

Six Narratives Supporting 2025 Senate Bill 726

Ken Eklund

Past Chair, Disposal Site Advisory Committee

Benton County resident

VNEQS

Dear Chair Sollman, Vice–Chair Brock Smith, and Members of the Senate Committee on Energy and Environment:

I am in support of Senate Bill 726. This bill enables critical information from accessible new technologies to be used to control landfill gas pollution from landfills.

Using publicly available data about Coffin Butte Landfill in Benton County, Oregon, I have assembled six narratives that show how present controls are failing to protect the county community from landfill gas pollution and how the measures proposed in SB 726 are well-designed to be more effective in monitoring this pollution and enabling abatement.

I have assembled this data over the course of the three years that I have been a member of Benton County’s Disposal Site Advisory Committee (DSAC). By state law Benton County government is required to host an advisory committee that listens to community concerns about Coffin Butte Landfill. That community is increasingly concerned about landfill gas releases that can be smelled many miles from the landfill, and which are increasing in number, severity, and duration. These concerns have led to an ongoing EPA investigation of the landfill, and this testimony includes data from that EPA investigation. The landfill has also begun being surveyed by Carbon Mapper, a non-profit organization pioneering the use of new technologies to track landfill gas emissions, and this testimony includes data from Carbon Mapper as well.

Coffin Butte Landfill is owned and operated by Republic Services, Inc., and Benton County government receives a annual franchise fee from Republic Services.

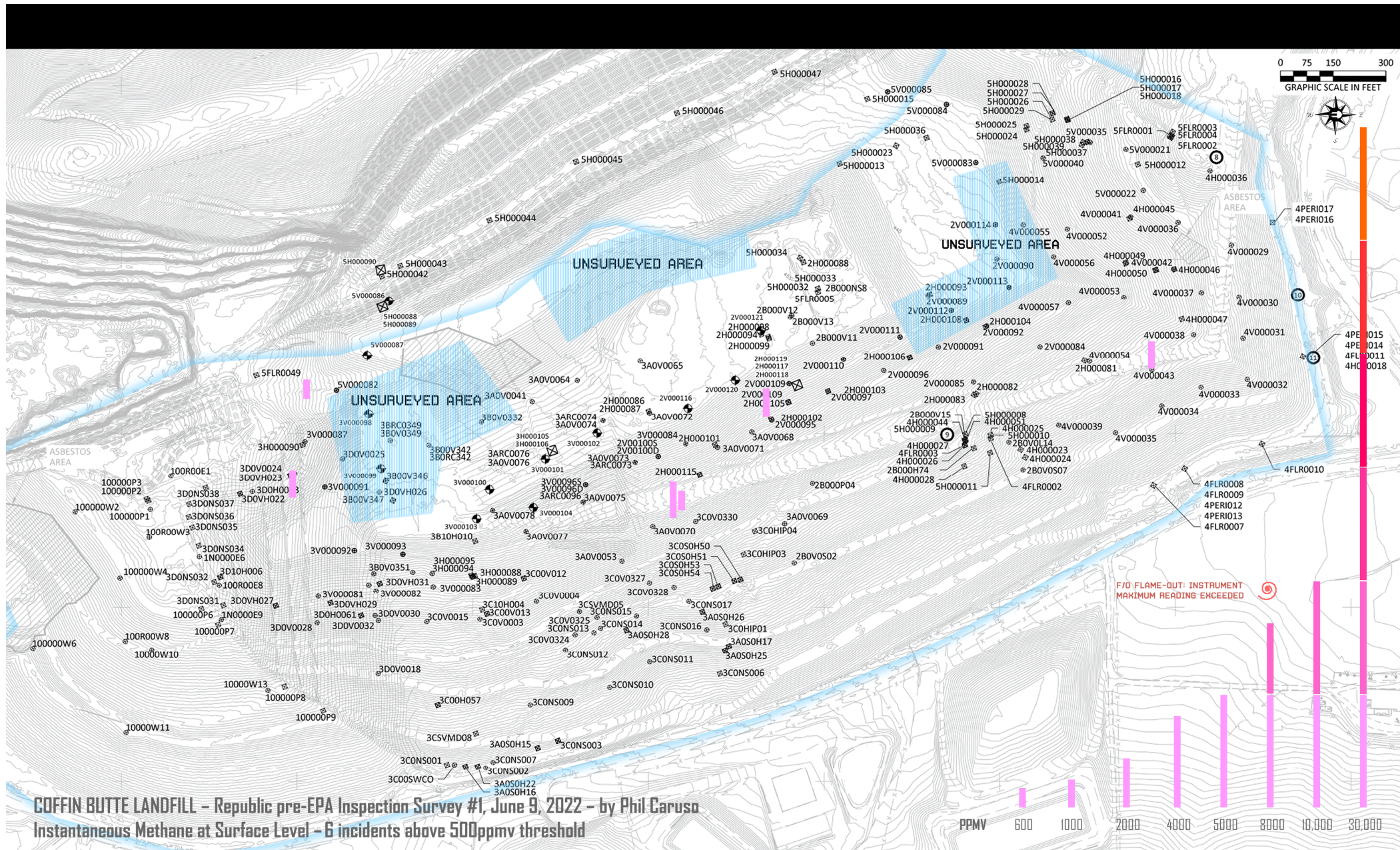
NARRATIVE #1: THE “SELF-MONITORING” LOOPHOLE.

Presently, state regulations require Republic Services to conduct a quarterly surface emissions monitoring (SEM) regimen for Coffin Butte Landfill. In practical terms, this means that a technician walks over the surface of the landfill while holding a methane-detecting wand close to the landfill’s surface. The presence of methane indicates the presence of landfill gas (landfill gas at Coffin Butte is about 53% methane). The technician logs any incident where the detector finds from 100-499 ppmv methane, and marks any location where the detector finds 500 ppmv or more, as this level is the threshold for an air quality violation and mandatory remedial action by the landfill owner.

