

**LU-24-027 IN-PERSON TESTIMONY
SUBMITTAL COVER SHEET**

Received From: Ken Eklund

Date: 10.22.2025

Email: futureeverything@writerguy.com

Phone: ~~408~~ 623 8372

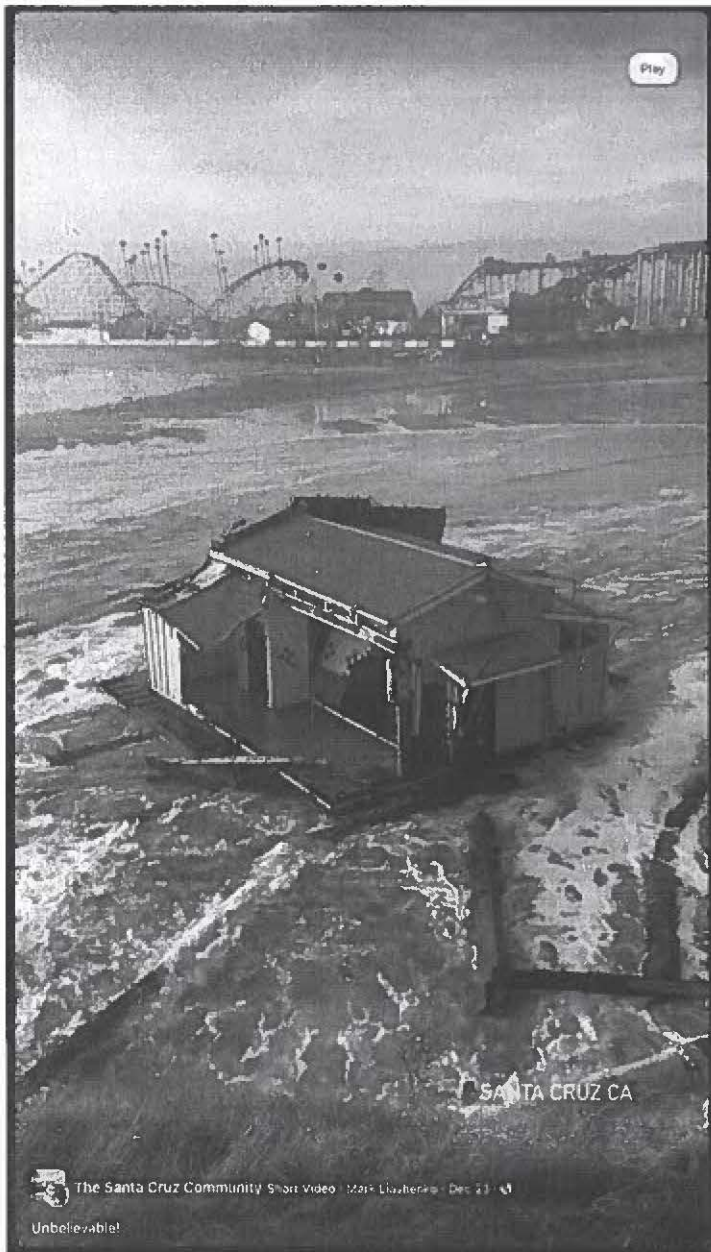
Address: 37340 Moss Rock Dr

City, State, Zip: Corvallis OR 97330

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CLIMATE DAMAGE AND THE LAND USE CRITERIA

**HOW THE SIGNIFICANT IMPACTS OF CLIMATE CHANGE ON
PUBLIC SERVICES, FARM AND FOREST PRACTICES,
AND SO ON, RELATE TO THE LAND USE CRITERIA IN
BENTON COUNTY.**

— AN EXPLAINER —

Landfill gas – direct area impacts

Landfill gas has many significant impacts on public services, land uses, farm and forest practices, and so on. For inclusion I will list a few of them here:

- odor content prevents enjoyment of one's property
- odor content prevents enjoyment of highways
- odor content prevents enjoyment of public spaces
- odor content prevents recreational or athletic activity
- chemical odors cause health concerns
- chemical content cause or contribute to health issues
- PFAS content causes health concerns
- PFAS content causes or contributes to serious health issues
- PFAS bio-accumulates in wildlife and the environment, poisoning the ecosystem
- PFAS enters the water system and enters human drinking water
- PFAS enters the water system and bio-accumulates in aquatic life

Landfill gas – climate damage

The climate science nonprofit Carbon Mapper focuses on identifying, and thus expediting prevention and mitigation of, climate damage from atmospheric carbon in methane and carbon dioxide. This climate damage also has significant impacts that fall within the county's land use criteria. Commissioners, let's look at these in a little more depth.

Landfill gas – more climate damage because of methane

Landfill gas is largely made of the greenhouse gases methane and carbon dioxide. Methane is a climate forcer, meaning that it does significantly more damage than carbon dioxide when released into the atmosphere; it oxidizes into carbon dioxide eventually, and then begins doing damage as carbon dioxide. As you know, since they are greenhouse gases, any release of landfill gas makes an incremental increase to global warming, which in turn alters human and natural systems. And these effects persist, which means they are additive. The effects of this year's landfill leaks add to this year's effects, but so do last year's leaks, and the year before's leaks, and so on, because the gases leaked are still around and continuing to do their damage.

Climate damage – assessing its impacts per the criteria

To the extent that the applicant addresses climate damage at all, they assert that it's a matter for regulatory agencies to monitor and enforce. The action before you, however, is not monitoring or enforcement but assessment. You are weighted with the decision of determining whether or not there should be a new landfill to be monitored and become subject to enforcement, not with doing that monitoring and enforcement. Your charge

under the code is to assess whether significant impacts and/or undue burdens are likely to occur if you were to permit that new landfill to come into being.

Climate damage from greenhouse gases is established and harmful

It's clear that impacts occur from the greenhouse gases released by the landfill. The science is well established, and has become the basis for mitigatory practices by organizations across the world, including Benton County government, Corvallis city government, Oregon State University, and so on.

Are they significant? This is well established also. Organizations across the world would not put serious effort into mitigation if they did not feel it was important that they do so.

Why is reducing climate damage a global priority?

Because governments around the world have done the math. Each entity's climate damage is what might be called a "trim tab" on the rudder of the planet's ecological systems. A trim tab is a small adjustable surface on a rudder or aileron that individually, given time, alters the course of the entire vessel. If a large number of them are deployed, they alter the vessel's course rapidly.

Right now, there are a large number of trim tabs deployed on the rudder of the world's climate, and are steering it into extreme climate changes. Globally, there was an estimated \$400 billion in climate-related devastation in 2024, and another \$400 billion total in 2023 and 2022. The LA fires alone now have a price tag of over \$250 billion. In a very small way, Coffin Butte Landfill's emissions helped cause all this damage; even if Coffin Butte's emissions caused only 0.001% of the devastation of the LA fires, for example, that is \$2.5 million worth of damage in that one event alone.

The thing is, Coffin Butte's trim tab doesn't stop there. It continues to turn the ship of human endeavor toward the reef this year, and next year, and for the remainder of this century. And it's additive. As long as the trim tab of Coffin Butte Landfill is fully deployed, then it will continue to add to what is already damaging world systems, and be responsible for contributing to costs both small and enormous. Once released, the landfill's greenhouse gases continue to do damage over a long period of time – how long, nobody knows, because the earth's systems that remove greenhouse gases from the atmosphere are among the systems being disrupted. Large emissions now may be leveraging themselves to have even greater impacts over time.

This is the math that world governments and other entities have done, and that's why there's a global priority to reduce climate damage, especially from methane. Stopping

methane leaks was the #1 climate action priority of the Biden White House. Methane emissions make your trim tab much larger.

**Climate damage and the land use criteria:
serious interference with adjacent properties**

Benton County's land use code deliberately does not define the word "adjacent," preferring to afford decisionmakers the discretion to apply a definition of that word that's appropriate to the context of the issue being decided. Under pressure from County Staff, the Applicant and its consultants have acknowledged this, and regarded "adjacent" properties as ones that are affected by the impacts being examined.

In the context of climate change, all properties everywhere are "adjacent," because they all suffer the impacts. That's the harsh reality of outsize greenhouse gas emissions.

**Climate damage and the land use criteria:
undue burdens placed upon public facilities and services**

The criteria specify that the proposed land use cannot put an undue burden on public services available to the area. Because climate damage affects all public services, everywhere, it is already placing a burden on all the public services available to the area.

Look at the local service of fire protection, for example. Adair Fire is regularly called away to assist with fires elsewhere: the LA fires, for example. This of course reduces the amount of fire protection in the area: not only are local firefighters absent, but so is their proximity, expertise and knowledge of the area.

The same effect happens with other services, which also have "mutual aid" arrangements in place. Hospital and health services; emergency services; police services, and so on. Mutual aid arrangements are quite common, a staple really of modern civilization. All of them stretch thinner as the climate crisis precipitates more and more extreme weather events.

"Undue burden" is especially applicable to rural areas such as that around the landfill, because evidence is emerging that as services get stretched, they concentrate more in urban areas at the expense of rural areas.

**Climate damage and the land use criteria:
significant changes to farm practices**

The criteria specify that the proposed land use cannot force exclusive farm use properties to significantly change their established practices. Climate damage, however, is already

doing that, as more and more farmers find their crops failing, yields shrinking, their irrigation burdens increasing, etc, due to changes in the climate. All exclusive farm use properties everywhere are under threat of these changes.

**Climate damage and the land use criteria:
significant changes to forestry practices**

The criteria specify that the proposed land use cannot force forest conservation properties to significantly change their established practices. Climate damage, however, is already doing that, as more and more foresters find their trees in the ground to be more stressed by climate change and their plans for replanting changing to more heat- and drought-tolerant species. All forest conservation properties everywhere are under threat of these changes.

**Climate damage and the land use criteria:
serious interference with the character of the area (the land)**

The criteria specify that the proposed land use cannot seriously interfere with the character of the area. Climate damage, however, is already doing that, by threatening to change the farms, the forests, the natural areas, etc. that define the character of the area and draw people to locate their homes and businesses here. In particular, climate damage is threatening the viability of local agriculture and forestry activity, which often don't have the depth of resources necessary to weather events such as floods, drought, fires, smoke damage, and so on.

**Climate damage and the land use criteria:
serious interference with the character of the area (the people)**

The criteria specify that the proposed land use cannot seriously interfere with the character of the area. An area's character is not just its physical elements: it also includes its human dimension; in fact, an argument could be made that the character of an area is *primarily* its human character: *friendly, peaceful, hard-working, neat, well-kept, green.*

Expansion of the Coffin Butte Landfill would seriously interfere with this character in a number of different ways. First, it would redefine our character as one which *allowed or could not stop* a corporation from exploiting our land for its own monetary gain. (A doormat, if you will.) It would also redefine our character as the site of one of the most climate-polluting facilities in the state. (Eco-hypocrites, if you will.) It would also redefine our character as a place that welcomes industries that other places shun. (A sin-eater, or a trash can, or a bottom-feeder, if you will.) It would also redefine our character as a place that welcomes industries that other places shun, as long as there's money on the

table. (A Jonas Chuzzlewit, if you will.) I could go on but Commissioners, I think you get the idea.

It's said that character is won over a lifetime but lost in one moment, and I think this holds true for the character of a place and its people as well as for individuals.

Serious interference, undue burdens, significant changes

As of this writing, Republic Services has not advanced any narrative, convincing or otherwise, about the widespread and excessive super-leaks of landfill gas at Coffin Butte Landfill. These leaks have been well-documented by both the EPA and by Carbon Mapper, a climate science non-profit. Carbon Mapper has estimated the dump is leaking at the rate of 1.9 metric tons of methane every hour, but this number is conservative, as it does not include the additional methane leaking from non-super-emitting leaks, which likely number in the dozens at any one time. The EPA's 2022 inspection found around 60 of these; the EPA's 2024 inspection, around 40; a consultant hired by Republic found over 100 in September 2022. These findings are significantly higher than any other landfill in Oregon.

Likewise the threats of significant harm from climate damage are well-documented and established in Benton County, which has a goal of drastic emissions reduction by the year 2030.

Republic's response is that any leaks are a matter for the EPA or DEQ to monitor and enforce as necessary, but monitoring and enforcing are Republic's concern, not the concern of this land use proceeding. Your charge under the code is to assess whether or not Republic Services has proved that no serious interference, no undue burdens, no significant changes will happen if the proposed land use change were to be approved.

Commissioners, it can be hard to imagine how climate damage is going to play out over the next decades. We have little experience with something that, slowly at first but then more quickly, works destructive widespread changes in things that seemed as eternal as the seasons. And will still be at work a hundred years from now. For this land use decision, however, it's not necessary to imagine this; it's only necessary to realize that it's Republic's obligation under its Burden of Proof to offer evidence and create a compelling narrative about it, and that they have not done so.

Republic has not demonstrated that it understands the true level and character of its landfill gas leaks, or even that they have a way or desire to know them, and therefore cannot be relied on to understand the significance of their harms or to remediate them. The applicant has thus failed their Burden of Proof and so the application should be denied.

Read all the Explainers! Because I'm doing my best to pass on what I've learned in a clear, concise, readable narrative form.

Performance-testing the landfill gas flare: ODEQ's struggle to obtain compliance from Republic

DEQ made a rule in late 2021 and Coffin Butte Landfill complied with it in late 2024. Why did it take so long, and what about that Class 1 Notice of Violation from DEQ?

Explainer - DEQ gas flare compliance.pdf 

Carbon Mapper and landfill gas: an explainer

An award-winning, innovative third-party source sharing data with us about the landfill's performance.

Explainer - Carbon Mapper and methane detection.pdf 

EPA Enforcement: a timeline and explainer

The EPA is investigating Coffin Butte Landfill – why? Is it serious? How did that start and what's happening with it?

Explainer - Coffin Butte and EPA Enforcement.pdf 

Climate Damage and the Land Use Criteria

Evidence shows that Coffin Butte Landfill is large-scale producer of greenhouse gas emissions. How do the impacts from that relate to the land use criteria for LU-24-027?

Explainer - Climate Damage and land use criteria.pdf 

Gas Wells At Coffin Butte: Why So Many?

Republic asserts that all those gas wells are a sign of environmental commitment. What's the true reason?

Explainer - Why so many landfill gas wells at Coffin Butte.pdf 

Elevated Temperatures, Subsurface Landfill Fires

The way Coffin Butte Landfill is operated creates more risk of a dire event.

Explainer - elevated temperatures at Coffin Butte.pdf 

Avoiding Compliance: six narratives

How Republic avoids monitoring at Coffin Butte Landfill: the paper trails.

Explainer - avoiding compliance at Coffin Butte 1.pdf 

How to Find Things in the LU-24-027 Public Record

It's not easy, but here are some tips that may help.

