

Janet Dobrowolski

Please see the attached file for comments on the proposed new methane emission rules. Thank you.

Public Comments
Department of Ecology proposed rules:
Chapter 173-408 WAC, Landfill Methane Emissions

December 13, 2023
Submitted to
Department of Ecology

My name is Janet Dobrowolski and I am a private citizen living next to the Cedar Hills Landfill. I have lived here over 30 years and have been impacted by CHRL's emissions and odors. My experience in dealing with CHRL is the basis for many of the comments and CHRL data is being used as examples. While the comments may not apply to other landfills, the fact that CHRL is one of the largest MSW in the state, should bear some weight as to their legitimacy and impact on reducing methane emissions.

Please consider the comments below in finalizing your proposed new methane emissions rules for Washington landfills, Chapter 173-408 WAC. Your efforts to improve our environment and help stem the release of damaging methane from landfills are greatly appreciated. However, as you will see from reading the comments there are several areas that need to be improved if the rules are to have any significant impact on methane emissions.

Landfills that are located west of the Cascade in very wet areas should have additional monitoring considered. Because of the amount of rainfall we get, it increases the amount of methane that is created. The EPA calculation for methane generation underestimates the amount of gas created by landfills that get more than the maximum 40 inches they allow for in their calculations. Cedar Hill Regional landfill receives more than 50 inches of rainfall.

Page 1-4: WAC 173-408-020 Definitions

Additional definitions for "instantaneous" and "integrated" surface monitoring should be included. Definition for "local authority" should be added.

Page 4: WAC 173-408-030 Applicability.

(1) This chapter does not apply to the following landfills:

(d) A "limited purpose landfill" as defined in WAC-173-408-020

Any landfill that produces methane should be subject to methane monitoring, not just MSW landfills. There are some limited purpose landfills that produce methane and they should not be exempt from monitoring

Page 5:

(2) Jurisdiction.

(a) The owner or operator of a landfill that is located within the jurisdiction of a local authority activated in accordance with chapter 70A.15 RCW must submit all reports and other information required by this chapter to the local authority unless otherwise stated in this chapter.