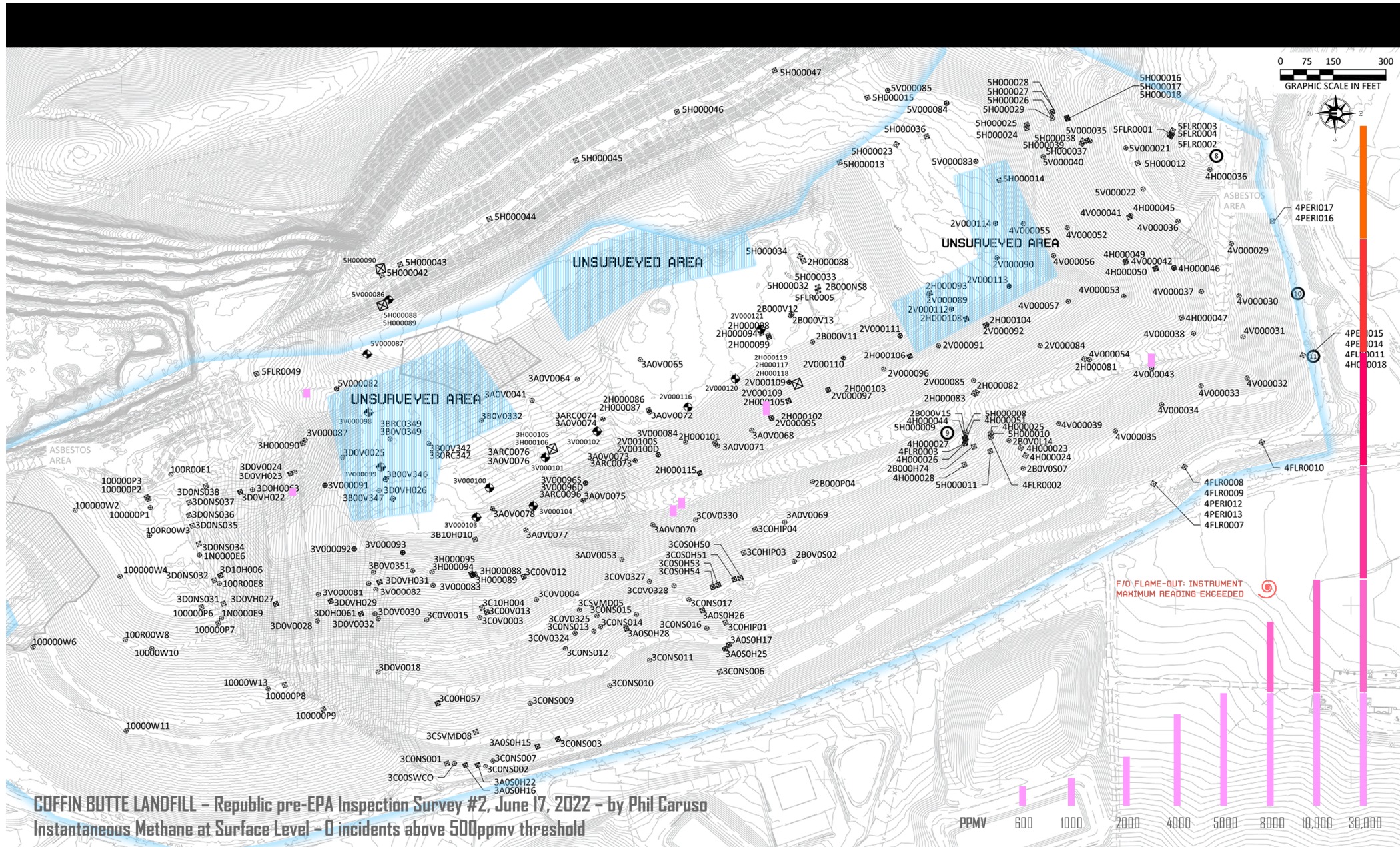
As you can imagine, this regimen is laborious; at Coffin Butte Landfill, a person must traverse over about a hundred acres; the process typically takes several days to complete if done according to prescribed protocol. The regimen also depends on conscientious adherence to protocol.

In July of 2022, community complaints had led the EPA to schedule its own inspection of Coffin Butte Landfill. Republic Services performed a first pass of its quarterly surface emissions monitoring fourteen days in advance of the EPA inspection, and then performed a second pass six days before the EPA visit. These two passes were performed by Phil Caruso, a Republic employee, and I have displayed their results in the following graphics, **Narrative 1a** and **Narrative 1b**. The data for these graphs was released by Republic to the Disposal Site Advisory Committee in September 2022.

NARRATIVE 1a: Republic 2Q SEM Survey, pass 1, June 9, 2022



NARRATIVE 1b: Republic 2Q SEM Survey, pass 2, June 17, 2022



NARRATIVE 1c: EPA SEM Survey, June 23, 2022

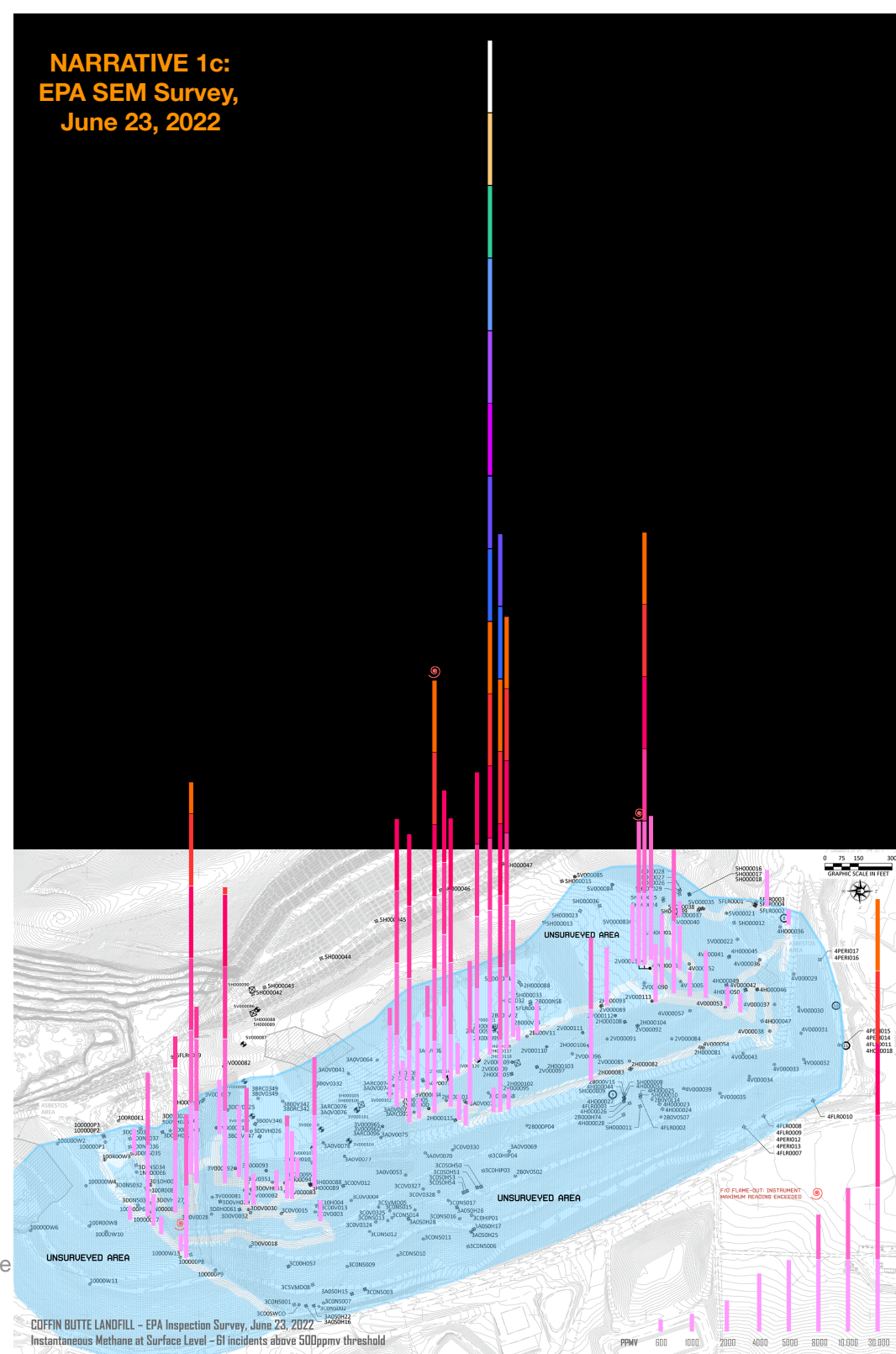
As you can see, Republic's surface emissions monitoring found very few incidents where landfill gas was leaking out of Coffin Butte Landfill above the DEQ-prescribed threshold of 500 ppmv methane, and these incidents showed very low leakage levels: there were 6 incidents in all (the small pink bars) and the highest registered 1350 ppmv. According to Republic, almost the entire surface of Coffin Butte Landfill was monitored, with the exception of the three unsurveyed areas marked in light blue, and all the incidents were remedied on June 17.

