (ECF No. 193) is **DENIED**.

4. Defendant Cow Palace, LLC's *Daubert* Motion to Exclude Testimony in Reliance on the EPA Report and to Exclude EPA Report Under Rule 403 (ECF No. 200) is **DENIED**.

5. Plaintiffs' Motion to Exclude Expert Testimony of James Maul (ECF No. 202) is **DENIED**.

6. Plaintiffs' Motion to Exclude Expert Testimony of Michael Backe (ECF No. 206) is **DENIED**.

7. Defendant Cow Palace LLC's Motion to Dismiss (ECF No. 209) is **DENIED**.

8. Plaintiffs' Motion for, and Memorandum in Support of, Summary Judgment (ECF No. 211; *see* ECF No. 234-1 (praecipe)) is **GRANTED in part**.

9. Cow Palace, LLC'S Motion to Strike Undisclosed Expert Testimony (ECF No. 237) is **DENIED**.

The District Court Executive is hereby directed to enter this Order and provide copies to counsel.

DATED January 14, 2015.

THOMAS O. RICE
United States District Judge