Explainer - How to find things in Public Record.pdf 

Again, for you Commissioners, the focus is on actual impacts, and if actual impacts cannot be known, or have not been proved to be insignificant, the applicant has failed their Burden of Proof and the application should be denied.

To: Board of Commissioners, Benton County From: Ken Eklund

Hello Commissioners: This denial decision of Riverbend's application to expand is worth a read beginning to end, but be sure to see the section lauding the citizen science work of Maggie Cross vs the applicant's consultants (p 18) and the conclusion that "there are no effective preventives for windborne trash affecting nearby land uses." I hope this decision's rationale and findings are useful to you as you develop your own.

BEFORE THE BOARD OF COMMISSIONERS OF THE STATE OF OREGON

FOR THE COUNTY OF YAMHILL

SITTING FOR THE TRANSACTION OF COUNTY BUSINESS

In the Matter of an Order Denying Docket)
SDR-16-14/FP-03-14, Site Design Review)
and Floodplain Development Permits for) Board Order 20-284
Riverbend Landfill Expansion, Including Findings)
For Denial, on Remand from the Land Use Board)
of Appeals; Applicant Riverbend Landfill Company)

THE BOARD OF COMMISSIONERS OF YAMHILL COUNTY, OREGON (the Board) sat for the transaction of county business on August 20, 2020, Commissioners Casey Kulla, Mary Starrett and Richard L. "Rick" Olson being present.

IT APPEARING TO THE BOARD as follows:

A. In 2016, the county adopted Board Order 16-66, allowing Riverbend Landfill Company ("applicant") to develop a 37-acre expansion of the Riverbend Landfill. Following appeals to the Land Use Board of Appeals, Oregon Court of Appeals and Oregon Supreme Court, Board Order 16-66 was remanded to the county for further proceedings.

B. Following receipt of a request from the applicant, the Board scheduled proceedings to accept new evidence and testimony regarding the remand decision.

C. On August 6, 2020, following review and consideration of the record of this matter and the additional remand record, the Board deliberated and voted two to one to deny the application.

D. The attached findings represent the county's findings for denial on remand of the above-referenced planning dockets. NOW, THEREFORE,

IT IS HEREBY ORDERED BY THE BOARD AS FOLLOWS:

Section 1. The findings attached as Exhibit "A" and incorporated herein by reference are hereby adopted in support of this Order.

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Section 2. Planning Dockets SDR-16-14/FP-03-14, Site Design Review and Floodplain Development Permits for Riverbend Landfill Expansion, are hereby denied.

DONE this 20th day of August, 2020 at McMinnville, Oregon.

ATTEST:

BRIAN VAN BERGEN
County Clerk

By: Carolina Rook
Deputy Carolina Rook



YAMHILL COUNTY BOARD OF COMMISSIONERS

Casey Kulla
CASEY KULLA

Mary Starrett
Commissioner

(voted no)
MARY STARRETT

FORM APPROVED BY:

Timothy S. Sadlo
Timothy S. Sadlo
Senior Assistant County Counsel

Richard L. Olson
Commissioner

RICHARD L. "RICK" OLSON

Exhibit A - Board Order 20-284
Findings in Support of Denial

Docket No.: SDR-1 6-14 and FP-03-14 (Remand)

Request: Site Design Review for the enhancement and expansion of an existing solid waste disposal facility, together with a Floodplain Development Permit to accommodate those portions of the development within the 100-year floodplain.

Applicant: Riverbend Landfill Company
13469 SW Highway 18
McMinnville, OR 97128
Contact: Paul Burns, Director of Disposal Operations, Pacific Northwest

Tax Lots: Map 5501, Tax Lots 101, 200, 400, and 401

Location: 13469 SW Highway 18

Zone: Exclusive Farm Use District - EFU-80

I. Introduction and Background

This matter comes before the County on remand from the Land Use Board of Appeals ("LUBA"). Riverbend Landfill Co. ("Applicant" or "Riverbend"), which owns and operates the Riverbend Landfill approximately three miles southwest of the city of McMinnville, previously submitted two applications for the enhancement and expansion of Riverbend Landfill. The first application was for Site Design Review ("SDR") pursuant to Yamhill County Zoning Ordinance ("YCZO" or "Code") Section 1101, and the second application was for a Floodplain Development Permit pursuant to YCZO Section 901. The stated purpose of the applications was to allow Riverbend Landfill to continue operating by expanding operations to adjacent land as other areas of the existing landfill go into final closure. The County processed both applications together.

The County approved both of Riverbend's applications on April 23, 2015 through Board Order 15-115. Participants in that proceeding sought review of the County's order by appealing to LUBA. LUBA issued its Final Order and Opinion on November 10, 2015 (LUBA No. 2015-036). LUBA concluded that "the county's general approach in

determining compliance with ORS 215.296(1), with respect to nuisance birds and other impacts, suffers from several analytical or methodological flaws." Based on that conclusion, LUBA remanded the decision back to the County "to conduct a new evaluation of the evidence" and to "make a new determination whether Riverbend has demonstrated that the cumulative impacts of the proposed use will not force a significant change in, or significantly increase the cost of, accepted farm practices on surrounding lands."

In its proceeding on remand, the county adopted revised and additional findings and conditions of approval and approved the application. Another appeal to LUBA (LUBA No. 2016-026) followed. That appeal resulted in the following decisions issued by LUBA and the appellate courts:

Stop the Dump Coalition v. Yamhill County, 74 Or LUBA 1 (2016)

Stop the Dump Coalition v. Yamhill County, 284 Or App 470, 391 P3d 932 (2017)

Stop the Dump Coalition v. Yamhill County, 364 Or 432, 435 P3d 698 (2019)

Stop the Dump Coalition v. Yamhill County, ___ LUBA ___, LUBA No. 2016-026 (Final Opinion and Order, May 20, 2019)

Stop the Dump Coalition v. Yamhill County, 299 Or App 389, 449 P3d 927 (2019)

In each instance, the county's decision approving Riverbend's application was reversed or remanded.

Ultimately, the Supreme Court of Oregon held that conditions of approval requiring Riverbend to purchase their crops (Frease farm) or to conduct litter patrols on their farms to pick up landfill litter (McPhillips farm) were not acceptable conditions and could not be used to satisfy ORS 215.296. ORS 215.296 is in turn incorporated into the County's approval standard, YCZO 402.02(V).¹

¹YCZO 402.02(V) provides in material part:

V. The maintenance, expansion or enhancement of an existing site on the same tract for the disposal of solid waste for which a permit has been granted under ORS 459.245 by the Department of Environmental Quality, together with

LUBA then remanded the application to the county for the purpose of consideration under the standard set by the Supreme Court. Riverbend appealed this decision to the Court of Appeals, arguing that LUBA erred,

when it rejected the county's determination that landfill litter would not cause a significant change in accepted farm practices on the McPhillips property under ORS 215.296. In particular, petitioner contends that LUBA improperly ignored factual findings by the county regarding the volume of litter escaping the landfill that, in petitioner's view, would support the conclusion that any change to accepted farm practices resulting in the landfill expansion necessarily would be minimal.

SDC, 299 Or App at 390.

The Court of Appeals rejected this argument and upheld LUBA's decision to remand.

In the same case, the Stop the Dump Coalition ("Coalition") and others cross-petitioned as to LUBA's apparent determination that cumulative impacts upon the Frease farm were not significant under the statute. The court held that it need not decide that question "because the parties, ultimately, agree that the issue raised in it is not something in dispute. That is, the parties agree that LUBA's order did not eliminate the county's obligation to evaluate the cumulative impacts on the Frease farm on remand." *Id.*

II. Framework of the Current Proceeding

On April 28, 2020, Riverbend requested in writing "that the County proceed with its application on remand," and stated:

To address the first issue on remand, it will be necessary to open the record for the limited purpose of accepting evidence of actual litter impacts from the landfill to the McPhillips hay farming practices. To address the second issue on remand, it is not necessary to open the record. Instead, the County can make findings regarding cumulative impacts based on the existing record (in addition to the record developed to address the McPhillips hay farming practices). The County should therefore accept only written argument with respect to the issue of cumulative impacts.

equipment, facilities or buildings necessary for its operation. The use must satisfy the standards set forth in ORS 215.296(1)(a) and (b) and the standards set forth in Section 1101, Site Design Review. * * *

Over the Coalition's objection that the record either be opened as to both issues or not at all, the County agreed to the applicant's request and sent its "NOTICE OF PUBLIC HEARING TO REOPEN THE RECORD ON REMAND OF BOARD ORDER 16-66 FOR RECEIPT OF WRITTEN TESTIMONY AND EVIDENCE ONLY," stating in material part:

The hearing will be limited to accepting written or electronic argument only on the following issues and no new evidence will be accepted on the following issue:

(1) Whether evidence in the record, demonstrates the presence or absence of significant cumulative impacts to accepted farm practices (including the costs of those practices) from the existing landfill and the proposed expansion area.

The hearing will be limited to accepting new written or electronic evidence and written or electronic argument on the following issue:

(1) Whether litter generated by the existing landfill, or expected to be generated by the proposed expanded landfill, will force a significant change in accepted farm practices (including the costs of those practices) on the McPhillips hay farm, located east of the landfill at 13351 McPhillips Road, McMinnville.

Pursuant to that notice, the county held its initial hearing on remand, without oral testimony, on remand on July 9, 2020. The record was then held open for additional written submittals as follows:

July 16, 2020	Additional evidence and argument
July 23, 2020	Rebuttal to July 16 submissions
July 30, 2020	Applicant's final written argument

The Board then deliberated and reached its decision on August 6, 2020, finding as follows:

III. Findings of Fact

A. Impacts of Windborne Litter upon the McPhillips Farm

McPhillips Farm (the "farm") is adjacent to the landfill. The significant changes in accepted farm practices and significant increases in the costs of those practices resulting from landfill litter being deposited upon the farm have been identified as recurrent problems throughout these proceedings. In describing the outcome of the first round, LUBA stated:

In *Stop the Dump Coalition v. Yamhill County*, 72 Or LUBA 341, 367-72 (2015) (*SDC I*) we explained the impacts on accepted farm practices on the McPhillips farm in some detail. We sustained two assignments of error in part concerning ORS 215.296(1).

SDC, LUBA No. 2016-026 (Final Opinion and Order, May 20, 2019) slip op 4 n 2.

In the second round, after LUBA's initial remand and the applicant's successful effort to impose mitigating conditions upon the farm itself, LUBA held:

As discussed above, we have affirmed the county's conclusions that individual impacts, as conditioned, are insignificant. In some cases, our affirmance rested heavily or entirely on the conditions that were imposed. Indeed, in addressing litter impacts on the McPhillips farm, we concluded that it was a close question, even considering the imposition of conditions. * * *

SDC, 74 Or LUBA at 37.

Thereafter, the Supreme Court of Oregon struck the offending conditions. The effect of the Court's ruling was summarized by LUBA as follows:

The Supreme Court also agreed with petitioners that condition 25 [ordering litter patrols on the farm] did not have the effect of ameliorating in any way the impact on the McPhillips farm from having to conduct litter patrol and waste cleanup, because the accepted farm practices on the McPhillips farm will be changed by having to conduct litter patrols "[r]egardless of whether McPhillips or Riverbend pays[.]" 364 Or at 462. The Supreme Court remanded to LUBA to reconsider "whether the county correctly determined that the change in accepted farm practices was not substantial before it remands to the county." *Id.*

* * * The second question we must answer here is whether condition 24, requiring Riverbend to install an additional litter fence between the working face of the landfill and the McPhillips farm, is sufficient without condition 25 to make the changes to accepted farm practices on the McPhillips farm not "significant."

SDC, LUBA No. 2016-026 (Final Opinion and Order, May 20, 2019) slip op 6.

LUBA held:

We now conclude, based on the evidence discussed in *SDC II*, that condition 24 requiring installation of a second fence between the working face of the landfill and the McPhillips farm is not a sufficient basis in itself to conclude that the need for litter patrols and other measures has been reduced below the level of significance. A reasonable decision maker could not conclude that even after implementation of condition 24, landfill litter would not cause a significant change in accepted farm practices on the McPhillips property, because there is no quantification in the record of how effective the existing fence is at intercepting landfill trash.

Id. at 9-10. (Emphasis added.)

Indeed, the record is clear that whatever the benefits of the first litter fence (if any), large amounts of litter from the landfill made their way onto the farm and, as LUBA has itself found, resulted in significant changes in accepted farm practices and significant increases in the costs of those practices for McPhillips. Thus, there was no way to determine what benefits, if any, might result from the imposition of the condition requiring a second litter fence. We also find that, based upon the materials submitted into this record on remand, we have still not seen such a calculation.

Instead, Riverbend has submitted a novel fencing concept along with other practices which it asserts will reduce litter impacts upon the farm to a point at which changes in accepted farm practices and increases in the costs of those practices on the farm will be insignificant. It contends that a condition of approval mandating this concept will be sufficient to produce compliance with ORS 215.296.

Testimony of McPhillips and Other Farmers on Remand

Ramsey McPhillips

Topographical evidence in the record shows that the McPhillips farm lies at a lower elevation than the landfill, including the proposed expansion areas. We note here certain of the evidence set out in Mr. McPhillips's letter of July 7, 2020:

Litter blows off the face of the landfill onto McPhillips Farms. Applicant's Site Design Review Application, November 5, 2014, Atlas p.7 shows that during April-August, which precedes and continues through haying season, prevailing winds blow directly over the dump and the proposed expansion area through the McPhillips farm.

No "litter fence" or series of litter fences could be high enough to reach the heights at which litter from the dump blows up into the air before landing on my fields; much of the litter is so light that its travel with the wind is essentially unrestricted.

While the existing litter fence may intercept some garbage, its effect is not detectable or helpful on my farm. The quantities of trash that land on my fields continue to significantly impact my farm operation. Perhaps the situation could be worse, but it is already so bad that one wonders how much worse it could be.

Thus, Mr. McPhillips documents that even with the currently quite low amounts of garbage coming to the landfill, he still finds landfill trash in his fields and it still effects significant changes in his accepted farm practices. An expanded landfill receiving 300,000 tons of putrescible waste a year will spread even more plastic waste onto his property.

While not essential to this portion of our findings, we note that in his letter, Mr. McPhillips also notes other sources of landfill garbage which independently cause significant changes in accepted farm practices and significant increases in the costs of those practices. These are (1) litter washed up due to periodic flooding around the landfill; (2) litter that is transported by seagulls, crows and ravens that pick up trash on the working face of landfill and then fly to the farm, where they pick it apart to extract bits of food from plastic bags; and (3) litter flying off garbage trucks and borne by the wind onto the farm's fields.