On June 23, EPA Inspector Daniel Heins arrived. He met with Republic personnel, who declared that Coffin Butte Landfill's gas collection system was functioning normally. Heins then undertook his own Surface emissions monitoring using the same protocol as Republic. The results of his survey are shown at right, as **Narrative 1c**. The three Narrative graphics use the same scale.

Although Inspector Heins only walked over a small percentage of Coffin Butte Landfill, he discovered 61 air quality violations, many of which registered very high leakage levels: three incidents "flamed out" his detector, which occurs at levels exceeding 30,000 ppmv, one measured 40,000 ppmv and one registered 70,000 ppmv. These violations indicate leaks above the lower explosive limit of methane, i.e., leaks where the flammable methane could be ignited, leading to a landfill fire.

Republic's technician Caruso accompanied Inspector Heins on the EPA survey, and Heins recounted in his report that while Caruso did not dispute any of the survey findings, Caruso maintained that he (Caruso) could follow DEQ protocol and not find them. An example:

When Daniel Heins was monitoring at leachate cleanouts, 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.

Daniel Heins and Phil Caruso had a similar discussion at the valve box dug into the cover with a reading of 4% methane (flag #37), with Phil Caruso stating that this was not a penetration and thus he did not have to monitor this.

Heins reported that many incidents were clusters of violations at multiple points or broad areas where gas levels exceeded the threshold. He also recorded multiple incidents where readings were still well above the 500 ppmv threshold even multiple feet in the air or with multiple feet lateral distance from the emission source, indicating “substantial landfill gas plumes” being generated.

The EPA inspection has made evident that ODEQ’s existing “self-monitoring” approach to SEM regulation is gravely flawed. That approach produced Republic’s 2Q SEM report, which asserted there were no violations by June 17. The boots-on-the-ground reality, however, is the actuality indicated by the EPA inspection, in which there were many large leaks generating multiple plumes of landfill gas. These plumes drifted from Coffin Butte Landfill into surrounding neighborhoods, homes, businesses, schools and recreation areas, as community complaints attest. These plumes drift around my house, and I live over four miles from the landfill.

SB 726 addresses the current flawed approach directly, by enabling remote sensing of landfill gas plumes by means other than reliance on the conscientiousness of the landfill owner. SB 726 enables less costly, less laborious, more complete, less error-prone, and less loopholed assessments to be made of a landfill’s compliance to pollution laws.

NARRATIVE #2: THE “EXEMPT AREA” LOOPHOLE.

As we saw in the Narrative 1a and Narrative 1b graphics, DEQ regulations allow the landfill owner to designate certain areas as exempt from surface emissions monitoring – the intention is, to be responsive in its requirements to conditions on the landfill that may pose an obstacle or a hazard to the person conducting the SEM. I’ve created a graphic that shows Republic's exempt “unsurveyed” areas in June 2022, and it follows as **Narrative 2a**.

I’ll then fast-forward two years, to July 2024, and create a similar graphic that shows the area of the landfill’s surface that Republic has now designated to be exempt; that graphic follows as **Narrative 2b**.

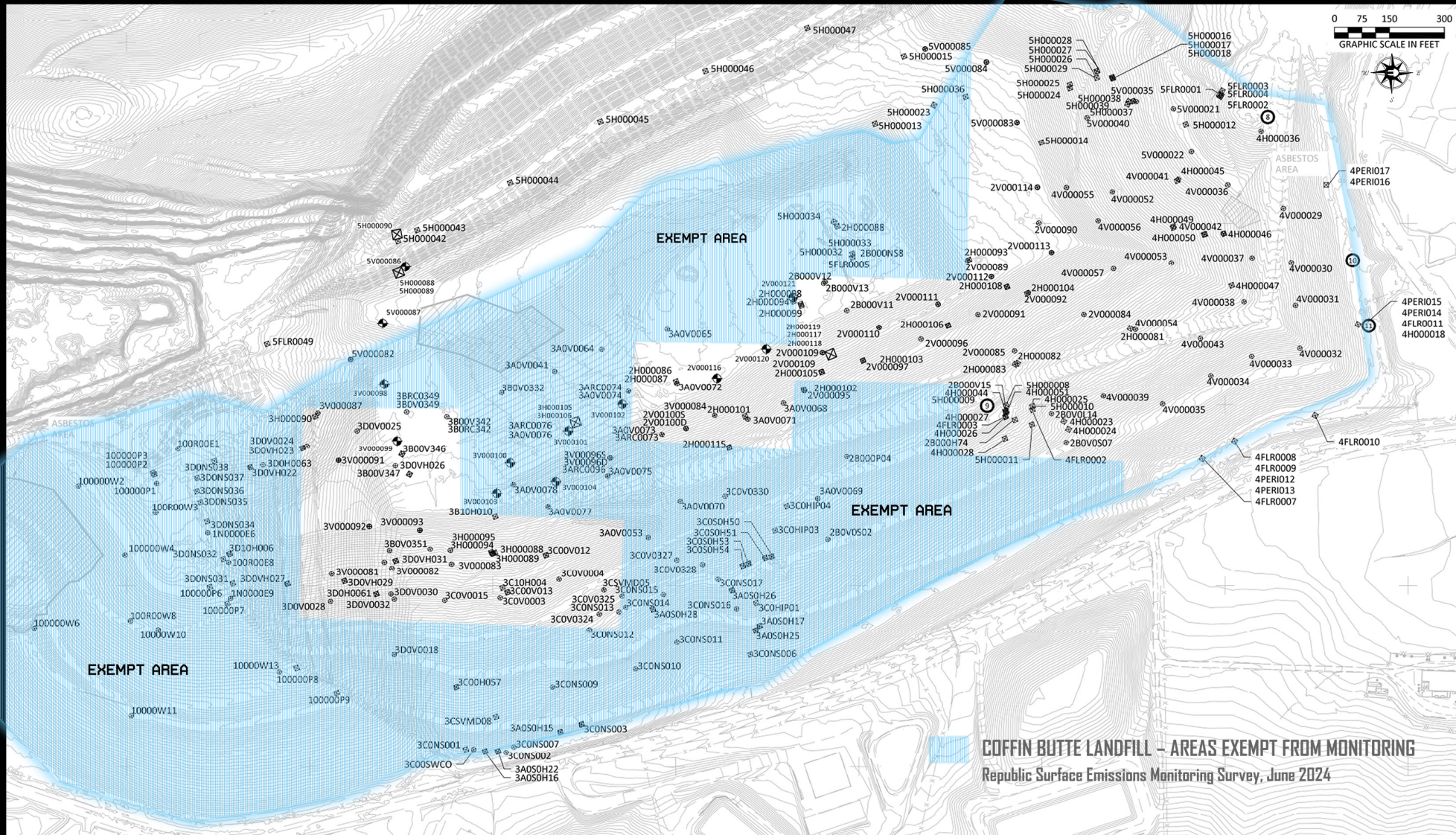
The graphics show that in two years, the amount of area that Republic has designated as exempt has jumped from around 10% to around 60%. No rationale for the large amount of exempt area appears in Republic’s 2Q 2024 SEM report.