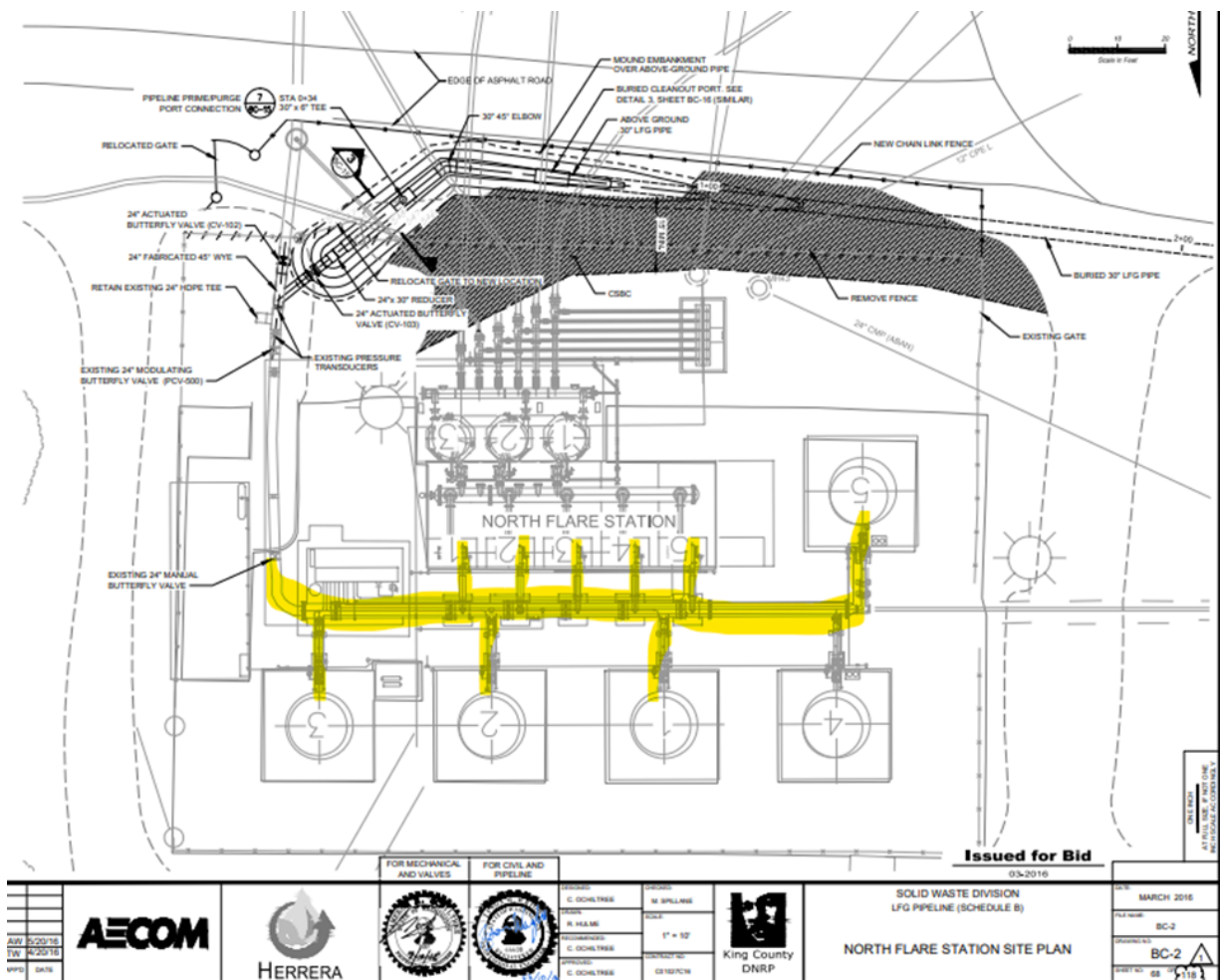
When referring to a "local authority", is it federal? City? An agency like Puget Sound Clean Air Agency? A permitting agency?

If all the reports are going to a local authority, who is responsible for follow up for violations? Is DOE notified of violations by the local agency? What role will DOE play if all reports go to the "local authority"? The idea that the rules leave accountability to the local agency creates the same situations that exist today – local authorities being complacent or permissive in their administration of the rules. If there is no oversight of the "local authorities", how will we, the public, really know the authority isn't looking the other way, or applying the rules differently than another landfill – like the "exempt" rule? There needs to be consistency across the state as far as a compliance authority and oversight, not individual "local authorities" which may have their own biases, complacencies, etc. To truly ensure the regulations are upheld and methane emissions are reduced for the state, there must be a central authority that will review the data from all landfills.

Page 9: WAC 173-408-080 Gas collection and control systems.

(3)(b) Operate the gas collection and control system so that there is no landfill gas leak that exceeds 500 ppmv, measured as methane, at any component under positive pressure.

Ecology must include quarterly methane SEM along **any** length of LFG conveyance system that is under positive pressure. At CHRLF's North Flare Station, there is a short distance right after the five blowers where the LFG is always under positive pressure. There are significantly aged pipe connections that always leak raw LFG into the ambient air, whether or not LFG is combusted at flares or sent to BEW for conversion to renewable energy. KCSWD excludes these areas of positive pressure with known leaks of raw LFG from SEM. These continuous leaks of raw LFG have methane emissions often exceeding 100,000 ppm (please see highlighted pipes under continuous positive pressure at CHRLF's North Flare Station).



Page 13: WAC 173-408-100 Methane concentration limits.

(2) No location on a MSW landfill surface may exceed the following methane concentration limits, dependent upon whether the owner or operator of the MSW landfill conducts instantaneous surface emissions monitoring or integrated surface emissions monitoring pursuant to WAC 173-408-110(1):

This rule states “**no location**” on the landfill surface may exceed....concentration limits. This implies there should be no **exempt** or **excluded** areas on the landfill surface for monitoring.