Sam Sweeney

Farmer Sam Sweeney wrote on July 1, 2020:

Litter, including plastic of any type in hay or straw fields can be a problem on farms that produces hay or straw. Since the McPhillips farm is adjacent and downwind from the landfill; this would be a large problem and add significantly to the cost of production of hay or straw.

- The normal prevailing westerly wind flows at the Landfill can pick up litter when the trucks are dumping, and the covering processes of garbage are being conducted blowing the litter on to the adjacent McPhillips farm's hay fields.

The litter would need to be picked up before the hay grows taller hiding the litter. Picking up all of the litter, which needs to be done on a routine basis would significantly increase the cost of producing hay.

Furthermore, If the litter is undetected and not removed, it can get caught in the baler and jam the needles and tying mechanisms. When this happens the baling, operation has to stop and clear the problem.

If a part of the baler is broken, it requires a trip to town to order a replacement part that may take days to be delivered. This significantly adds to the cost of hay production. All it takes is one small piece of litter to cause this to happen!

- The other problem with litter in a hay field is even more serious and has negative consequences for not only the McPhillips hay farm, but all Yamhill County hay farms and all Oregon hay farms.

Oregon has a reputation of producing high quality hay. If Oregon's reputation is damaged due to litter in hay, the market can be lost which results in the loss of significant income for all hay farms in Oregon. * * *

Dave and Doris Cruickshank

On July 8, 2020, farmers Dave and Doris Cruickshank wrote:

If litter does blow into a hayfield that is ready for harvest, it is very difficult to remove. It requires walking through forage that is waist high while looking for materials that can damage machinery as well as become embedded in the baled

forage. Should a plastic bag blow into a field, it can wrap around machine parts, requiring costly repairs and time delays. Plastic will DESTROY bearings on machinery. These time delays significantly impact farming costs, especially when harvesting a time-sensitive crop. Dealing with litter that causes the above problems would have a significantly negative economic impact on farming operations.

Clarke Ellingson

On July 8, 2020, farmer Clarke Ellingson emailed these comments:

In 2016, I submitted a letter to this Board describing an incident that occurred in 2015 regarding a hay crop I had purchased from a field adjacent to the landfill. A copy of my 2016 letter is attached. I have also attached a map of the area around Riverbend Landfill on which I have marked the field I had purchased. You can see that it is right next to property owned by the landfill.

As described in my 2016 letter, that particular field was full of trash, including plastic bags and even a toy doll's head. We couldn't sell this hay to our customers, causing us to lose a substantial amount of money.

The only way so much trash could have gotten spread around the field like that is if it blew there off the landfill. Based on the litter I found in the field I hayed, I don't see how adding another litter fence on the dump could keep litter from blowing onto the McPhillips farm or other land adjacent to the landfill. I've watched trash blow from trucks while they are dumping on top of the landfill. Much of the trash is extremely light and can fly high enough to blow away from the landfill onto surrounding fields. No fence is going to be high enough to catch it.

The field I hayed in 2015 was Alfalfa and I was cutting it the first time for the year. I believe the trash accumulated over the winter and the alfalfa grew up over it. It wasn't noticeable until I cut it. Once I cut it I felt it was my duty to finish the job. So I was stuck with it. That's the way it works when you purchase standing hay. Other fields that I have hayed, including my own, that are located farther from the landfill have never had a problem with trash. Picking trash out of my hay fields is definitely not something I am accustomed to doing.

The map submitted by Mr. Ellingson shows that the heavily littered hayfield is adjacent to McPhillips Farm, and is incorporated into our findings.

Paul Kuehne (Creekside Farms)

In his letter of July 15, 2020, Mr. Kuehne stated:

Creekside Farms has leased a portion of the McPhillips Farms ground for over 8 years. We are growing grass seed alongside Ramsey McPhillips' sheep, goat, poultry and hay operation. I have reviewed the Landfill's submission request to expand their landfill and I find that the problems related to the blowing litter problem on the fields I rent will continue unabated even with their latest litter control plans.

Plastic bags from the landfill in the fields is a big problem. The amount of plastic landing on the grass seed fields is much higher on the McPhillips Farms fields than on any of my other owned and rented farms. A lot of the litter, mostly plastic bags, in the McPhillips Farms fields comes off the garbage hauling traffic passing through on Highway 18 on its way to and from the dump. I know it because I see it. The landfill fencing has no bearing on this litter source. Due to proximity to the landfill, the McPhillips fields are the pinch point of the funnel of traffic coming to unload at the Landfill. Waste Management's litter patrols on the highway do not pick up the litter that blows across the fields, only the trash in the roadside ditches where I do not farm.

Plastic bags and other garbage can jam a baler or other equipment, causing costly repairs and delays. My straw bales go to Asia and if plastic is found in a bale I do not get paid for that bale. Ramsey and his workers must regularly comb the fields I farm for plastic, to keep plastic from jamming my equipment and so that I do not have straw bales refused in the Asian markets. It's a lot of extra work and extra expense to make sure that does not happen, and it is not a practice I have to carry out anywhere else I farm in Yamhill County.

Marilyn Walster

On July 7, 2020, Ms. Walster wrote:

We produce hay west of Yamhill (about 55-60 tons annually). I previously submitted testimony in 2016 on the impacts of litter in hay fields and that testimony is reattached.

To summarize my previous testimony, some years we'll find a piece or two of garbage in one of our hay fields and have to pick it up. Many years we don't find any. Producing and harvesting hay without patrolling for litter is an accepted

farm practice in Yamhill County. Such patrolling is not an accepted and common farm practice here. Patrolling for garbage before baling would obviously not work since plastic bags get wet, get shredded, degrade in sunshine, and become very small pieces very quickly. Patrolling for what's still visible prior to swathing when the hay is three feet tall in the field simply won't work because the grass is too high.

In 2016, a previous Board of Commissioners chose to willfully twist and misinterpret what I had stated to conclude that picking up garbage out of hay fields does not represent a significant change or significantly increased cost in hay farm practices. As the Land Use Board of Appeals stated:

"No reasonable decision-maker would conclude, as the county does... , that the Walster letter conflicts with McPhillips' testimony regarding the impacts of litter on hay operations, or rely on the Walster letter to support the ultimate conclusion that the county draws."

Let me be crystal clear:

Patrolling for any amount of litter or garbage would be a significant change in hay farm practices.

Patrolling for litter or garbage prior to baling would not work because the grass is too high.

Any amount of litter in a hay field at harvest time would cause a significant impact because a single plastic bag or other piece of garbage can jam a piece of equipment, necessitating expensive repairs. Even if only time is lost, if you're racing weather and the hay isn't baled and off the field before it rains, the crop will be severely devalued or even lost entirely.

Based upon the testimony of Mr. McPhillips, Mr. Kuehne, Marilyn Walster, and other farmers, we find that the accepted farm practice for hay farmers is to grow, harvest and sell hay without the need to remove garbage, including plastic debris. Based upon the testimony of Mr. McPhillips and the other farmers discussed above, we find that even very small-Riverbend's so-called "minimal"-amounts of trash, especially plastic, which are borne onto McPhillips' hayfield, can, do and will force a significant change in accepted farm practices on his farm adjacent to the landfill, or significantly increase the cost of accepted farm practices on that farm, or both. As LUBA has held, the issue here is not the volume of litter which escapes, but the significance of the impacts in the form of changes to accepted farm practices.

Jordan Bacon (in support of the application)

Mr. Bacon operates a farm adjacent to the landfill. He wrote in support of the application, stating that “farmers claiming trash in their fields, hay markets ruined, and fruit crops being damaged” are incorrect. He inferred that those farmers were not truthful.

On July 23, 2020, Brian Doyle wrote in response to Mr. Bacon. Mr. Doyle served on the county's Solid Waste Advisory Committee from 1999 to 2010 and on Waste Management's Stewardship Committee from 2012 to 2016. He states that Mr. Bacon farms hazelnuts on land leased from Waste Management (Riverbend), and that his comments are not objective. Indeed, he states that a “condition of the lease to Jordan (and any other farmer who leased land from Waste Management)” requires that they not actively oppose the operation of the landfill. We find that Mr. Bacon's ongoing economic relationship with the applicant undermines his testimony.

Many farmers who lack Mr. Bacon's vested interest have written with respect to the direct litter impacts of the landfill. In addition to Mr. McPhillips, such testimony was provided by Paul Kuehne of Creekside Farms, Scott Bernards (via newspaper quote), Clarke Ellingson, and Jennifer Redmond-Noble. Their testimony was supported by Mary Anne Cooper (nee Nash) of the Oregon Farm Bureau (testified as to direct harm to member farms from litter), Peiper Sweeney (Yamhill County Farm Bureau), Dave Cruikshank, Sam Sweeney, Jamie Bansen, and Marilyn Walster.

We find the testimony regarding litter impacts submitted by farmers other than Mr. Bacon to be credible and persuasive.

Riverbend's Litter Control Concept

Riverbend terms its new proposal a “Comprehensive Litter Control Program (CLCP).” This would consist of the following elements:

- a. Site Operations designed to contain litter by minimizing the size of the working face and compacting material immediately upon disposal to prevent litter from becoming airborne;
- b. Three-part Fencing System that includes Primary Control Fencing (PCF), Secondary Control Fencing (SCF) and Final Control Fencing (FCF);
- c. Daily Litter Patrols by site personnel;

- d. Vehicle Tarping to ensure waste loads are properly contained;
 - e. Daily Cover Protocol using soil and/or impermeable tarps to hold waste in place and aid in odor control when the site is not operating;
 - f. Wind Monitoring using an on-site weather station;
 - g. High Wind Alert triggered by Beaufort number presented in Table 1;
- and
- h. Directional Wind Alert triggered by Beaufort number and wind direction.

The Primary Control Fencing will ostensibly be moved as soon as prevailing wind direction and magnitude change. The Secondary Control Fencing, including four-foot plastic safety fencing, is to be reviewed weekly. If litter is getting past it, it is to be picked up by "laborers" and additional secondary fencing may be added. Permanently installed "Final Control Fencing" 20-50 feet tall at the perimeter of the site will ostensibly stop any litter which gets past the other fences. The latter fencing is to be inspected once a month and tears are to be repaired within five working days of detection.

We will now evaluate the applicant's proposal as set out before us. In so doing, we bear in mind that the adoption of critical conditions of approval is a serious matter. It requires reasonable certainty (1) that the conditions will be truly effective in achieving compliance with the approval standards, and (2) that the applicant is reasonably certain to fully comply with the conditions we impose. Any conditions imposed must be "clear and objective" and meet the requirements of ORS 197.296 and the Yamhill County Zoning Ordinance. We have only this one opportunity to impose those conditions, must take into consideration all likely conflicts, and must strongly consider Oregon law on the subject, including statutes, goals and rules, as set out in the Oregon Supreme Court's decision in *SDC*. We address these considerations below.

- 1. Will the proposed measures reduce litter impacts on McPhillips Farm to a point at which changes in accepted farm practices and increases in the costs of those practices on the farm will be insignificant?**

Riverbend has submitted a technical memorandum in support of its proposed litter control measures from CSA Planning ("CSA"). CSA in turn obtained a technical memo from Blue Ridge Services ("BRS"), and provided four "relevant literature articles" relating to windblown litter. We have reviewed all of the applicant's submittals,

including the materials prepared or otherwise submitted by CSA, and the rebuttal materials filed on July 23, 2020, and find as follows.

Despite the applicant's assertion that it has "data to prove" its assertions, it is clear from a review of CSA's technical memo that these assertions are primarily based upon unrepresentative, selective data and conjecture. CSA presents a wind study by Jay Harland and attachments as follows:

1. Bolton, Neal. "Litter Control at Landfills: Think Close." MSW Management, April 15, 2014.
2. Martel, Christopher M. P.E. and Helm Robert J. "Prevention, Control and Collection: Techniques for Managing Landfill Litter." Waste Management World
3. NEPC Service Corporation. "Guidelines for Management of Plastic Bag Litter at Landfill Sites."
4. Bolton, Neal. "Landfill Manager's Notebook: Engineering Your Litter Control Efforts: Part 1" MSW Management, December 9, 2019
5. Blue Ridge Services, Inc. ("BRS") Technical Memo, "Modified Beaufort Wind Table with MSW Categories and Estimated Litter Migration Impacts."

The BRS memo relies heavily upon anecdotes rather than data to assign various categories of garbage to wind speeds at which they will migrate. BRS states that it provided "anecdotal modifications to a standard Beaufort wind table * * * [that] relied heavily on our anecdotal experience to summarize the estimated litter migration." What BRS acknowledges as anecdotal, Riverbend's attorney and consultant call quantitative data. That characterization does not make it so.

For example, BRS's "anecdotal modification" states that 8-12 miles per hour (the speed at which "flags are extended out") is the wind speed that can steadily move plastic bags and plastic film. However, this is inconsistent with the Bolton and NEPC articles.

Indeed BRS, which consults at landfills throughout North America, states that no solid research has been done on the question of landfills, wind and litter, or if it has been, they could not locate it.

The Bolton article, "Litter Control at Landfills: Think Close," states that "plastic shopping bags or dry-cleaner plastic bags, require very little wind and can move considerable distance when wind is almost imperceptible" (speeds of 4 miles per hour),

while the NEPC article, "Guidelines for Management of Plastic Bag Litter at Landfill Sites," states that "plastic bags are particularly prone to becoming litter due to their low weight and ability to 'balloon' and travel in wind."

Bolton states:

In simple terms, two things are required for litter to blow: wind and debris. Some things, such as plastic shopping bags or dry-cleaner plastic bags, require very little wind and can move considerable distance when wind is almost imperceptible. But as the wind velocity increases, a greater volume and range of materials will blow.

What's more, as the length distance from the sources increases, the disbursement of litter broadens into an ever-widening downwind fan.

Thus, as the working face of the landfill is directed further from the McPhillips Farm, it is possible that litter impacts may actually increase.

Bolton also wrote the following, final paragraph of his "Landfill Manager's Notebook: Engineering Your Litter Control Efforts":

One final note: we fully acknowledge that not all litter can be prevented. If you have waste and you are outdoors, you are going to have some litter.

As has been shown throughout the various iterations of this case, even a very small amount of litter in his fields can force upon McPhillips significant changes in accepted farm practices and significant increases in the costs of those practices.

For the following reasons, we find that the on-site measurements and "data collection" in Harland's memo are insufficient to support the applicant's conclusions. Rather than examining wind speed throughout the year, every reading was taken during just six days in the second half of April, 2020. (See Table 2 of Harland memo.) None of his readings record wind direction. There are no indications at all as to whether observations were made upwind or downwind of the working face of the landfill, or at what distance from the working face, or whether or not active garbage tipping was occurring. Many of the readings in the table were made in the same minute at the same location with the same result.

Unlike those highly limited April readings, the much more comprehensive NOAA data provided in Margaret Cross's letter of July 16, 2020, discussed below, shows that in winter months, steady winds can and do exceed 30 mph, and wind gusts reach 45 mph.