The concern is that, similar to the surface emissions monitoring loophole, a less-than-conscientious landfill owner can exploit the “exempt” designation as a loophole to prevent SEM from happening in problem areas (or more generally as a way to save money), and that Oregon DEQ has no effective countermeasure to prevent this abuse. The end effect is unregistered and uncontrolled releases of landfill gas into the atmosphere and areas around the landfill.

In September 2024, Coffin Butte Landfill and several other Oregon landfills received an enforcement notice from the EPA about this loophole: “the EPA observed during recent inspections that areas that are not dangerous are improperly excluded from monitoring.”

SB 726 closes this loophole for good. The bill enables new sensing technologies that scan the entire area: these have no “exempt” areas.

NARRATIVE 2b: Republic-designated areas exempt from monitoring, June 2024

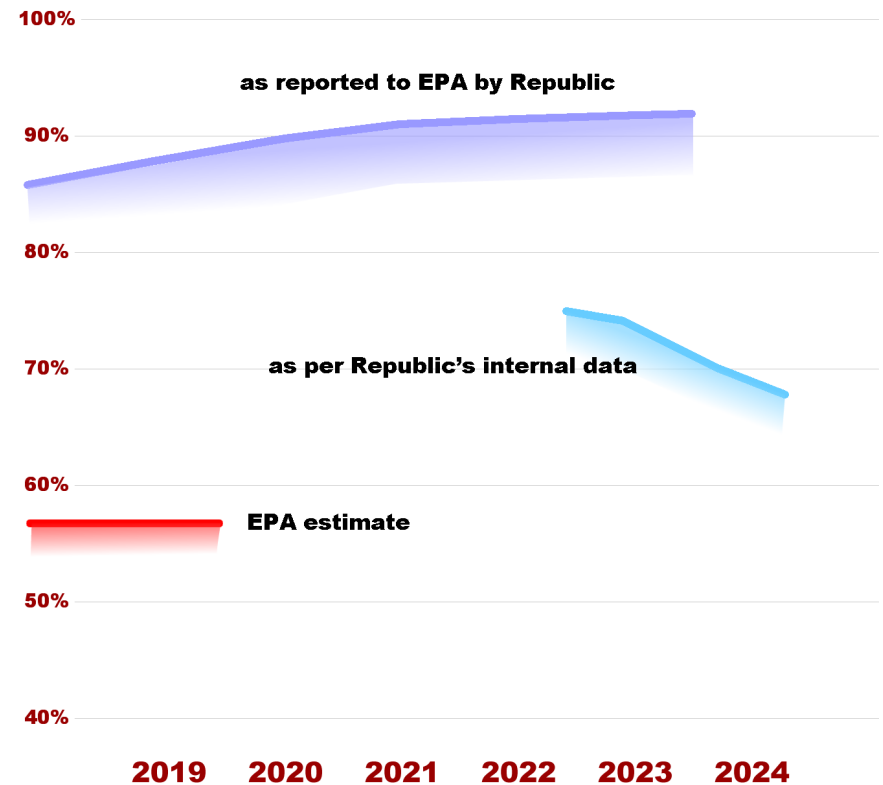


NARRATIVE #3: LANDFILL GAS COLLECTION EFFICIENCY.

Without using the advanced detection technology that's now available, it's difficult to estimate how efficient a landfill's gas collection actually is. The **Narrative 3a** graphic lays out how variable these past estimates have been for Coffin Butte Landfill. To the EPA, Republic Services will state that Coffin Butte's system is collecting 92% of the landfill gas the landfill produces, but to Benton County's Disposal Site Advisory Committee, Republic will state that actual efficiency was 74% in 2023 and 70% in 2024, based on Republic's internal modeling. Meanwhile, the EPA in 2019 stated that Coffin Butte Landfill's gas collection efficiency was 57%.

This wide disparity in gas collection efficiency has serious consequences, especially in regard to enabling both local governments and the State of Oregon to prioritize their efforts to reduce greenhouse gas emissions. These governments currently use unrealistically low assessments for Coffin Butte Landfill emissions, for example, even as evidence mounts that those assessments are generally way too low for landfill greenhouse gas emissions, and are too low even by Republic Services' own data. It's difficult to sustain the idea that Coffin Butte Landfill's gas collection efficiencies are high when organizations such as Carbon Mapper produce images of landfill gas plumes extending over a mile into neighborhoods (**Narrative 3b**), but that's the idea that Benton County government and the State of Oregon are currently sustaining. With SB 726, they can migrate to an updated, sustainable position.

SB 726 would, for the first time, enable these estimates to be upgraded with actual observational data. The result would be higher actual efficiencies at capturing landfill gas and higher conversion of methane to electrical power, and huge reductions in greenhouse gas emissions in the state.