Both monitoring methods should be required, especially for the larger landfills, not necessarily based on tonnage, but additionally based on footprint or surface area size.

- (a) Five hundred parts per million by volume, other than when measured by non-repeatable, momentary readings, as determined by instantaneous surface emissions monitoring; or**
- (b) An average methane concentration limit of 25 parts per million by volume as determined by integrated surface emissions monitoring.**

Footprint of a landfill should also be considered when setting limitations and monitoring. A 25 acre landfill that exceeds the 25ppmv average actually emits far less methane into the atmosphere than a landfill of 400 acres with, say 4 - 25 acre sections exceeding the 25 ppmv. Are each areas of a larger landfill considered separate when it comes to violations? Or is it considered 1 violation for the entire landfill? If a large landfill uses the instantaneous method and doesn't exceed the 500ppmv but would exceed the 25 ppmv in those 4-25 as in the example above, aren't they as guilty of violations as the small landfill? This is an argument to use BOTH methods, at least for the larger landfills.

(3) Any reading exceeding the applicable limit set forth in subsection (2) of this section must be recorded as an exceedance and the following actions must be taken:

- (a) The owner or operator must record the date, location, and value of each exceedance, along with retest dates and results. The location of each exceedance must be clearly marked and identified on a topographic map, at a minimum, of the MSW landfill, drawn to scale, with the location of both the monitoring grids and the gas collection system clearly identified;**
- (b) The owner or operator must take corrective action, which may include, but not be limited to, maintenance or repair of the cover, and well vacuum adjustments. The location or locations of any exceedance must be re-monitored within 10 calendar days of a measured exceedance; and**
- (c) The owner or operator must notify the department or local authority pursuant to WAC 173-408-110 (1)(b).**

According to WAC 173-408-110 (1)(b), the notification must be within 2 working days of when *corrective action is taken*, but if the source of the leak is undeterminable in a timely manner, delaying any corrective action, it could take days or weeks before notification is made. The owner operator may need multiple “10” day re-monitoring if they can't locate the source. Notification of an exceedance should not wait until corrective action is taken, it should be timelier.

Does corrective action include just plans to fix it or do repairs have to have been started? Where collection pipes have failed because of sagging and becoming clogged with water and leachate and it is determined that vertical pipes will need to be installed when would notification be required? If it takes a year to implement the installation, is the “corrective action” the plans or is it the installation?

(4) The requirements of this section do not apply to:

- (a) The working face of the landfill;
- (b) Areas of the landfill surface where the landfill cover material has been removed for the purpose of installing, expanding, replacing, or repairing components of the landfill cover system, the landfill gas collection and control system, the leachate collection [13] OTS-4735.2 and removal system, or a landfill gas condensate collection and removal system;

Would this also include stockpiling of cover soil for use in the active area since the soil will be used as a lift cover? Areas that have been previously excluded in a local landfill are those with “intermediate cover”. These areas have had soil stockpiled at times and equipment moving it around, so they’ve labeled it as “dangerous” to monitor. How are areas with intermediate covers defined and categorized in these new rules? Are they just another part of the landfill that requires monitoring? If so, it may be helpful to identify them as areas that are not to be excluded.

Page 14 WAC 173-408-110 Monitoring

First and foremost, independent outside contractors should be used for monitoring, at least for the larger landfills. Self monitoring does not and has never worked to protect the environment or the public. An owner/operator will protect their business over what’s right most of the time. Manipulation and suppression of the data has been used to portray results in a better light. Trust in self-monitored results is not high.