We find that Riverbend's "wind study" does not provide a sufficient basis from which we can draw the determinations we are asked to make. We find instead that what has been presented is highly selective data to support the applicant's desired conclusions. Based upon a close reading of what has been submitted, those conclusions are unmerited.

We also find that the applicant's submittals as to wind are inadequate because:

(1) The proposed remedial actions are only triggered in response to average sustained winds that exceed thresholds for a duration of 15 minutes. Wind gusts and brief winds that are strong enough to carry litter to McPhillips Farm will not trigger a response under the CLCP. Winds that exceed thresholds for seven out of 15 minutes will not trigger a response under the CLCP.

(2) Threshold wind speeds for proposed remedial actions are too high. Over 95 percent of the wind speeds in the wind study exceed 4 mph, speeds that will move plastic bags a considerable distance, according to Bolton. Over 65 percent exceeded 7.5 mph, speeds that will steadily move plastic bags according to BRS.

(3) When average wind speeds reach 18 mph, dumping is supposed to cease. However, Riverbend will not be calling all the trucks that are en route to the landfill and tell the drivers to turn around. Moreover, those trucks and their drivers cannot reasonably be expected to park and stay at the landfill overnight if the wind does not die down.

(4) When average wind speeds reach 13 mph, and litter escapes the primary fencing, litter control relies in part upon the ability to contract for temporary labor to prevent litter from escaping. It is not feasible to rely upon the availability of such labor on the extremely short notice which would be provided here. Are teams to be held in full-time reserve in holding areas around McMinnville? We find that it is unreasonable to contend that timely mitigation can be effected in this manner. We also find that adopting a condition of approval incorporating this process would be highly unlikely to produce the necessary result.

(5) When wind speeds average 4 mph or greater, which is nearly always the case, fencing around the working face is to be moved with loaders and bulldozers in response to shifts in wind direction. However, we find it highly unlikely that Riverbend will consistently reposition fencing around the working face in response to 15-minute wind speed averaging. Even if Riverbend could feasibly do so, we find that winds are often variable and change direction—always without advance notice—and are at times swirling and gusting unpredictably, carrying plastic and paper aloft beyond the ability of any fence to control.

(6) While Riverbend may be able to successfully order its own (Waste Management's) trucks to be tarped/covered going to and coming from the landfill, Riverbend's instructions will not necessarily meet with compliance by owners and operators of other trucks unloading waste there. Waste Management is far from the only user of the landfill.

(7) Even if loads are covered, garbage is necessarily uncovered for a time when it is dumped out by the trucks in question.

We also note that the applicant's study was based upon limited annual tonnage dumped—currently 60,000-70,000 tons as opposed to an earlier peak of 650,000-700,000 tons, and the 300,000 tons expected if this expansion is approved. We also do not find to be credible Riverbend's assertion that supermarket plastic bag bans will nearly eliminate plastic bags and other blowing plastic waste. Flight-worthy plastic has many sources and will be with us for decades to come. The evidence shows that wind direction changes without notice and the wind at times gusts and swirls. Moving the working face further from McPhillips Farm will not prevent the wind from carrying plastic there if the wind is right. Instead, lighter items may well have an even better angle for flying over the proposed fencing.

Opponents have also submitted detailed responses to Riverbend's proposal generally and, more specifically, to CSA's technical memo and related materials. Those responses considered in our decision are described below.

Responses to the Applicant's "Comprehensive Litter Control Plan"

Arnie Hollander Email of July 16, 2020

Mr. Hollander states as follows:

For the last 20 years I have lived in the vicinity of the landfill. We see the landfill from our home. I drive by the landfill when I go in to McMinnville or head north on Highway 18. I also take my garbage to the landfill. From my experience living in this area and seeing and using the landfill I know that Waste Management is not accurate in stating that all airborne debris will be caught by the proposed fencing and be prevented from getting onto the McPhillips farm.

Here is why:

1. Winds in this area blow from multiple directions and with varying velocities. On many days, both wind direction and velocity change frequently and without warning. I have seen plastic bags and paper swirling up in the air and being deposited on to the McPhillips farm AND onto lands south and west of the landfill. No fence will stop this from happening.

2. I have seen plastic bags fly off of garbage trucks that are headed to the landfill and even after they have left the landfill. These bags land on adjoining farms, including McPhillips.

3. Three weeks ago I went to the landfill with my garbage. My truck had a cover over my garbage. The other 5 trucks at the garbage drop-off area did NOT have covers over their garbage Debris from those trucks could have blown off on to local farms, just as I have seen it blow off of other trucks.

4. Lastly, I understand that Riverbend will assign staff to patrol the fencing when the winds blow strongly. Well, what about at night? Effective patrolling is not possible in the dark. Winds blow at all hours of the day and thus patrols would be needed 24/7. * * *

From the above, I find that it is impossible for the proposed fencing to fully control airborne plastic and paper. As long as the landfill is in existence, neighboring farms will have to remove plastic and paper that comes from the landfill and from vehicles going to and from the landfill.

We find Mr. Hollander's eyewitness testimony to be credible and persuasive as to the effects of variable winds and the nature of the windborne garbage at the landfill, and the infeasibility of the applicant's plan to prevent windborne plastic from being deposited upon the McPhillips farm.

Margaret (Maggie) Cross letter of July 16, 2020

Inclusive of exhibits, Ms. Cross's letter comprises 108 pages. We will set out some of her most pertinent testimony in detail here, but have also closely reviewed the remainder. We note that unlike the limited data produced by Riverbend's consultants, Ms. Cross supplies a full set of official NOAA wind data from the nearby McMinnville Airport for the *same* days in April 2020, as well as for the entire period between January 1, 2019 and June 30, 2020. We have examined and considered that data. Ms. Cross also points out:

CSA appropriately scoured the literature to find what information existed about measuring wind and litter at landfills. They didn't find much, but what they did find all agreed on one premise: wind and landfills result in litter. They then asked Blue Ridge Services in Montana to dig deeper. The results were dismal, but in summary, the four articles appended to the Technical Memorandum agree that wind and landfills result in litter. * * *

As Ms. Cross points out, Blue Ridge Services consults at landfills throughout North America. BRS concludes that no solid research has been done on the question of landfills, wind and litter or, if it has been, they cannot locate it.

Ms. Cross also states:

High wind gusts are perhaps the most pesky problem at landfills vis-à-vis litter along with variable speed and directionality. Winds can do a 180 on a matter of seconds and kick up from 8 mph to 25. These intense blasts - often associated with shifting winds - can take litter airborne instantly and disburse it far afield. Fences are useless because this is random, variable wind behavior that cannot be predicted. To state the obvious, a steady, predictable wind flowing in one direction makes it possible to contain and trap litter reasonably effectively. However, this is not how winds at Riverbend behave as their own limited data shows and the NOAA data confirms. However, gusts are only discussed in two sentences on page 9 of the Technical Memorandum.

* * *

. Without consistent sampling at consistent locations over the course of a year you cannot reach any conclusions; all you have is random data for a six-day period. If you consider the wind graphs (Attachment 4) from NOAA for the days of the study, you will notice the following:

April 13: at 6:00 a.m. the wind is from the N
6:30 a.m. the wind is from the NW
7:00 a.m. the wind is from the SW
8:30 a.m. the wind is from the N where it stays until
4:00 p.m. when it shifts abruptly to blow from the SE
5:00 p.m. the wind is from the N

April 16: at 6:00 a.m. the wind is from the WNW
7:00 a.m. the wind is from the N
8:00 a.m. the wind is from the NW
9:00 a.m. the wind is from the NE where it stays

April 17: at 6:00 a.m. the wind is from the NNW
8:00 a.m. the wind is from the N
12:00 noon the wind is from the NNW
1:00 p.m. the wind is from the NE
2:00 p.m. the wind is from the N
4:00 - 5:00 wind shifts to come from the SW

April 20: at 6:00 a.m. the wind is from the N until
1:00 p.m. when shift abruptly to blow from the S
2:00 p.m. shifts back to blow from due N
5:00 p.m. shift to blow from SW

April 28: at 6:00 wind blows from W (slightly from NW)
7:00 a.m. wind blows from W (slightly from) SW
8:00 a.m. wind blows from SW
9:00 a.m. wind blows from N and stays there until
4:00 p.m. blows from the E (slightly from NE)
5:00 p.m. blows from the N

April 29: at 6:00 a.m, wind blows from N, shifts to blowing due E and quickly returns to blowing from N again until
11:00 a.m. the wind blows from S, shifting toward the NE,
5:00 p.m. when it shifts to blow from the SW

April 30: at 6:00 a.m. wind is blowing from the N, shifts to blow from the W then from then until
11:00 a.m. when blows from the S, shifting by
12:00 noon to blow strongly from the SW to NE, where it remains until
2:00 p.m. when the wind shifts to blow from the W until
3:00 p.m. when it blows from the WSW

I repeat that this is NOAA data. According [to] the CSA memorandum, Riverbend SCADA data could provide this level of detail as well, although the intervals are longer than at the airport. However, they [did not], so we have to rely

on the NOAA data. This information matters when we get to the CLCP because there is no way that portable fencing can address this problem of variability.

Ms. Cross relies upon official government data which she presents straightforwardly. She also relies upon the words of Riverbend's own consultants. We find that the doubts she has raised concerning the adequacy of the data submitted by the applicant and its consultants, and the feasibility of achieving the requisite compliance with ORS 215.296 by means of the CLCP, to be credible and persuasive. In turn, we are not persuaded by the applicant's submittals.

We have identified further contradictions in the applicant's materials. Although Riverbend argues that the CLCP's movable fence proposal will reduce litter to as little as one piece during the year, its actual evidence concedes that, "[t]here is always going to be blown litter outside the active face." ("Prevention, Control and Collection," Christopher M. Martel, Waste Management World, December 6, 2004); "When the wind blows, litter goes with it . . ." ("Landfill Manager's Notebook: Engineering Your Litter Control Efforts, Part 1," Municipal Solid Waste, December 9, 2019). According to the sources submitted by Riverbend, "[s]light changes in wind direction will require that screens be relocated or additional screens be involved," ("Landfill Manager's Notebook: Engineering Your Litter Control Efforts, Part 1," Municipal Solid Waste, December 9, 2019). The CLCP does not resolve the problem of dealing with such slight changes in wind direction, especially given changing wind intensities and the multiple potential sources of litter in the landfill.

Additionally, we note the analyses of flaws in the applicant's CLCP contained in (1) the letter from Friends of Yamhill County dated July 16, 2020, at 4-5, and (2) the letter of Brian Doyle, P.E., dated July 16, 2020, especially with respect to small-scale wind events, and the impacts of topography which the applicant and its consultant have failed to address. These analyses further demonstrate the applicant's failure to meet its burden of proof herein.

The Applicant's Rebuttal Materials Regarding Wind

On July 23, 2020, Riverbend submitted additional materials relating to wind in support of its CLCP. These included the following:

1. Two charts graphing wind speeds in February 2020, from data collected at (a) the McMinnville airport (NOAA Automated Surface Observing System- "ASOS") station and (b) the anemometer at the landfill (SCADA). These have differing display parameters, although the overall patterns, including wind spikes) are similar.

2. Month by month averaged wind roses from MESOnet (Iowa State) showing combined NOAA ASOS data from 1997 to 2019 (with the bulk of the data from 1997 to 2018). These are useful for showing directionality by month and degree ranges by month. They also show that the number of high wind events are fewer than the low to moderate events, but are not at all helpful in determining the frequency of gusts and wind shifts on-site on a daily basis. Exhibit 1 gives a better idea of the variability of wind speeds, but has only one month's worth of data.

3. The ASOS user guide.

4. All ASOS recordings from the McMinnville airport from January 31 to February 29, 2020.

We have reviewed these materials and also find them to be unpersuasive in terms of the ability and likelihood of the CLCP to adequately mitigate windborne litter impacts upon the McPhillips farm. For example, we note that there were 159 wind gusts at the McMinnville airport in February, 2020, including 151 exceeding 18 mph. This is more than five per day, but none of these would have triggered remedial action under the CLCP.

There were also 24 five-minute periods with sustained average winds exceeding 18 mph. These occurred nearly daily, but none of those events would have triggered a reaction under the CLCP, because in none of these periods did the wind average over 18 mph for 15 minutes or more.

We also observe the following flaws in the materials provided to us:

- The data submitted is quite general, based upon averaging.
- Averaging 24-hour wind speeds skews the outcomes as night time conditions are usually calm. Detailed measurements are needed during the daytime hours of operation when the wind tends to blow at higher speeds and when garbage is being transported, dumped, moved and graded.
- One month (February, 2020) of graphing wind data is inadequate.
- The applicant distinguishes dry litter from wet litter that ends up in the river. This distinction is irrelevant. Mr. McPhillips has documented the significant impacts of both types of litter upon his farm and accepted farm practices.

- Wind roses, whether representing two or twenty years, do not provide granular data. For the purpose providing site-specific data, they are of use only to show seasonal directional wind patterns and wind speed averages.
- The directional ranges shown by the applicant's wind roses support Mr. McPhillips's observation that his farm location is particularly vulnerable to litter carried downwind from the landfill.
- Using five-minute wind gust algorithms to average out wind speeds understates the problem of brief, intense gusts that tend to create airborne litter which is widely dispersed downwind in fan-shaped patterns by higher elevation thermals.
- Wind gusts and high winds sustained over five minutes can carry plastic bags and other litter to the McPhillips Farm and other farms, even if such winds are not sustained over 15 minutes.
- The 80 snapshot measurements on site were so limited in scope as to be nearly useless, although they do show alarming, rapid variabilities in speed and direction. The applicant and CSA made no attempt in their rebuttal to rectify or defend this flaw in their study. The applicant and CSA have not performed detailed, longitudinal studies on site. Without site-specific, granular data collected over time using valid methodologies, they lack a database upon which could reasonably and feasibly develop an effective, truly comprehensive litter control plan.

We thus find again that the applicant has not met its burden of proving by credible and persuasive evidence that its CLCP will achieve the necessary compliance with ORS 215.296 with respect to windborne litter and the McPhillips farm.

2. If the Application Were to Be Approved with the Proposed Condition of Approval, Could the Applicant Be Relied Upon to Faithfully and Effectively Carry It Out?

This portion of our discussion is not essential to our decision, as we would come to the same conclusion without going further. However, these points are still worth addressing for the record.

First, the CLCP presents an extraordinarily complex plan, requiring nimble execution and the successful training of generations of employees and independent contractors for the 12-60 years of proposed additional life of the landfill. We simply do not believe it reasonable or feasible that such execution and training could be carried out to the extent required to achieve compliance with ORS 215.296 as to the McPhillips farm.