**ANNUAL
LANDFILL GAS
COLLECTION
EFFICIENCY**

for Coffin Butte Landfill

NARRATIVE 3a

NARRATIVE 3b: representative landfill gas plumes, Coffin Butte Landfill

CARBON MAPPER
METHANE PLUME
DETECTION

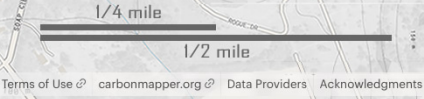
Coffin Butte Landfill
BENTON COUNTY, OREGON

Plume 1
ORIGIN GROUP: 1

CARBON MAPPER
METHANE PLUME
DETECTION

Coffin Butte Landfill
BENTON COUNTY, OREGON

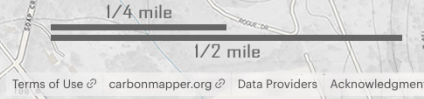
Plume 4
ORIGIN GROUP: 1



QUANTIFIED:
1.4 metric tons/hr
methane
(+/- 0.3 mt)

Global Airborne Observatory
JUL 13, 2023, 17:16:50 UTC

Terms of Use | carbonmapper.org | Data Providers | Acknowledgments



QUANTIFIED:
2.2 metric tons/hr
methane
(+/- 0.9 mt)

Global Airborne Observatory
JUL 13, 2023, 19:10:24 UTC

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NARRATIVE #4: THE “OUT OF BOUNDARY” LOOPHOLE.

In graphic **Narrative 3b** we saw two examples of landfill gas plumes imaged by Carbon Mapper, using an airborne methane detector. Let’s look at four more plume images at Coffin Butte Landfill, in the graphics **Narrative 4a** and **Narrative 4b**.

All of these show significant releases of landfill gas. Carbon Mapper has published quantifications of emissions rates for point sources at the time they were imaged, and those rates when available are displayed in the red boxes. The rate for Plume 10, 5.3 metric tons of methane per hour, is a notably high number; I have not been able to find a rate anywhere near that high for any landfill in the western United States.

With the exception of Plume 11, all of the point sources of these plumes, and most of the others imaged and source-pointed by Carbon Mapper, fall outside the “waste mass” surface emissions monitoring boundary for Coffin Butte Landfill, as shown in the graphic **Narrative 4c**. As such, they are not subject to monitoring, detection, reporting, or remediation in the landfill’s quarterly surface emissions monitoring.

(Note that the one point-source group inside the boundary, Group 2, is in an area that Republic Services declared exempt from monitoring – see Narrative #2, which applies.)

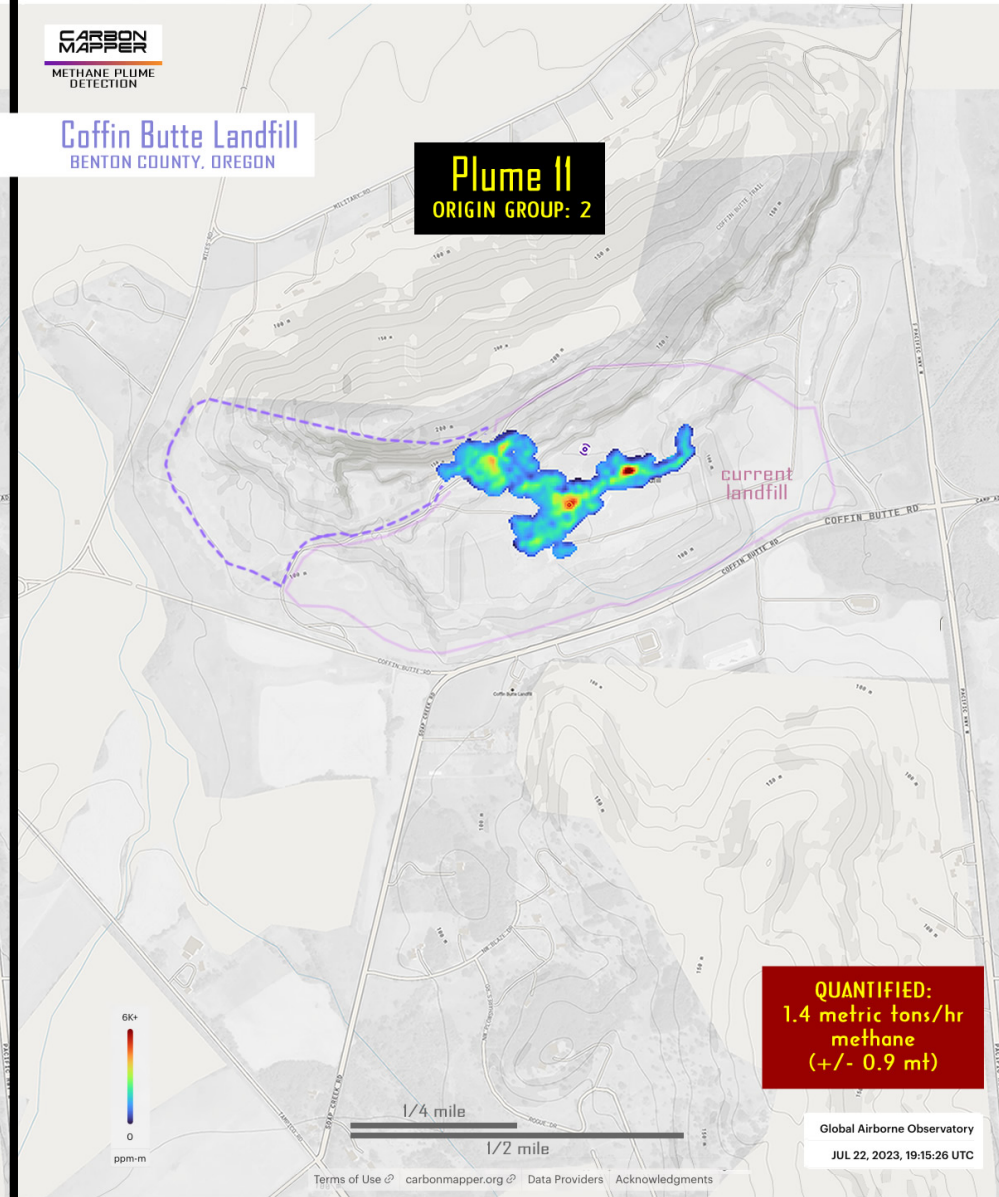
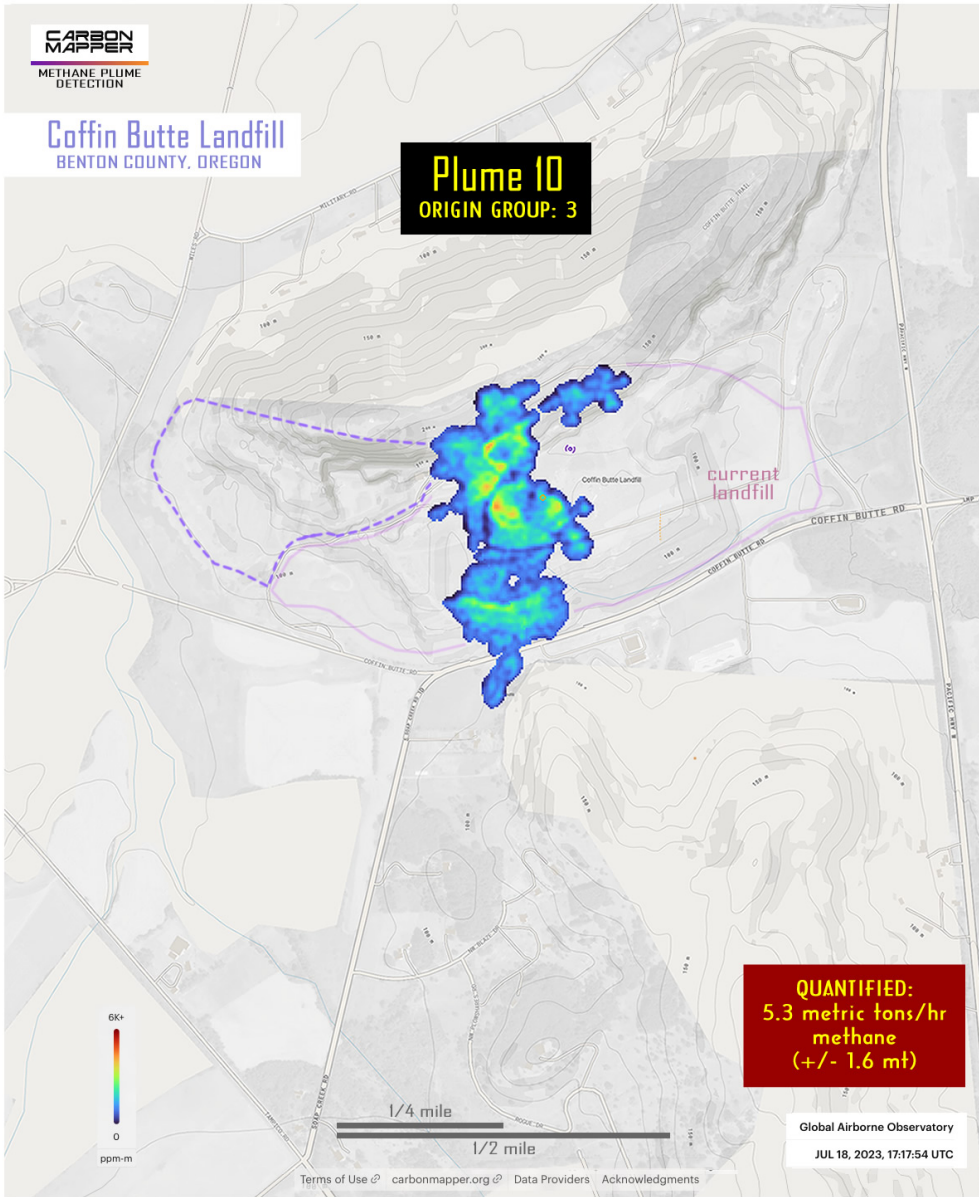
Using the “out of boundary” loophole, a landfill can escape the consequences of excessive gas emissions if its landfill gas vents outside its monitoring boundary. It’s well-known that methane readily travels through soil and fractured rock. Currently, there is no regulatory mechanism I know of in place to ever detect or remediate out-of-boundary point leaks such as these. These leaks may create continuous plumes of landfill gas for months or years.