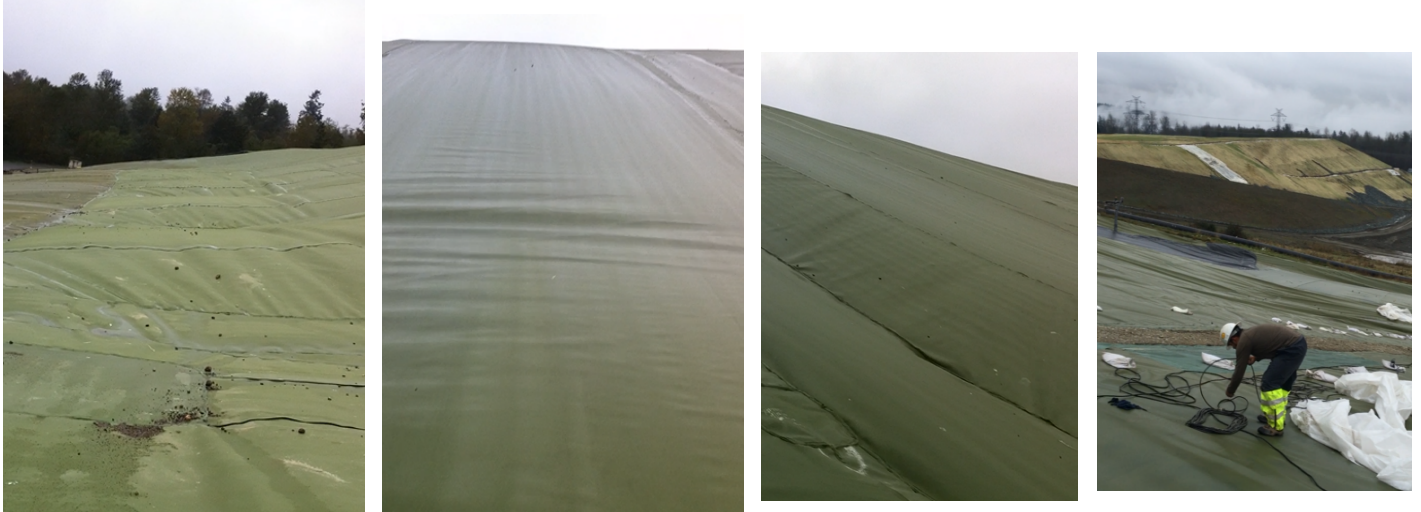
(1) Surface emissions monitoring: The owner or operator of a MSW landfill with a gas collection and control system must conduct *quarterly instantaneous or integrated surface monitoring of the landfill surface according to this subsection and the procedures specified in WAC 173-408-120(3).*

Monitoring should be performed more frequently than once a quarter. Drones can cut down on the time it takes to perform the walking serpentine monitoring, allowing it to be performed more often. Both results should be performed given the data points are all recorded.

Landfills should be required to use both methods – the instantaneous and integrated. This would give a better picture of how much a landfill is leaking. If both methods use the same data points, as collected by a device that records all readings, it would be a simple matter to include both. While one area may have 1 or 2 exceedances of the 500 ppmv, there may be several areas that exceed the 25 ppmv. Why wouldn’t you require both? In other words, if a large landfill emits just under the 500ppmv threshold in all monitored areas, they would be considered in compliance if using the instantaneous method. However, if they were to use the integrated method, mathematically, they would be above the 25 ppmv.

As an example of why both should be required, using real world data, there were 2 studies done at a local landfill at different times, one contractor used the SEM5000 self recording instrument over the entire landfill, excluding the active area. Of 17,012 methane measurements, there were 223 readings exceeding the 500, 540 readings between 100 and 500, and 4,713 readings between 5 and 100. The majority of those 3 categories were in the areas that have been excluded in the past. The contractor measured the average surface methane emission to be 55 ppm. In addition to the handheld data, another contractor did a drone analysis and found similar leakage. The landfill quarterly reporting for the time periods of the contractor reports did not correspond to the results by the contractors. Given a choice, a landfill owner/operator would probably choose the method that allows the landfill to meet regulations rather than one that may expose deficiencies.