Next, if Riverbend wanted to achieve the neighborliness it claims to seek, it could have done so long ago. It could have activated conditions previously adopted by this Board, and implemented the new condition proposed here. It has not done so.

With respect to our ability to rely upon the applicant's commitments, we note documentation from the U.S. Environmental Protection Agency describing ongoing major problems with methane emissions at the Riverbend landfill. The record contains a 15-page Notice of Violation to Riverbend, dated January 27, 2020, setting out violations of the Clean Air Act from 2015 onward in the following categories:

1. Failure to Conduct Compliant Surface Emission Monitoring,
2. Failure to Ensure Monthly Cover Integrity,
3. Failure to Comply with Good Air Pollution Control Practices,
4. Failure to Monitor Well RVBD210 on a Monthly Basis.

This is the first time those violations have come to our attention. Now that they have, Riverbend has told us that they are confidential and should not have seen the light of day. None of this enhances our comfort level as to Riverbend's willingness to fully undertake compliance with its own proposed mitigation measures, whether or not it is in fact feasible to carry those measures out successfully.

CONCLUSION AS TO THE PROPOSED CLCP AND WINDBORNE LITTER ON McPHILLIPS FARM

We have fully reviewed the applicant's CLCP and supporting materials. We have also reviewed the testimony supplied by opponents, including detailed analysis based upon actual experience and observation, and upon substantially more complete data regarding area winds than that supplied by the applicant's consultants.

On the whole, we find the evidence and argument submitted by opponents to be more credible and persuasive. The applicant has simply not met its burden of proof. On the issue of windborne litter impacts of the application before us, even were the applicant's CLCP to be fully carried out, we find that the applicant's proposal would force significant changes in accepted farm practices on the McPhillips Farm and significant increases in the costs of those practices.

B. Impacts of Other Landfill-related Litter upon McPhillips Farm

The following discussion is not essential to our findings or our decision, but we will set it out nonetheless. The scope of LUBA's remand is not limited to the wind-carried litter discussed above. Rather, as we have noted, Mr. McPhillips provided evidence of additional, significant litter impacts as follows:

- (1) litter washed up due to periodic flooding around the landfill;
- (2) litter that is transported by seagulls, crows and ravens that pick up trash on the working face of landfill and then fly to the farm, where they pick it apart to extract bits of food from plastic bags; and
- (3) litter flying off garbage trucks onto the farm's fields.

We find Mr. McPhillips's testimony to be credible on these points. With respect to litter from flooding, it is supported by written testimony from Kari Smith. With respect to bird-carried litter, the applicant's current falconers, Christian and Sabrina Fox, stated in their email of July 9, 2020: "One of the problems caused by birds is the spread of waste to surrounding farmland by Gulls and Ravens."

Upon review of the record materials, including Mr. McPhillips's letter of July 7, 2020, we are persuaded that nuisance birds carry litter from the landfill to farm fields. Aside from the impacts of litter being left in those fields, landfill gulls do significant damage in rooting and grubbing on freshly planted grass fields. We have previously found that expanding Riverbend's falconry activity will eventually mitigate those impacts. However, as Riverbend's falconer has testified, the benefits will only accrue "in the long term." Accordingly, there will be some as yet unknowable period of time during which the McPhillips Farm (not to mention the grass seed growers) will endure significant changes in accepted farm practices and significant increases in the costs of those practices.

With respect to flood-borne garbage, the applicant's final argument of July 30, 2020, includes the contention that "as evidenced by the photos in the record, the areas of active filling will not occur where flood waters exist. Thus, there is no mechanism by which waste will make it to the river to be carried to the McPhillips Farm." Riverbend Final Argument at 4. We are not persuaded that this is the case. A photo in record dated December 22, 2014, clearly shows portions of proposed Module 11 under water. This photo was submitted as part of a letter from Friends of Yamhill County dated March 12, 2015, and again in this proceeding with Mr. McPhillips's letter of July 7, 2020.

In its final argument, Riverbend also contends that because the proposed modules will be further from the McPhillips farm, bird-borne garbage will decrease: "the opportunity for birds to carry full bags of waste as Mr. McPhillips suggest is even more unlikely over this distance." *Id.* However, the question here is not whether that litter will merely decrease. It is whether such landfill litter from those modules will continue to cause significant impacts upon McPhillips's accepted farm practices. The burden of proof in this regard is upon the applicant. We find that this burden has not been met.

Mr. McPhillips's testimony regarding the impacts of trash blown off or out of trucks going to or from the landfill is supported by the referenced comments of Scott Bernards.

In light of credible testimony from Mr. McPhillips, Marilyn Walster, and others regarding the impacts of even very small amounts of trash, especially plastic, upon farm practices in the production of crops such as hay and in the costs of those practices, we find that each of the above three impacts forces significant changes in McPhillips's farming practices and the cost of conducting those practices in its own right. They are also significant taken together, and taken in combination with the impacts of windborne landfill litter described at length above. Again, while not essential to our decision, they show that the applicant has not met its burden of proof, and form an independent basis for denial.

C. Cumulative Impacts upon McPhillips Farm

With respect to cumulative impacts generally, we note here that the applicant contends that the county's prior findings 136-141, relevant to the "cumulative impacts" issue on remand, were upheld by LUBA. We find that this is not the case. Instead, LUBA held:

Findings 136-41 represent the county's cumulative impacts analysis. FOYC argues that Findings 136-41 misconstrues the applicable law, and are inadequate and not supported by substantial evidence. We generally agree that the findings misconstrue the applicable law, and do not provide the kind of cumulative impacts analysis that *Von Lubken* requires.

Some of the findings are extraneous to any meaningful cumulative impacts analysis. [footnote omitted] Findings 139 and 140 are the only findings that attempt to evaluate cumulative impacts in the manner suggested by *Von Lubken*. Finding 139 notes, consistent with LUBA's *Von Lubken* decision, that each of the various alleged impacts are not necessarily additive or universal to all farms. * * *

In Finding 140, the county finds that, for properties where multiple impacts were alleged, the county has concluded that individual impacts are non-existent or do not rise to the level of significance, and the farmers who alleged multiple or cumulative impacts did "not explain how multiple insignificant impacts become significant when viewed cumulatively." [footnote omitted] FOYC argues, and we agree, that Finding 140, which is the only finding that purports to conduct any kind of cumulative impacts analysis at all, is deficient. First, Finding 140 mentions only the Frease farm, and does not discuss any of the other farms that alleged multiple impacts, including McPhillips, Redmond Noble, Double G Paints and Crescent Farms. Even then, Finding 140 does not actually evaluate the cumulative impacts of the two individual impacts identified on the Frease farm. Instead, Finding 140 faults the farmers involved for failure to explain how multiple impacts are cumulatively significant. As FOYC argues, this essentially shifts the burden of proof and explanation to the opponent/farmers. It is the applicant's burden to demonstrate that individual insignificant impacts are not cumulatively significant, and the county's responsibility to adopt findings that determine whether or not that burden has been met. Moreover, the county cannot simply recite that individual impacts, as conditioned, are insignificant, but must consider and determine whether individual insignificant impacts, some of which may be additive and some which may not be, are cumulatively significant with respect to each farm that alleged multiple impacts to their farm practices. The county's findings fail to make that determination.

As discussed above, we have affirmed the county's conclusions that individual impacts, as conditioned, are insignificant. In some cases, our affirmance rested heavily or entirely on the conditions that were imposed. Indeed, in addressing litter impacts on the McPhillips farm, we concluded that it was a close question, even considering the imposition of conditions. With respect to such impacts, we did not fully address or affirm the county's initial conclusions that even without conditions the impacts are insignificant. Therefore, on remand to correctly apply the cumulative impacts test, the county should not take as a given that all individual impacts are insignificant without conditions.

SDC, 74 Or LUBA 1, 35-37 (2016).

In his letter of July 7, 2020, Mr. McPhillips presents the following un rebutted statement of facts regarding impacts upon his farm :

In addition to the significant litter impacts that the garbage dump causes, the landfill also causes other impacts which are currently significant, including; (a) damage to newly seeded grass seed fields from gulls grubbing for worms; (b) impacts to pheasant-rearing from noise and falcons; (c) impacts to chickens from falcons.

- Even if these impacts could be individually reduced below a level of significance with conditions, taken together, they would still have a significant impact on my farm practices (including costs), especially when added to the litter impacts described above.

A) As I previously testified, we lose thousands of dollars a year in destroyed grass seed, especially in newly seeded fields. Other farmers who grow grass seed next to the landfill, including Paul Kuehne and Dave Kauer, have previously submitted similar testimony. Seagulls destroy young crops by rooting up the young grass starts as they look for worms, grubs and slugs. Large swaths of young grass seed plugs are destroyed each winter.

As LUBA stated:

"There is abundant testimony, and no apparent dispute, that nuisance birds as a whole presently cause significant changes in farm practices and significantly increase costs on nearby grass-seed farms."

LUBA also held that:

• "The intended effect of a more intensive falconry program is that, over time, the winter nuisance bird population in the area will drop to a level that will not be significantly greater than the population that would be present in the absence of the landfill. If Condition 22 in fact can fix that shortcoming, then the falconry program may be able to reduce nuisance bird populations attributable to the landfill to a level not significantly greater than would be present in the absence of the landfill, in the manner that the falconer predicted."

As WM's own falconer admits, the benefits of increased falconry would only appear "in the long term." Even if the falconer's self-serving prediction proves accurate, this forces me to endure continued significant impacts to my grass seed for unspecified duration of time before the increased falconry would be effective, based upon the opinion of WM's own expert. How many more

thousands of dollars of losses while waiting would the county deem to be insignificant?

Moreover, even if the falconry eventually reduces the number of dump gulls that grub in my grass seed for worms, that will only reduce my losses, not eliminate them. Even if these losses are eventually reduced to the point where on their own, they are no longer significant, when added together, all my impacts and losses will be continue to be cumulatively significant.

B) Until recently, I raised pheasants commercially as both meat birds and game birds. As I previously testified, and as other evidence already in the record demonstrates, pheasants are susceptible to noise and the back-up beepers used at the landfill terrorized my pheasants, causing injury and losses. In addition, falcons from the landfill falconry hunted and terrorized my pheasants and chickens. I have had to grant permission to the falconer to retrieve falcons that strayed to my property to hunt my pheasants and chickens.

The county had imposed conditions requiring the landfill to change its use of back-up beepers and requiring Riverbend to pay for netting over my pens. LUBA concluded that together, these conditions were sufficient to reduce the impact below a level of significance. (The second condition, requiring that Riverbend pay for falcon-proof netting, would seem to be the sort of cost-shifting condition that the Supreme Court said was inappropriate.)

I made the decision to abandon the pheasant operation after the last local hearings, after finding a falcon in one of my pheasant pens and after the landfill resumed its previous use of back-up beepers. I have suffered the loss of income that this aspect of my farm generated, but I cannot consider resuming it until the proposed expansion is off the table.

Even if the county considers this individual impact to pheasantry to be less than significant, when added together, all my impacts and losses will be continue to be cumulatively significant.

C) As I previously testified, falcons from the dump's falconry hunt my chickens. On at least two previous occasions, the falconer has come over to my farm asking for permission to retrieve his falcons, which I granted.

Since that previous testimony, a falcon from the landfill falconry killed one of my young, not fully grown chickens while it was in my fenced barnyard. The falcon had a tracking device on it and the landfill's falconer admitted that it was one of their birds.

Since then, I have had to keep my young chickens in the barn and out of the barnyard. Keeping chickens in a fenced outdoor pen where they can scratch for feed is an accepted farm practice. The landfill falcons have forced a change in this accepted farm practice.

The loss of a chicken to a falcon is somewhat analogous to the dogs in the field described by Representative Van Leeuwen and quoted approvingly by the Supreme Court in its decision that preceded this remand hearing.

"An unmeasurable cost that really gets into this situation is the activity associated with the dwelling if that person has a big dog, or even a little dog, and then they run out through your field a number of times, you can't really measure that cost, but you know there was a cost in shattered seed."

Even if the occasional loss of a chicken, or their loss of use of the barnyard was not deemed to be a significant impact on my farm practices, when added together, all my impacts and losses will continue to be cumulatively significant.²

Through its counsel, Riverbend argues that the "Board can find, however, that litter and bird impacts are not cumulative and, even if they are, that they remain insignificant." In letter of July 9, 2020, Mr. Brooks states:

First, there is no relationship between the impacts Mr. McPhillips alleges from litter and those he alleges from nuisance birds. For example, the alleged litter impact is that it forces Mr. McPhillips to change his haying practices during harvest by having to pick out litter from his baler. In contrast, the impact alleged

² We also note Mr. McPhillips's December 4, 2014 testimony in the initial record relating to this application, quoted by LUBA in its 2015 decision in *SDC*:

We have had to resort to placing hundreds of 8-foot tall stakes adorned with shimmering streamers to ward off the birds. These stakes work for the migratory geese but seem to have little affect on the gulls. We lose thousands of dollars a year in destroyed grass seed - especially in the years when we rotate in new seedling crops.

from nuisance birds is an increased cost of his grass seed operation as a result of gulls pulling up starts. There is nothing "additive" about a change in cost to one practice while planting and the change in a different practice while harvesting. These alleged impacts occur at different locations, at different times, and are of different natures (practice vs. cost).

In his closing argument filed July 30, 2020, Mr. Brooks states:

Second, Mr. McPhillips draws the simplistic conclusion that the presence of multiple individual impacts result in cumulative impacts when those impacts are considered together. But he never attempts to explain why this is. To the contrary, the impacts Mr. McPhillips alleges are not additive. For example, Mr. McPhillips explains that he experiences increased costs from purchasing new grass starts to replace grass destroyed by geese, but the alleged impact to his chickens is that he has to change his practice by keeping them in a covered building. Although Riverbend disputes there is any impact to Mr. McPhillips' grass seed operation from the landfill, any alleged increase in costs for grass seed simply has no relationship or impact to his chicken practices. That is, no matter how much Mr.

McPhillips spends on new grass starts, the change to his chicken practices is unaffected, and the two are not additive.

We explicitly reject the above reasoning. We return to LUBA's holding regarding cumulative impacts, set out above:

It is the applicant's burden to demonstrate that individual insignificant impacts are not cumulatively significant, and the county's responsibility to adopt findings that determine whether or not that burden has been met. Moreover, the county cannot simply recite that individual impacts, as conditioned, are insignificant, but must consider and determine whether individual insignificant impacts, *some of which may be additive and some which may not be, are cumulatively significant* with respect to each farm that alleged multiple impacts to their farm practices.

(Emphasis added.)