During the EPA’s 2022 inspection, EPA inspector Daniel Heins recorded:

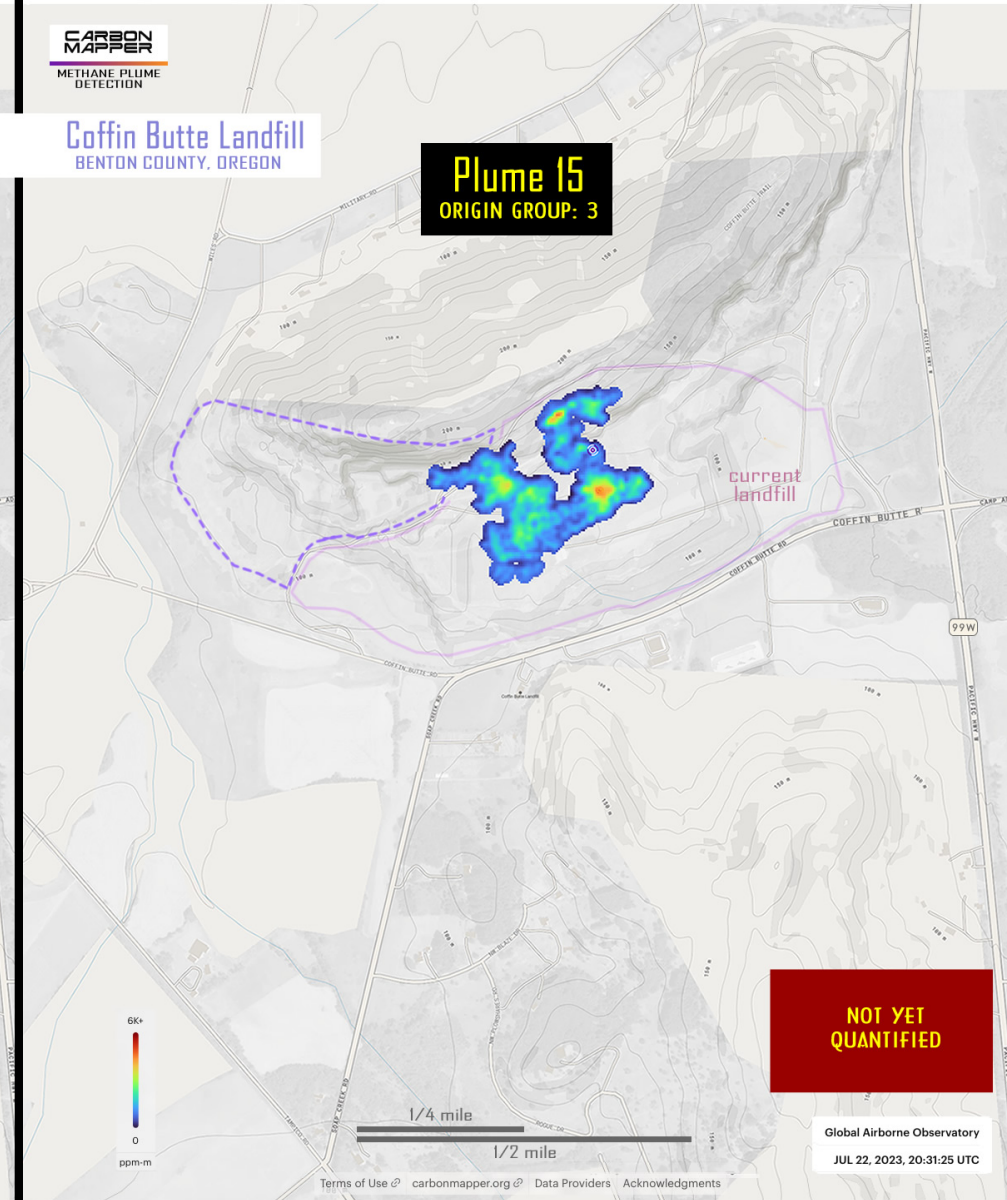
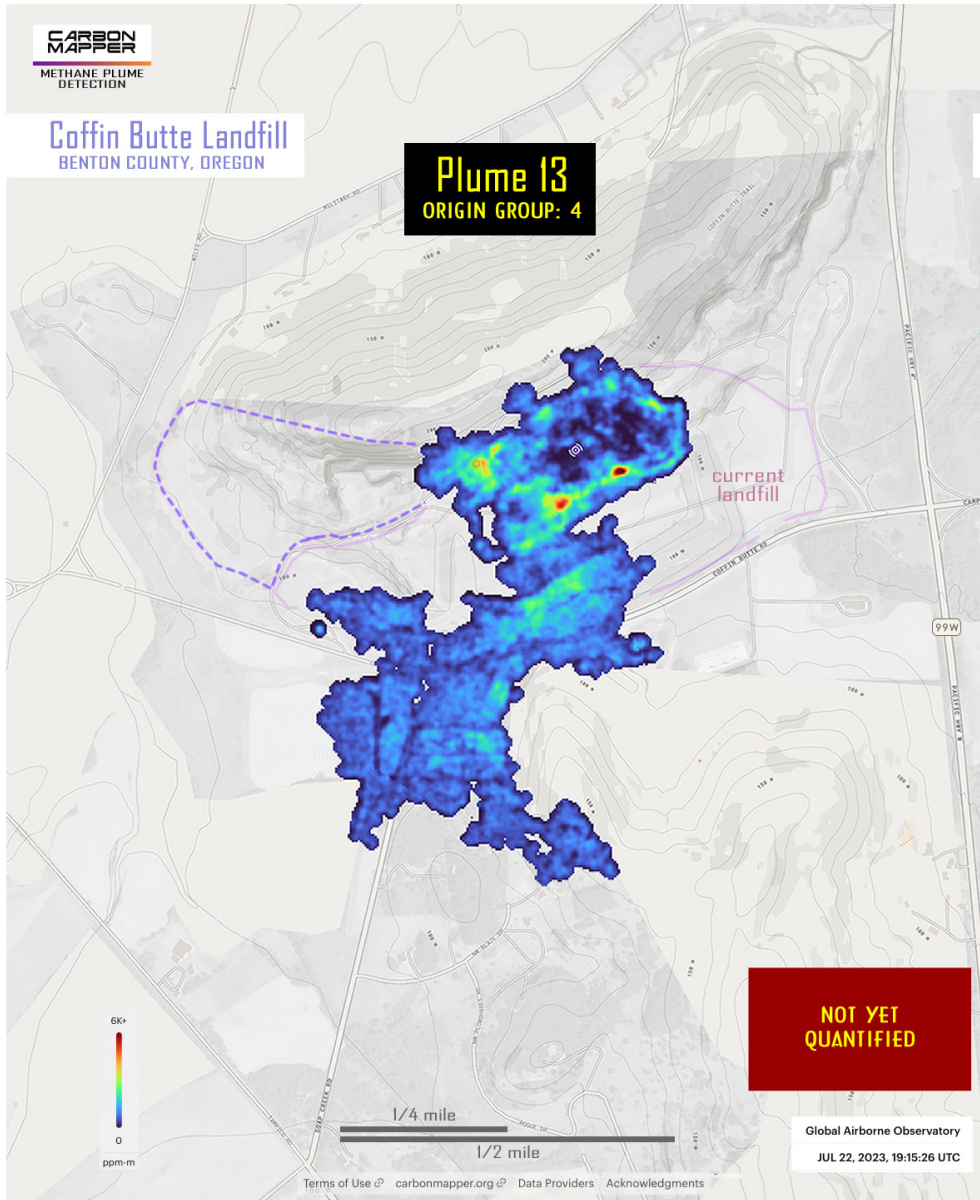
Phil Caruso [Republic Services] stated that he would not have monitored the Cell 5 leachate riser that Daniel Heins measured multiple exceedances at, as it was outside of the waste mass [boundary].

SB 726 closes the out-of-boundary loophole. It enables the use of technologies