Along with quarterly monitoring, Ecology must include any event that exhibits methane leaks as an event-driven monitoring requirement. Ecology's new rule completely ignores the frequently occurring LFG ballooning events at landfill side slopes due to LFG pressure build-up, such as in CHRLF areas 6 and 7 (please see figures below). The ruptures, tears, and holes in these landfill cover systems have a colossal impact on raw LFG emissions into ambient air. Ecology must include these ballooning events as part of **event-driven** methane SEM reportable to PSCAA.



Furthermore, Ecology new rules must include event-driven methane SEM for frequently occurring LFG bubbling into the ambient air when surface ponding water introduce preferential pathways for raw LFG emission into the atmosphere (Please see photos below).



(1)(a) A surface monitoring design plan must be developed that includes a topographical map, at a minimum, with the monitoring traverse, exempt areas, and the rationale for any site-specific deviations, and the surface monitoring design plan must be provided upon request by the department or local authority. Page 14

According to WAC 173-408-100 (2) "No location on a MSW landfill surface may exceed the following methane concentration limits.... This implies there are NO exempt areas. Exempt areas are another form of a loophole to monitoring. If a landfill can define their own exempt areas, without oversight, they dictate what areas they DON'T want monitored. If drones were required, there would be no exempt areas.

All areas should be monitored.

In the case where an air permit from PSCAA allows for areas to be exempt due to cover system, safety purposes – steep slopes, machinery movement, etc., the rule should be made clear which regulation takes precedent. If the "exempt" area in the rule above is determined by another regulatory agency and it takes precedent, it should be made clear that **only** exempt areas designated by the regulatory/permitting agency will be allowed.

The definitions used to determine areas to be monitored – landfill surface, working face, types of cover, inactive area – have been made so unclear and subject to interpretation that it has given landfills the ability to exclude some of these areas from quarterly methane Surface Emission Monitoring (SEM) while the regulatory agency can "overlook" any missing data.

According to USEPA's Landfill Mandatory GHG Reporting (40 CFR 98 Subpart HH, Table HH-3, shown below), there are three types of surface covers in most landfills that have refuse in-place with active LFG collection system:

1. Daily Soil Cover Area (Type A3)
2. Intermediate Soil Cover Area (Type A4)
3. Final Soil Cover Area (Type A5)

Surface Area, square meters	
[A1] = Area with no waste in-place	X
[A2] = Area without active gas collection, regardless of cover type	0
[A3] = Area with daily soil cover and active gas collection	4,047
[A4] = Area with an intermediate soil cover, or a final soil cover not meeting the criteria for A5 below, and active gas collection	218,530
[A5] = Area with a final soil cover of 3 feet or thicker of clay and/or geomembrane cover system and active gas collection	1,161,448

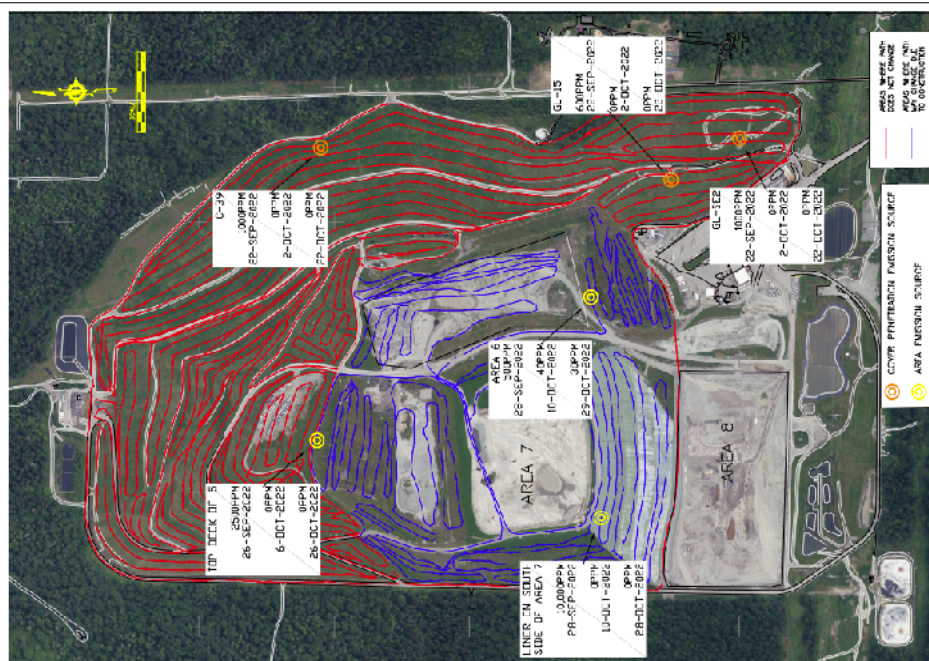
Landfill gas collection efficiency (Value from Table HH-3)	
Not applicable; do not use this area in the calculation	Not applicable; do not use this area in the calculation
CE2: 0%	0%
CE3: 60%	60%
CE4: 75%	75%
CE5: 95%	95%