We find that the applicant has failed to adequately address the impacts described by Mr. McPhillips under this standard. It has, in effect, once again engaged in improper burden-shifting to an opposing party. Riverbend appears to double down on that burden-shifting when Mr. Brooks states:

Second, Mr. McPhillips draws the simplistic conclusion that the presence of multiple individual impacts result in cumulative impacts when those impacts are considered together. But he never attempts to explain why this is.

The burden for this analysis is upon the applicant, not Mr. McPhillips, and it has not been met.

D. Cumulative Impacts upon Jennifer Redmond-Noble Farm

Jennifer Redmond-Noble alleges six distinct adverse impacts upon her farm practices and the cost of conducting them. The record contains substantial evidence that at the Redmond-Noble Farm, the landfill causes (and its expansion will cause) the following impacts:

- (a) inability to pasture newborn lambs due to landfill crows;
- (b) increased lamb pneumonia and loss of lambs that cannot be pastured;
- (c) increased use and cost of antibiotics use to treat pneumonia;
- (d) increased feeding of hay to lambs and sheep to make up for less outdoor grazing; and
- (e) loss of planned farm stand and its income due to landfill odors; and
- (f) litter impacts to leased fields along Highway 18 from plastic bags blowing off garbage trucks.

Letters from Ms. Redmond-Noble in the current record summarize these multiple impacts to her farm and explain that even if these impacts could be individually reduced below a level of significance with conditions, taken together, they would still have a significant impact on her farm practices and the costs of conducting them.

We note also that while the impacts flowing from nuisance birds may be reduced “in the long term,” they will remain for an indeterminate period.

Finally, the DEQ odor study submitted by Ilsa Perse shows that the location of the planned farmstand is tied with a location on the landfill itself for the most dump odor detections of any of DEQ's sampling sites. This location had six times the number of odor detects as Mr. Bacon's farmstand location. (The location is location 16 on figure 4

of the DEQ study. Table 3 of the study shows that the location not only had many landfill odor detects, but that those odors were particular intense.

Accordingly, we find that the impacts described above will cumulatively force a significant change in Redmond-Noble's accepted farm practices and significantly increase the cost of those practices. Riverbend has not met its burden of proving otherwise.

E. Board Member Participation

At the Board's meeting on July 9, 2020, Commissioner Starrett read an email from a citizen suggesting specific grounds as to why Chair Kulla should recuse himself from this proceeding. Mr. Kulla refuted the "facts" asserted in that email, stating that they are simply not true.

In addition, Chair Kulla indicated a "potential conflict" because he is a farmer with concerns about development on EFU land and in the floodplain. However, Mr. Kulla's farm is not on the South Yamhill River or downstream from the landfill, and he suffers none of its ill effects. We thus find there is no potential conflict. No one challenged his participation following this disclosure.

During the Board's deliberations, Chair Kulla disclosed that his farm could be impacted by the loss of farmland at the applicant's site due to landfill expansion. Commissioner Olsen recalled that the McMinnville City Council voted to stop sending municipal waste to the landfill while he was a member. Both Chair Kulla and Commissioner Olsen stated that they would nonetheless decide this matter impartially based upon the record before them, and without conflict of interest, prejudice, or bias. We find that they have done so. *Columbia Riverkeeper v. Clatsop County*, 267 Or App 578 (2014).

In evaluating the evidence, we find no sufficient basis to determine that a conflict of interest such as to prevent any members (or all members) of the Board from hearing this matter under Oregon law is present.

IV. CONCLUSION

For each of the reasons set forth above, taken separately and together, the Board concludes that on the issues before us on remand from LUBA with respect to the proposed landfill expansion, the applicant has failed to meet its burden of proof under ORS 215.296 and YCZO 402.02(V).

You may have heard it said that it would be a **big climate impact** if Benton County's garbage went to the Columbia Ridge Landfill instead of Coffin Butte Landfill.

In fact, the opposite is true.

Taking our garbage to Coffin Butte causes 6x more climate damage than if it went to Columbia Ridge by truck.

And 8x more climate damage than if it went to Columbia Ridge by train.

This is because Coffin Butte leaks much more **landfill gas** than Columbia Ridge does, despite being a much smaller landfill. And landfill gas contains **methane**, which does much more climate damage than the carbon dioxide emitted in truck or train exhaust.

Climate damage is measured in **metric tons of carbon dioxide equivalent**, or “mtCO₂e.” Releasing one metric ton of carbon dioxide is **1** mtCO₂e. Releasing one metric ton of methane is **86** mtCO₂e.

This is because the ton of methane causes so much more global warming.

The people of Benton County would **do 82,000 mtCO₂e a year less climate damage** if they trucked their garbage to Columbia Ridge rather than Coffin Butte. **And cause 86,000 mtCO₂e less a year** if their garbage went by rail.

Similarly, the people of other counties could **do significantly less climate damage** if their trucks headed to Columbia Ridge (or the closest rail transfer station) rather than to Coffin Butte Landfill.

Now, buckle up, because I’m gonna take you through the numbers.

Let's establish each landfill's current greenhouse gas emissions per ton of garbage going in (its "climate damage rate"). Then we can see what happens to Benton County's garbage when we shift it from Coffin Butte Landfill to Columbia Ridge Landfill.

1. We want to find out **the climate damage rate** for each landfill, per ton of waste going into that landfill.
2. Then we can **apply that rate** to Benton County's waste, to see how much damage it causes by going into Coffin Butte, and how much it would cause if it were going into Columbia Ridge Landfill instead.
3. We have to **add a calculation for related factors**, namely the emissions for the increased truck or train miles to transport those tons of waste a greater distance, and to return.
4. And then we arrive at the surprising number that I gave you up front, that show how much **more climate damage** Benton County's garbage is doing in Coffin Butte Landfill than it would do in Columbia Ridge Landfill ("Arlington").

(To help us differentiate the two landfills more easily, from now on I'm going to call Columbia Ridge Landfill "Arlington," which is the nearest town.)

1. What is the climate damage rate for each landfill?

First, we start with an independent assessment of how much methane is leaking from each of the two landfills.¹

For Coffin Butte, this number is straightforward: it's currently **1.9 metric tons of methane leaking out per hour**.

For Arlington, it's almost as straightforward. Arlington is a big landfill, so it has multiple sources; we add them up to get the total for the landfill.

Arlington is currently leaking $0.346 + 0.140 + 0.19 + 0.97 =$
0.602 metric tons of methane leaking out per hour.

(Note that this isn't the total methane leaking from each landfill; each landfill has more methane leaking from sources too small to detect by satellite.)²

Next, we convert these per-hour numbers to per-year numbers by multiplying them by hours in a day (24) and days in a typical year (365):

Coffin Butte: $1.9 \times 24 \times 365 =$ **16,644 metric tons of methane leaked per year**
Arlington: $0.602 \times 24 \times 365 =$ **5,273 metric tons of methane leaked per year**

So now we have assessments of the annual methane leakage at each landfill. We want to convert them into figures that show the methane output per ton of garbage taken in by each landfill. To do that, we divide each number by the number of tons of garbage taken in per year for each landfill, using the annual intake volume that each landfill self-reported.

Coffin Butte: $16,644 / 1.05 \text{ million tons intake} =$ **0.01585 metric tons of methane leaked per ton of garbage taken in**

Arlington: $5,273 / 2.9 \text{ million tons intake} =$ **0.0018 metric tons of methane leaked per ton of garbage taken in**

These are the different rates of methane generation for the two landfills, per ton of garbage taken in that year.

Note that the garbage taken in didn't generate this methane – this year's methane is generated by garbage emplaced in previous years. If we wanted to get fancy, we could develop an equation that would more precisely predict what methane will be produced by this year's garbage, based on what happened in previous years. But this rate should be a close-enough approximation of that if the garbage intake has remained reasonably steady or is slowly increasing, which is true for both landfills.

2. What's the difference between the climate damage of Benton County's garbage in Coffin Butte and what it would be if it were in Arlington landfill?

Benton County landfills about 72,000 tons of garbage each year. So we can now calculate how much methane these tons are generating in Coffin Butte, and compare that to how much methane they would generate in Arlington.

Coffin Butte: $0.01585 \times 72,000 = \mathbf{1141.2}$ metric tons of methane leaked

Arlington: $0.0018 \times 72,000 = \mathbf{130.9}$ metric tons of methane leaked

So Benton County's garbage is currently producing around 1140 metric tons of methane leaking out of Coffin Butte Landfill each year. If it were in Arlington instead, it would be producing only 130 metric tons of methane.

Let's now convert those methane amounts into the universal unit of climate damage: *metric tons of carbon dioxide equivalent*, or **mtCO₂e**. To do that, we multiply each number by the Global Warming Potential of methane measured over a 20-year period. The IPCC says that the GWP₂₀ of methane is 86.³

Coffin Butte: $1141.2 \text{ metric tons of methane leaked} \times 86 = \mathbf{98,143 \text{ mtCO}_2\text{e}}$

Arlington: $130.9 \text{ metric tons of methane leaked} \times 86 = \mathbf{11,259 \text{ mtCO}_2\text{e}}$

So, because its garbage is going into Coffin Butte, Benton County is generating **around 87,000 more metric tons of carbon dioxide equivalent**. Briefly, this is because of differences between the two landfills, such as: Coffin Butte is a wet landfill, because it gets rained on a lot, and Arlington is a dry landfill, because it doesn't. This directly impacts the rate at which garbage rots.⁴

We'll come back to this differential output in a bit.

3. How much climate damage would be caused by Benton County transporting its waste to Arlington landfill, which is 210 miles away?

Now let's look at the climate damage that would be caused by transporting those 72,000 tons of Benton County's garbage to Arlington rather than to Coffin Butte.

Transporting it by truck

The rough calculation here is fairly straightforward. The standard trucking solution would be to use Class 8 semi tractor-trailers, which emit about 180 grams of CO₂ per ton-mile. Since we have 72,000 tons and we are trucking them from the Coffin Butte Landfill area to Arlington landfill, we can figure out the emissions cost:

72,000 tons x 210 miles x 180 grams per ton = **2721.6 mtCO₂e**

That's just for the laden trip out. The trucks must return, but they will return unladen, and they get about 15% better mileage if unladen. So for the return, the mtCO₂e will be 15% less:

Deadhead return trip of 210 miles: **2313.4 mtCO₂e**

Total annual climate damage to transport 72,000 tons 210 miles by truck: **5035 mtCO₂e**.

Transporting it by train

The rough calculation here is fairly straightforward. Transporting tonnage by rail produces about 25% of the emissions of truck transport, and is about 40% cheaper.

Total annual climate damage to transport 72,000 tons 210 miles by train, and return: 5035 mtCO₂e x 25% = **1259 mtCO₂e**.

4. How does the current climate damage caused by Benton County garbage in Coffin Butte compare to the climate damage if it were in Arlington landfill instead?

**ANNUAL CLIMATE DAMAGE FROM
BENTON COUNTY'S GARBAGE IN COFFIN BUTTE
COMPARED TO CLIMATE DAMAGE
IF BENTON COUNTY'S GARBAGE
WAS TRUCKED TO ARLINGTON LANDFILL**

Coffin Butte Landfill	Arlington landfill (Columbia Ridge Landfill)	notes
98,000	11,000	from leaking methane
	5,035	from trucks
98,000	16,035	totals
+81,965		difference

The difference: putting its garbage into Coffin Butte is generating the equivalent of **about 81,000 more metric tons of carbon dioxide** per year than trucking its waste to Arlington landfill would generate.

**ANNUAL CLIMATE DAMAGE FROM
BENTON COUNTY'S GARBAGE IN COFFIN BUTTE
COMPARED TO CLIMATE DAMAGE
IF BENTON COUNTY'S GARBAGE
WAS SENT BY RAIL TO ARLINGTON LANDFILL**

Coffin Butte Landfill	Arlington landfill (Columbia Ridge Landfill)	notes
98,000	11,000	from leaking methane
	1,260	from rail transport
98,000	12,260	total
+85,740		

The difference: putting its garbage into Coffin Butte is generating the equivalent of **about 86,000 more metric tons of carbon dioxide** per year than transporting its waste to Arlington landfill by rail would generate.

By taking its garbage to Coffin Butte rather than trucking it to Arlington landfill, Benton County is causing **6x** more climate damage:

$$16,035 \times 6.11 = 98,000$$

By taking its garbage to Coffin Butte rather than transporting it by rail to Arlington landfill, Benton County is causing **8x** more climate damage:

$$12,260 \times 7.99 = 98,000$$

Note that these are rough “back-of-envelope” estimations. A more detailed analysis could be done to achieve a more precise result. This estimation contains many assumptions to ease calculation, such as assuming that the organic content of the waste going into each landfill is the same, the non-catastrophic leakage from each landfill is the same, and so on. There’s no indication, however, that these refinements would alter the overall conclusion.⁵

Here is that conclusion:

Any claim that “trucking or training waste away from Coffin Butte Landfill will cause greater greenhouse gas emissions” does not stand up to the actual data. Those claims rely on (and exploit) having an audience that’s not familiar with how devastating methane leakage actually is to the global environment.

⁵ Landfills are like factories, in that garbage goes in (input) and landfill gas comes out (product), at a rate that’s individual to each particular facility. In recent years it’s become relatively straightforward to determine what those landfill gas production rates (“climate damage rates”) are for major landfills, because of the arrival of new monitoring technologies. Carbon Mapper (CM), a climate science nonprofit, uses airplane overflights and now, satellite observations, to estimate how much methane a particular facility is leaking over time.

CM’s estimate for Coffin Butte Landfill: 1.9 metric tons of methane an hour.

CM’s estimate for Columbia Ridge: 0.602 metric tons of methane an hour.

Source: carbonmapper.org

² Carbon Mapper focuses on detecting and quantifying methane plumes from super-emitting point-source leaks (what I call “catastrophic” leaks). Carbon Mapper doesn’t include small-scale methane leaks in its assessment, and so far I haven’t been able to find any reliable source to quantify how much methane leaks out from these. Indications are, however, that it’s typically a much smaller amount than the catastrophic leaks. When I do find a reliable source, I will update this document with them.

³ To get the climate damage for methane, we multiply each metric ton of methane by the GWP₂₀ for methane, which is 86, according to the IPCC. GWP₂₀ is the Global Warming Potential of a gas over a twenty-year period, compared with a metric ton of carbon dioxide. It adjusts the damage to “carbon dioxide equivalent,” reflecting the greater climate damage done by a greenhouse gas such as methane, compared to carbon dioxide.

⁴ You may think: *can that really be true?* The answer: yes. Carbon Mapper has established that U.S. landfills differ widely in their emissions, depending in large part in where they’re situated and how they’re operated. This is an example of that, in line with other examples that Carbon Mapper has found and documented.