that see any landfill gas escaping the landfill, even if it is emerging hundreds of feet away from the landfill mass. The bill will end what are now unregistered and uncontrolled releases of landfill gas into the atmosphere and into the lungs of people living and recreating in the region of the landfill.

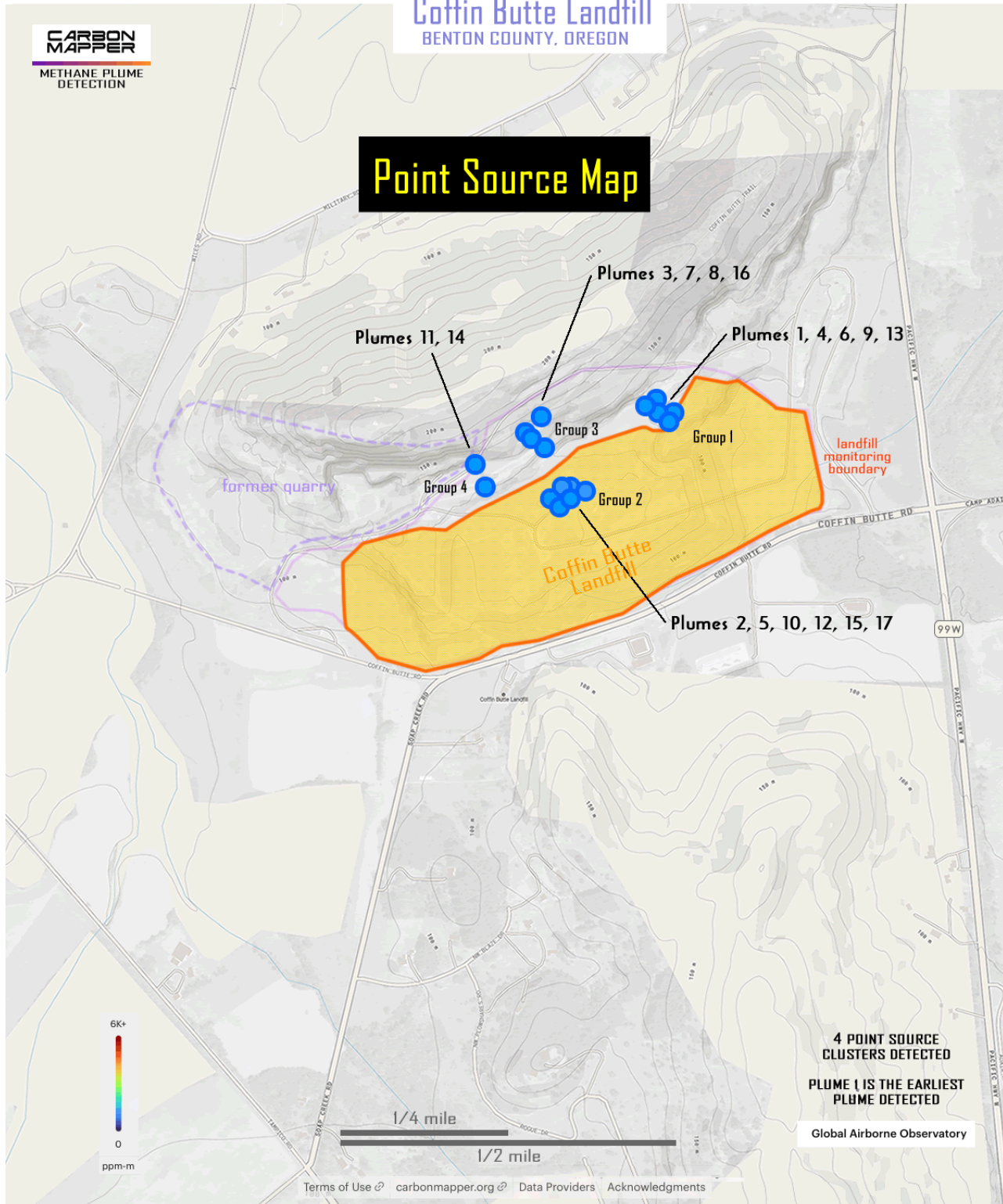
NARRATIVE 4a: representative landfill gas plumes, Coffin Butte Landfill