Ecology must abide by the Federal regulations and use the same definition for landfill surface covers (daily soil cover, intermediate soil cover, and final cover). This is important because raw LFG is most probably emitted from areas of landfills that have no final cover (final cover areas of landfill have HDPE covers fused and sealed permanently with landfill bottom HDPE liner). Typically, landfill operators exclude the daily soil cover area for SEM due to safety concern associated with the operation of heavy equipment. However, for the most part, KCSWD has been excluding vast intermediate cover areas from quarterly methane SEM, and that is against the USEPA's intent for SEM.

It is precisely because of Ecology's misleading terminologies that KCSWD has been able to exclude intermediate cover area from the quarterly methane SEM and seemingly obtain PSCAA's tacit approval. No other landfill in the U.S. excludes intermediate cover areas from the quarterly methane SEM (please see below for areas typically excluded from SEM by KCSWD in one of its annual report).



For years, CHRL has excluded the areas marked to the left for monitoring. They are areas that had interim covers, stockpiled dirt, and closed area 7. They are areas most like to leak the most. This is the reason there should be no loopholes in monitoring.



This is from 2022 Qtr 3. Thankfully, they have started to monitor the previously excluded areas, but with a caveat. The legend for the blue areas says the serpentine path may change due to construction. This should not be allowed. If they can't walk it, then use a drone. There was still a large area in Area 7 that was not monitored. In addition, if this is a

quarterly report, how long was the leak on the south side of Area 7 emitting methane? The SEM reads 10,000 ppm. 3 months since the last reading? 1 month? 1 day?

(1)(c) Instantaneous surface monitoring: Any reading exceeding the limit specified in WAC 173-408-100 (2)(a) must be recorded and reported as an exceedance and the following actions must be taken:

(i) The owner or operator must record the date, location, and value of each exceedance, along with retest dates and results. The location of each exceedance must be clearly marked and identified on a topographic map, at a minimum, of the MSW landfill, drawn to scale with the location of both the grids and the gas collection system clearly identified.

While ecology mandates quarterly methane SEM on the intermediate and final cover areas, for those landfills not using an instrument to record all data points, no actual data is presented as evidence or a demonstration of compliance with fugitive emissions below 500 ppm. For the past decade, KCSWD operators have simply presented a blank sheet of paper with a handwritten, slashed line of "no exceedance" as evidence or a demonstration of compliance without a shred of evidence (ie photos of GEM 5000 or SEM 5000 field readings or tabular readings of instrument's data logger). Even though it appears KCSWD is now using recorded data points, the employees still appear to be filling out a form such as the one below. In some recent quarterly reports where there were exceedances shown on the map (as in the previous graphic) the forms filled out by the employees showed no exceedance record for that day.