⁵ I’ve also heard a response along the lines of “the garbage all turns to methane in the end” (unspoken: “... so having a high climate damage rate doesn’t matter”). This response collapses pretty much under its own weight. First, it’s not been demonstrated that all organic matter in a dry landfill will produce methane – much of it may in essence be mummified. Second, efforts to contain the climate crisis focus on slowing the rate by which greenhouse gases are emitted – so having a slower rate of climate damage is a vital improvement. Third, having a slower and more controlled rate of methane production enables the landfill operator to collect that methane more successfully, rather than leaking it. And so on. This response also does not alter the overall conclusion.

Ken Eklund
37340 Moss Rock Drive
Corvallis OR 97330

October 21, 2025

**The EPA investigation of Coffin Butte Landfill
has moved into the enforcement phase**

EPA Enforcement: an explainer and timeline

Part 1: explainer (updated)

Ken Eklund
October 21, 2025

What's happening?

The public has known for a while that the EPA was investigating Coffin Butte Landfill: neighborhood groups brought up concerns about the landfill to Senators Merkley⁴ and Wyden in the years 2021 – 2023, and their staffs took the matter to the EPA. In May 2024 Senator Merkley asked Michael Regan, then Head of the EPA, about Coffin Butte Landfill in hearings. Regan confirmed that the EPA had opened a case and was actively pursuing it against the landfill.¹

That investigation has now progressed to EPA enforcement action against the landfill. On January 16, 2025, the Enforcement Manager for EPA Region 10 served a process on Republic Services, in the form of a Section 114 Information Request.^{2 3}

This process document came to light when Bailey Payne, the Solid Waste Coordinator for Benton County, filed a Freedom Of Information Act request on behalf of the county's Disposal Site Advisory Committee, which was seeking more information about the EPA investigation. Republic Services did not disclose to the Planning Commissioners that the landfill had been served a Section 114 Information Request in their final update to their Application to expand the landfill, which they filed with the County on March 14, almost two months after the EPA served the Request on them. Likewise there is scant mention in the Application before you, Commissioners.

What does it mean to be served a Section 114 Information Request by EPA Enforcement?

- Technically, it's a "Clean Air Act (CAA) Section 114 Information Request," which is functionally a government subpoena.
- This Section 114 Information Request requires the landfill's Environmental Manager to turn over a comprehensive list of environmental records to the EPA. Air quality regulations require the landfill keep these records of their self-testing and monitoring.
- There are two kinds of Section 114 Information Requests: "rulemaking" ones and "enforcement" ones. This is an enforcement IR: it was filed by the Manager of the Air and Land Enforcement Branch of Region 10 of the EPA, and the document

states it is requiring records so that it can determine “whether any violations of the Clean Air Act have occurred.”

- The document requires someone at Republic to certify that the information provided is “true, accurate and complete” under threat of fines or prison.
- The EPA investigation has moved into its next phase: assessing compliance.

What is the implication of the Section 114 Information Request by EPA Enforcement?

It implies that the EPA intends to initiate enforcement action as warranted. The Section 114 Information Request is a crucial tool in the EPA's arsenal for gathering data and ensuring accountability in matters related to air pollution. It's often the first step in enforcing compliance.

It may be useful to think of the Section 114 Information Request as the environmental equivalent of an audit by the Internal Revenue Service. In both cases it's an effective litigation tactic to query the underlying data in a defendant's possession, because that can naturally lead to findings that the defendant (1) is not maintaining data properly, or (2) has altered or destroyed data, or (3) has not been complying with regulations, all of which are offenses. With both the IRS audit and the Section 114 Information Request, the action often represents the initial stage of a process that can end up assessing civil penalties, issuing compliance orders, or initiating legal proceedings.

What are possible reasons EPA Enforcement has taken this step?

The implication is that the EPA has grounds to believe that Republic has committed some infractions and that Coffin Butte Landfill is out of compliance. What's not known at this time is how serious the believed infractions are. Throughout this process the EPA has declined to discuss their investigation, as it is an active legal proceeding.

Here's what we know the EPA knows about the landfill, that may be grounds for or contributing to its Section 114 Information Request:

- The EPA inspected the landfill twice, once in 2022 and again in 2024, and both times found larger numbers of breaches, and breaches much more serious in scale, than what Republic's self-monitoring had reported. In 2022, Republic self-inspected the entire landfill, and found 6 minor leaks; the EPA inspector only traversed maybe 10% of the landfill, and found over 60 leaks, some of them major (above the lower explosive limit for landfill gas). The 2024 inspection likewise found over 40 leaks, one of which was an entirely uncapped landfill gas well leaking at 230 times the actionable amount.⁴
- The EPA required Republic to remediate the 61 breaches identified by the EPA's 2022 inspection, but there seems to be no corresponding remediation log for

these breaches in Republic's subsequent reporting to Oregon DEQ. It's possible those leaks were never remediated.

- In September 2024, the EPA widely issued two Enforcement Alerts to municipal landfills such as Coffin Butte. These Enforcement Alerts warned of a series of regulatory infractions that the EPA had noted during recent inspections. This Section 114 Information Request may be a follow-up to these Enforcement Alerts, again because of infractions observed during the EPA's 2022 and 2024 inspections of the landfill.⁵
- Carbon Mapper, a climate science nonprofit, partnered with the EPA to survey hundreds of landfills in 2023, detecting and quantifying their methane leaks from the air. Their survey of Coffin Butte Landfill revealed four super-emitting leaks, all active in different locations on the landfill at the same time, throughout the 10-day survey period.⁶
- Carbon Mapper estimated that during that survey period, Coffin Butte Landfill was leaking methane at a rate of 1.7 metric tons per hour, which is almost twice the average rate for super-emitting landfills as a class. So Coffin Butte Landfill may have been prioritized for enforcement action.⁷ That estimated rate has now risen to 1.9 metric tons of methane per hour, plus or minus 0.6 tons.
- Oregon DEQ collaborated with the EPA on the 2024 inspection, and may have shared information about its own enforcement action against the landfill happening at that time, regarding Republic's non-compliance with requirements to update its landfill gas collection and control system.
- The EPA has the Community Concerns Annual Reports compiled by Benton County's Disposal Site Advisory Committee for the years 2021-24. These Annual Reports summarize concerns and complaints by members of the public. Each report has hundreds of community concerns, with "odor" and "methane" being the most prevalent issue. The 2024 CCAR summarizes 233 community reports, for example, with odor comprising 59% of total issues raised and methane being an additional 7%.⁸

What effect does the EPA Enforcement action have on Republic's application to expand the landfill?

In my view, EPA Enforcement's action defeats Republic's expansion application, because it causes the application's Burden of Proof to fail. This outcome is apparent when you view this legal landscape from a land use point of view. To approve the expansion application, you as a Commissioner would have to affirm Republic's proofs as sufficient; you'd have to publicly certify that an expanded dump couldn't pose significant problems – and do so while the EPA is actively investigating the current dump for significant problems. This seems like an impossible position for you as a Commissioner to take.

EPA Enforcement's action can unravel the expansion application so thoroughly because the application's Burden of Proof has been built around a core misdirection all

along: it focuses on regulations and regulatory power. The Planning Commission's criteria, however, do not say anything about regulations: they focus on actual harms.

In the world of the applicant's Burden of Proof, it's impossible for these two statements to both be true: (a) "the applicant is complying with environmental regulations" and (b) "the landfill is causing environmental harms." The Burden of Proof attempts to construct an either-or world.

In the world of the land use criteria, however, it's quite possible for both statements to be true. You regularly make judgments on how land uses will work (or not) in the real world.

Put another way, Republic's Burden of Proof means that their application must demonstrate convincingly that the landfill expansion won't cause significant harm to nearby properties, character of the area, etc., or it fails. Their narrative for this has been "we comply with environmental regulations" – this is said throughout Republic's Burden of Proof. But now that the EPA has said "let's see all your compliance records" explicitly because the EPA is questioning if Republic really is complying, the EPA has slapped big red question marks all over Republic's proof. And a proof with big red question marks on it is no proof at all.

What has been Republic's response to the EPA Enforcement action?

- **No disclosure.** Republic did not disclose in their final Burden of Proof before the Planning Commission that Coffin Butte Landfill had been served by the EPA, nor offer any narrative about it.
- **Misleading statement maintained.** Republic's Burden of Proof includes a letter that states "we have not received notification from the EPA that... Coffin Butte is the subject of any pending enforcement action" dated the day the EPA Enforcement initiated its action.⁹
- **Delay.** You as a Commissioner might reasonably expect Republic to deal with this EPA Enforcement action forthrightly and expeditiously, to "clear the air" for their expansion application. Instead, Republic Services acted instead to delay the EPA's examination of landfill records by filing two extension requests. All that's known at this point is that Republic has begun to respond with information which is presumably being audited by the EPA.¹⁰

Summary.

On January 15 the EPA's investigation of Coffin Butte Landfill moved into a new phase: active enforcement proceedings. The Enforcement Manager for EPA Region 10 served a process on Republic Services, in the form of a Section 114 Information Request. Republic Services did not disclose this development and had no narrative about it for the Planning Commissioners, or for the Board of Commissioners so far. The EPA

Enforcement process would seem to render the applicant's Burden of Proof insufficient, because that Burden of Proof focuses on the lack of enforcement action by regulators as credentials of the applicant. I recommend that the Commissioners deny LU-24-027, the application to expand Coffin Butte Landfill, due to the applicant's failure to make a convincing case for their environmental compliance, and due to the gravity of many questions raised about the accuracy and completeness of its application.

#EPAenforcement
#Section114
#explainer

1

1:52:32

Senator Merkley: [In my] home state: Coffin Butte Landfill. In June of 2022 the EPA sent out a team to measure the methane coming out of it, because of local concerns. The inspection resulted in recording 61 leaks, including three measurements that maxed out the instrumentation that was being used, at 70,000 parts per million. So: can you give me a short version of what action the EPA is taking? This is now 23 months ago that the field inspection occurred. If we need a longer discussion, I'd like to follow up with you to make sure that there is going to be action regarding landfills like this that are out of compliance.

1:53:10

Mr. Regan: Well, I will say that our enforcement arm has been very aggressive at looking at these methane leaks and opportunities here. This is one that as you said was discovered in 2022. Unfortunately it is an active enforcement situation, so I can't speak to that without betraying the confidence or the legal obligations that I have. But I can tell you that we are coordinating with the State of Oregon – it's an active case, and we are laser-focused on this case.

1:53:43

Senator Merkley: Great, because if you have a landfill which maxes out the instrumentation – which is I think quite rare? – it should probably rise to the top of the list of places to act on. I'll convey to the folks in Corvallis and nearby that you are on the case.

Senate Appropriations Committee Hearings, May 1, 2024 ([link](#))

² This Section 114 Information Request has been supplied to the Planning Commission: search testimony for #EPAInfoRequest

³ The EPA served their Section 114 Information Request upon Republic's registered agent in Oregon, CT Corporation. CT Corporation's legal arm relayed the EPA process on to Republic's legal department with a cover letter that identified the nature of the process as "Subpoena – Business Records" and the Action involved as "United States Environmental Protection Agency vs. Republic Services"

⁴ These EPA Inspection Reports have been supplied to the Planning Commission: search testimony for "Heinz" (2022 Inspection) and "Conley" (2024 Inspection)

⁵ "EPA Issues Two Enforcement Alerts to Highlight Compliance and Monitoring Obligations for Municipal Solid Waste Landfills," September 25, 2024 ([link](#))

⁶ Data publicly available at [CarbonMapper.org](#). See also: Carbon Mapper explainer at #methaneplumes

⁷ Data publicly available at [CarbonMapper.org](#). See also: Carbon Mapper explainer at #methaneplumes

⁸ These Community Concerns Annual Reports have been supplied to the Planning Commission: search testimony for #CCAR

⁹ See Republic's January 15, 2025 update to its Burden of Proof

¹⁰ Emails between Paul Koster, Environmental Manager at Coffin Butte Landfill, and Sara Conley, EPA Air Enforcement Officer, Region 10, obtained through FOIA. At Paul's request, the original deadline for the Section 114 Information was extended 180 days, to May 12.

EPA Enforcement: an explainer and timeline

Part 2: timeline (updated)

Ken Eklund
October 21, 2025

COFFIN BUTTE LANDFILL and the EPA: a timeline (updated)

2021

Community
Concerns

Republic Services submits an application to expand Coffin Butte Landfill. There is widespread public outcry, including letters to Oregon's national Representative and Senators stating concerns with the landfill's gas emissions. These congresspeople pass along these community concerns to the Environmental Protection Agency (EPA). In November the Planning Commission denies Republic's application, citing questions about Coffin Butte's landfill gas emissions as part of their decision. ¹

2022

Early June
Republic pre-
inspection

The EPA schedules an inspection of Coffin Butte Landfill. Prior to this announced inspection, Republic performs its own inspection of the landfill, which covers almost all of the landfill's surface. This self-inspection finds 6 minor leaks, which they remediate ahead of the EPA visit.