NARRATIVE 4b: representative landfill gas plumes, Coffin Butte Landfill



Point Source Map



NARRATIVE #5: THE ENDURING SYSTEMIC BLINDNESS OF CURRENT PROTOCOLS.

On June 21, 2024, the EPA staged an unannounced follow-up inspection of Coffin Butte Landfill. As in the first EPA inspection, the surface emissions monitoring conducted by the EPA inspectors traversed only a small area of the landfill's surface. The inspection uncovered 41 incidents in which readings exceeded the threshold of 500 ppmv of methane. One of these incidents was a landfill gas well *with no cap*; methane was detected here at the level of 118,265 ppmv before the instrument flamed out – *237 times* the threshold level.

So: a team of inspectors began to traverse a landfill and in less than an hour found 20 leaks, culminating in the discovery of an uncapped well venting landfill gas straight into the atmosphere. This result raises serious questions about the condition of a landfill in between self-inspections. Were there other uncapped wells? How long had that well been uncapped? Did previous self-monitoring miss it? If so, for how long? (Months? Years?) Did remediation fix the condition completely? Or at all? If capped again, did the gas find a new avenue to escape? And so on.

Currently, these questions go entirely unanswered. Even with an egregious incident such as an uncapped gas well, there is no reliable third-party data being collected to lend insight or ensure improvement. Currently, we are systemically blind.

The key contribution of SB 726, in my view, is that it addresses this systemic blindness very simply and directly. Under SB 726, for the first time, every time an inspection is made, it impartially establishes the condition of the landfill with a very high degree of confidence. And these statements of condition add up to a clearer understanding of how a landfill is performing over time – which enables better utilization of regulatory resources. This sort of intelligent allocation of effort

is essential for the State of Oregon to achieve its pollution reduction goals.

The other key contribution of SB 726 is that it opens the door to innovation in assessing landfill operations more accurately. There are multiple new measuring technologies that can be used; all are more cost-effective than current procedures; they can be called upon to interact in innovative ways that maximize the strengths of each. SB 726 offers a positive way forward that the current system demonstrably does not have.

NARRATIVE #6: EMPOWERING COMMUNITY MONITORING.

The information contained in this testimony has been acquired only through an extraordinary effort by concerned members of the Oregon public. It has required extensive research, FOIA filings, consulting with experts, extensive public records requests at the state and local level, extensive communication with Republic Services, and huge contributions from the public.*

This level of effort, however, pales in comparison with the gravity of the problem before us. The harms of unmonitored, uncontrolled releases of landfill gas – in terms of their air quality and health impacts, and especially regarding the climate damage of their greenhouse gases – leave us with no choice but to persevere.

By opening up the landfill monitoring and regulation process to open sources of knowledge acquisition such as MethaneSat, Carbon Mapper, and other climate action organizations, SB 726 empowers Oregon communities to work with state and local officials to ensure the health and prosperity of the state. With access to publicly available data, concerned communities can contribute to monitoring efforts, rather than fighting gatekeeping of performance data by landfill owners or overburdened government agencies.

CONCLUSION

The current protocols for monitoring and enforcing responsible landfill management are demonstrably broken. Landfill operators can and do make use of any of a number of loopholes and workarounds to avoid taking measures that would protect air quality, increase energy efficiency, and lessen climate damage. There is no counterargument to images of plumes of landfill gas over a mile long and a half-mile wide streaming off a landfill – especially when, in order to be visible in that image, that gas is at EPA super-emission levels.

Although, as a resident of Benton County, my testimony has focused on Coffin Butte Landfill, I'm keenly aware that other landfills in Oregon may be similarly underperforming. Wasco Landfill, for example, also has large methane plumes – in its case, large enough to be imaged from the International Space Station.

The case for SB 726 can be simply stated: every time that an entity not Republic Services/not paid by Republic Services has pointed a methane detector at Coffin Butte Landfill, that methane detector has returned readings of uncontrolled landfill gas being emitted (a) at super-emissions levels or (b) from multiple sources or (c) both. Every. Time. For almost three years now. Yet current protocols have proven themselves helpless. Monitoring by the protocols proposed for SB 726 would provide a more accurate and comprehensive picture of leaking landfill gas, and thus more ability for landfill owners to self-correct (or for enforcement).

I'm sure that landfill owners will object if there is increased cost to them under SB 726. I would like to point out that, in the case of Coffin Butte Landfill at least, the landfill operators have been able to profit for years on the maintenance and remediation that they have successfully deferred. We might reasonably ask if their objections amount to protesting against at last paying full fare for their profit-taking actions.

SB 726 is a necessary bill that will protect the public's health through enhanced methane monitoring, enabling landfill methane emissions to be more accurately measured and reported, and empowering action to be taken to fix leaks and reduce all landfill gas emissions. It will increase a landfill's ability to convert its landfill gas to energy more efficiently. The goals and proposed structure of SB 726 will enable Oregon state government to take a significant step forward to address the current shortcoming in protecting Oregon communities and the global climate from toxic landfill gas leaks. It will enable the State of Oregon to join with its public in taking measured and commonsense action to preserve our common airshed.

Thank you, Senator Gelser Blouin and Representative McDonald, for sponsoring this bill.

Respectfully submitted,

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Past Chair, Disposal Site Advisory Committee, Benton County
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