2022

June 23
EPA inspection;
multiple violations,
indications of
substantial plumes

The EPA inspects Coffin Butte Landfill. This inspection covers only a small percentage of the landfill's surface, but finds 61 violation-level gas leaks, many of them major; 21 were 20 times above the violation level or more. Many of these findings are landfill gas emerging from leak clusters or broad areas of the landfill surface. The inspector notes that several of the leaks showed high concentrations several feet away or above the leak itself, indicating substantial landfill gas plumes being created. ²

The Republic employee observing this inspection does not dispute the findings; he notes that he would not have checked many of the leak locations, that he would have spent less time monitoring, and otherwise would have carried out the inspection using interpretations of the testing protocol that would have enabled him to not report the leaks. ³

2023

July 13-22
Carbon Mapper
overflights, plume
detection

In 2023 the EPA teams up with the climate science non-profit Carbon Mapper to conduct a national survey of landfills. The project surveys four Oregon landfills over a 10-day period from an airplane equipped with an advanced methane detector. Coffin Butte Landfill stands out with the most number of plumes detected (16), the greatest number of plume origin points (4), the largest plumes, and a persistence rating of 100%. (This rating means that the landfill was observed to be leaking landfill gas above the EPA's super-emissions level every time it was surveyed.) ⁴

2023

August 17
EPA prioritizes landfill
emissions reductions
for 2024-27

The EPA announces its National Enforcement and Compliance Initiatives for 2024-2027. One of the NECI goals is, through enforcement actions, to measurably reduce methane emissions in the landfill sector. Every four years the EPA selects these enforcement and compliance priorities so that, across administrations, "the agency and its state partners can prioritize resources to address the most serious and widespread environmental problems facing the United States." ⁵

2024

May 1

EPA enforcement
process underway

In EPA budget hearings, Senator from Oregon Jeff Merkley asks Michael Regan, head of the EPA, about what action the EPA is taking with Coffin Butte Landfill, given the severity of the problems found in the 2022 EPA inspection. Regan assures the Senator that legal action is underway: "it is an active enforcement situation." ⁶

2024

June 23

Second EPA
inspection;
multiple violations,
strong odor

The EPA stages an unannounced inspection of Coffin Butte Landfill. Purpose: "to identify potential compliance concerns with Clean Air Act regulations, specifically the National Emission Standards for Hazardous Air Pollutants." ⁷

As in 2022, the EPA inspection covers only a small portion of the landfill's surface. It finds 41 violation-level leaks, many of them major; 18 were 20 times above the violation level or more. One is a gas wellhead that is uncapped (open to the atmosphere), leaking landfill gas at approximately 230 times the violation level. The EPA inspectors note a strong landfill gas odor. Republic representatives do not dispute the findings. ⁸

2024

August

Call for EPA action

All of Oregon's national congresspeople representing the area – Representative Hoyle and Senators Merkley and Wyden – sign a letter urging the Environmental Protection Agency to thoroughly and expeditiously complete its investigation into the emissions problems at Coffin Butte Landfill. ⁹

2024

August

High landfill gas
emissions rates

Carbon Mapper continues to process the data acquired in its aerial surveys, and releases quantifications for the rate of landfill gas emissions observed at Coffin Butte Landfill. Those estimations include a very high immediate rate (landfill gas leaking at over 10 metric tons an hour, plus or minus 3.2 metric tons) and a high net rate (over 3 metric tons of landfill gas leaking per hour throughout the 10-day observation period, plus or minus 1.2 metric tons). This net rate of emissions for Coffin Butte Landfill is roughly twice the average level of other super-emitting landfills surveyed by Carbon Mapper nationally. ¹⁰

2024

September

Carbon Mapper
methane plume

Carbon Mapper surveys Coffin Butte Landfill again, this time using a Tanager satellite. The survey shows a super-emitting methane plume with an estimated emissions rate of almost 2 metric tons of landfill gas per hour. This plume has the same origin point as plumes seen in Carbon Mapper's 2023 aerial survey, suggesting that this origin point is a persistent or continuous source of landfill gas emissions. ¹¹

2024

September

Two EPA enforcement
alerts for non-
compliant landfill gas
emissions monitoring

The EPA issues two enforcement alerts for municipal solid waste landfills, a group that includes Coffin Butte Landfill. These enforcement alerts target landfill operators who (1) through improper monitoring techniques and other methods, fail to maintain the integrity of the landfill cover and gas collection systems, and (2) through improper classification of waste and other accounting deviations, underreport their emissions of landfill gas. The EPA issues these enforcement alerts in response to its recent landfill inspections, where these infractions were observed. ^{12 13}

2024

October

Resignation of
landfill's
Environmental
Manager

Ian Macnab, the Environmental Manager at Coffin Butte Landfill, resigns.

2025

January 16

EPA files a
Section 114
legal action for the
landfill's environ-
mental monitoring
and accounting
records

The EPA serves a legal action on Republic Services for comprehensive records of gas collection and monitoring operations at Coffin Butte Landfill. The legal action is represented as a subpoena, and connected to "U.S. EPA vs Republic Services" by Republic's registered agent, who received the legal action on Republic's behalf. The legal action is "pursuant to Section 114 of the Clean Air Act," which authorizes the EPA to require Republic to submit records "for the purpose of determining whether any violations of the Clean Air Act have occurred." The Clean Air Act regulates emissions from landfills to control air pollution, particularly methane and other harmful gases; the EPA enforces these regulations to reduce environmental and health impacts associated with landfill emissions.¹⁴

The records requested include wellhead monitoring data, surface emissions monitoring reports, gas collection system operating and compliance data, maps of areas exempted from monitoring, and other information sets relevant to the enforcement alerts issued in September. The Section 114 legal action requires a signed certification that the records provided are true, accurate and complete, with the possibility of fines or imprisonment for submitting false information. The legal action sets a March 22 deadline for receipt of the records.

2025

January 30

Landfill requests
extension

Soon after receiving the legal action requiring documents, Republic requests a 30-day extension to the deadline for providing them, which the EPA grants. The new deadline for the records is April 21.¹⁵

2025

March 7

Another methane
plume imaged

Carbon Mapper's Tanager-1 satellite surveys the landfill, and finds a significant plume of landfill gas.¹⁶

2025

April 18

Carbon Mapper
announces alliance
with California DEQ

Carbon Mapper and its partner Planet Labs PBC announce they will work with the State of California through the Satellite Data Purchase Program, helping the State leverage Carbon Mapper's remote sensing technology to reduce methane emissions. Carbon Mapper will use its Tanager satellites to deliver methane data to the California Air Resources Board (CARB) for compliance and enforcement. ¹⁷

2025

April 18

Another methane
plume imaged and
quantified

Carbon Mapper's Tanager-1 satellite passes over the landfill again, and maps another significant plume of landfill gas. This one stretches east-southeast from the landfill's northern boundary all the way to the Adair Village town limit – it is almost two miles long and two-thirds of a mile wide. Carbon Mapper estimates the leak rate from this one origin point to be about 2.4 metric tons of landfill gas an hour. ¹⁸

2025

April 21

Landfill requests a
second extension

Before the April 21 deadline, Republic requests another 30-day extension; this one is also granted by the EPA. The new deadline for the records is May 21. ¹⁹

2025

April 25

Carbon Mapper
plots another
methane plume

Carbon Mapper's Tanager-1 satellite finds another plume of landfill gas emanating from the landfill. This is the 20th plume image created by Carbon Mapper overflights, and the landfill continues to have a Persistence Rating of 100%; in almost two years of surveillance, Carbon Mapper has never had any overflight of Coffin Butte Landfill produce a "no plume detected" result. ²⁰

2025

April 30

Another methane
plume mapped and
quantified

Carbon Mapper's Tanager-1 satellite maps another significant plume of landfill gas during an overflight over the landfill. Again, Carbon Mapper estimates the leak rate from this one origin point to be about 2.4 metric tons of landfill gas an hour. ²¹

2025

June

Landfill requests a
second extension;
ongoing FOIA

In June, Republic Services partially fulfilled the EPA's CAA Section 114 legal action; they told the EPA that certain records could not be found. At the time of this writing, the EPA has not released any further information relating to its enforcement action, citing the confidential nature of their ongoing investigation and possible enforcement against Coffin Butte Landfill. ²²

2025

August 13

Carbon Mapper continues to map super-emitting leaks at Coffin Butte Landfill

Carbon Mapper continues to survey the dump from its satellite, and to publish them when processed. As of the time of this writing, the latest observation published is August 13, the 28th plume to be observed. Coffin Butte Landfill continues to have 100% Persistence, i.e., there has never been a day when a survey reports "no plume found."

2025

September

A FOIA request establishes that Coffin Butte Landfill is the only landfill in Oregon, Washington and Idaho to be served a Section 114 Information Request

A FOIA request for "other Section 114 Information Requests in EPA Region 10" turns up no other examples, countering the claim by Republic that Section 114s are common.

I have a further FOIA request underway for all documents related to the progress of the Section 114 served on Republic Services / Coffin Butte Landfill, but it has not been fulfilled yet.

In summary:

- evidence shows the EPA has cause to investigate Coffin Butte Landfill for environmental violations;
- this evidence includes advanced remote monitoring performed by the climate science non-profit Carbon Mapper;
- the EPA's investigation has now moved into a legal action, requesting documents to evaluate for enforcement purposes;
- Republic Services has delayed the progress of that investigation and downplayed its history and significance in public statements;
- Republic Services has not met its Burden of Proof to deliver evidence that ongoing active enforcement by the EPA, supported by sensing data from Carbon Mapper, does not seriously undermine Republic's assertion that it has exercised responsible environmental stewardship in landfill operations.

It likewise has not delivered any narrative that explains the enforcement action of the EPA, other than the assertion, refuted by this Explainer, that such enforcement actions are "routine."

If Republic's management and operations of Coffin Butte Landfill has not been proved to be of responsible quality and character, then its application to significantly expand those operations must be denied.

Additionally, if you Commissioners have not seen the outcome of the Section 114 action under the Clean Air Act, you are justified in using your discretionary power to deny this Application.

prepared by
Ken Eklund
futureeverything@writerguy.com
408-623-8372

October 21, 2025

Accompanying documents (entered into the Public Record; also available from ENRAC's document depository, [here](#)). ENRAC's rationale for recommending denial is [here](#), beginning on page 7.

[ENRAC - Planning Commission Findings and Decision 2021.pdf](#)

The Planning Commission's decision to deny LU-21-047, the application to expand Coffin Butte Landfill filed in 2021, and its findings regarding that application

[ENRAC - EPA Jun 2022 CBL Inspection Report - Heinz.pdf](#)

The 2022 EPA Field Inspection Report for Coffin Butte Landfill (text only, no images)
Lead: Daniel Heinz, Environmental Scientist, Air Toxics Enforcement Section, EPA

[ENRAC - EPA Jun 2024 CBL Inspection Report - Conley.pdf](#)

The 2024 EPA Field Inspection Report for Coffin Butte Landfill
Lead: Sara Conley, Air Enforcement Officer, Air Enforcement Section, Enforcement and Compliance Division, EPA

[ENRAC - EPA Subpoena CBL January 2025.pdf](#)

The 2025 EPA Region 10 Subpoena of Coffin Butte Landfill records
filed by Morgan Jencius, Manager, Air and Land Enforcement Branch,
Enforcement and Compliance Assurance Division, EPA

Endnotes

¹ "Bad air quality: People living in areas with poor air quality does pose serious interference with livability. Risk of health concerns is likely with the landfill expansion; enough so nearby residents speak out about it. Some residents point to increasing cancer clusters in their neighborhood and suggest that poor air quality may be responsible. One nearby resident pointed to studies in Europe that tied poor air quality in the proximity of landfills to bad health issues. The applicant noted they cannot control all of the releases of VOCs or hydrogen sulfide and these gases are understood to be potent carcinogens. The applicant did not address the long-term effects of those gases in varying concentrations in different weather situations but the Planning Commission certainly heard from people that they can smell these."

– Planning Commission Findings and Decision 2021

² See [EPA Jun 2022 CBL Inspection Report.pdf](#)

³ An example: "When [EPA Inspector] Daniel Heins was monitoring at leachate cleanouts, [Republic Environmental Technician] Phil Caruso stated that he does not monitor at these and that they are not fully penetrating the cover. Daniel Heins responded that it was likely that many of these ultimately did penetrate the cover, especially in areas of thinner intermediate cover, and that regardless he recommended checking these as they were proving to be repeated sources of extremely elevated emissions, many over an order of magnitude above the surface methane standard. Phil Caruso stated that he was not required to monitor these."

– EPA Jun 2022 CBL Inspection Report, p. 4

⁴ Publicly available data at carbonmappar.org. Search for "Monmouth OR" in the Data Portal to find the plume images and survey records for Coffin Butte Landfill

⁵ "EPA Announces Federal Enforcement Priorities to Protect Communities from Pollution: New priorities tackle modern challenges including climate change, PFAS, coal ash, air toxics, drinking water contamination, and chemical accidents, all with a focus on achieving environmental justice" ([link](#))

⁶ Sen. Jeff Merkley to Michael Regan, EPA Administrator. May 1, 2024; timestamp 1:52:52 ([link](#))

⁷ See [EPA Jun 2024 CBL Inspection Report.pdf](#)

⁸ “We traversed a section of the southwest side of the landfill moving from one penetration to another and monitoring surface emissions along the way. I noticed that when the wind was blowing from the west there was an odor that smelled like landfill gas. There were a number of exceedances, readings of 500 ppm methane or larger, coming from holes or tears in the cover material. I noted that there were a number of plants growing out of the cover material at the top of the western side of the landfill in the area along the edge of Cell 3 and Cell 5. Some of the plants were between 1.5 to 3 feet tall.”

– EPA Jun 2024 CBL Inspection Report

⁹ “Wyden, Merkley, Hoyle call for EPA investigation into Coffin Butte Landfill,” Tracy Loew, *Salem Statesman Journal*, August 8, 2024 ([link](#))

¹⁰ See publicly available data at [carbonmapper.org](#)

¹¹ See publicly available data at [carbonmapper.org](#)

¹² “Enforcement Alert: EPA Finds MSW Landfills are Violating Monitoring and Maintenance Requirements. EPA investigations find municipal solid waste landfill operators are failing to properly conduct compliant monitoring and maintenance of gas collection and control systems” ([link](#))

¹³ “Enforcement Alert: EPA Finds MSW Landfills are Violating Landfill Gas Emission Rate Calculation Requirements. MSW landfill operators fail to include wastes from total degradable waste-in-place and properly sample landfill gas, resulting in underreported emissions” ([link](#))

¹⁴ See EPA Subpoena CBL January 2025.pdf. Highlighting mine. Some notes:

- * The first two pages of the PDF, the “Wolters Kluwer” part, is a legal process notification sent by CT Corporation, Republic’s registered agent in Oregon, to Republic Services in Phoenix. CT Corporation received the legal process on Republic’s behalf. CT Corporation is notifying Republic that they are involved in a legal action (“EPA vs. Republic Services”) brought by the EPA about Coffin Butte Landfill.
- * CT Corporation has identified the EPA document that follows (the “EPA Region 10” part) as a subpoena, although the EPA titles it an “Information Request.” As subpoenas do, the document is seeking action: namely, for Republic to supply the requested information, or else incur penalties. The subpoena states the EPA will use the information to determine whether any violations of the Clean Air Act have occurred.
- * The EPA notes that it may use the supplied information in administrative, civil or criminal proceedings. It also notes failure to make a timely response, or to supply untruthful information, may incur civil or criminal penalties.

¹⁵ “As stated in the letter, we have 10 days from receipt to request an extension for responding to the letter. We respectfully request an additional 30 calendar days to respond. The team assisting with the response are heavily involved with federal greenhouse gas reporting and other Title V submittals, which run from January through March 31st, 2025.” Paul Koster, the landfill’s new Environmental Manager, to EPA Air Enforcement

¹⁶ See publicly available data at [carbonmapper.org](#)

¹⁷ See <https://carbonmapper.org/articles/cm-selected-california-satellite-data-purchase-program>

¹⁸ See publicly available data at [carbonmapper.org](#)

¹⁹ “I wanted to let you know we are working away on preparing our response to your information request, but we would appreciate more time to respond because many of the resources devoted to this effort have been diverted to deal with the challenges associated with GHG reporting requirements, which as you may know have been more difficult than usual this year.” Paul Koster, the landfill’s new Environmental Manager, to EPA Air Enforcement

²⁰ See publicly available data at [carbonmapper.org](#)

²¹ See publicly available data at [carbonmapper.org](#)

²² This material can only be obtained through Freedom Of Information Act requests. A FOIA request for further information is still in the process of being fulfilled.

#