**DNRP / King County Solid Waste
Serpentine Surface Monitoring Data**

Landfill Site: Cedar Hills

Date: 12/31/18

Cal. Time: 10:30 am

Calibration:

Technician: J. Parker

Test Instrument used: TV4 1000

Surveyor: PJ

Cal. Gas Lot No: 20328

Cal Gas Used:

CH₄ 496 ppm

O₂ Zero

Barometric Pressure		Time
Start		<u>10:30 am</u>
Stop	<u>30.32</u>	<u>3:00 pm</u>

90% response time in seconds:

1 4 seconds

2 4 seconds

3 4 seconds

avg. 4 seconds

Weather Conditions: Sunny, Fog

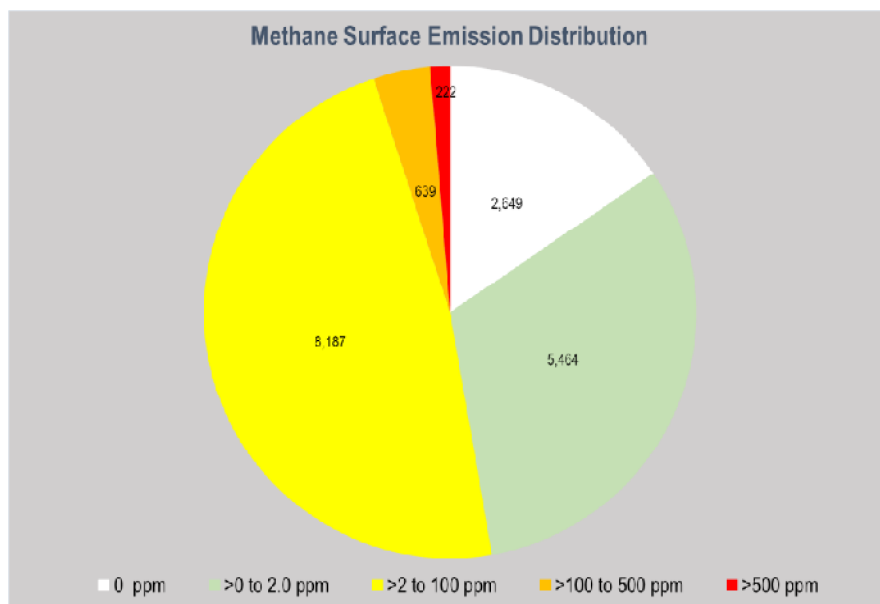
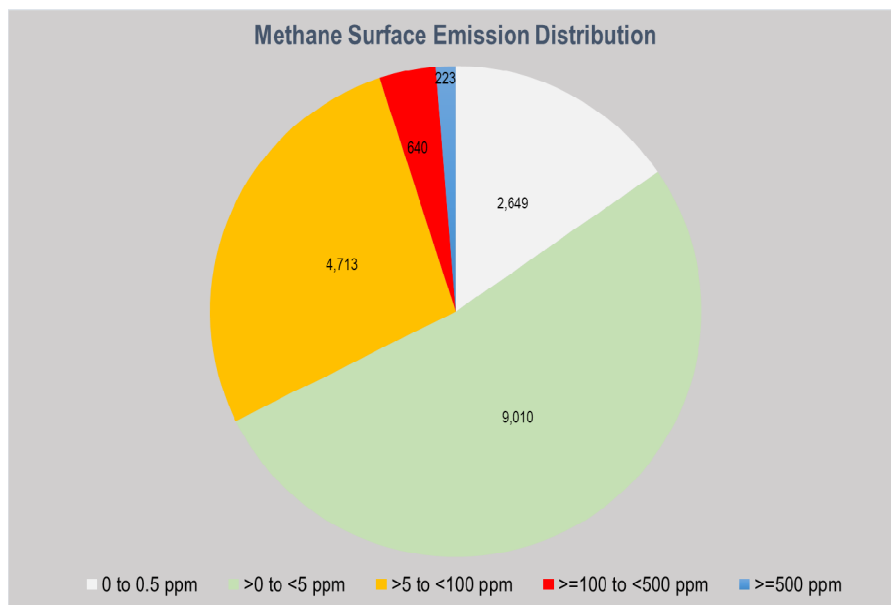
Wind Speed &

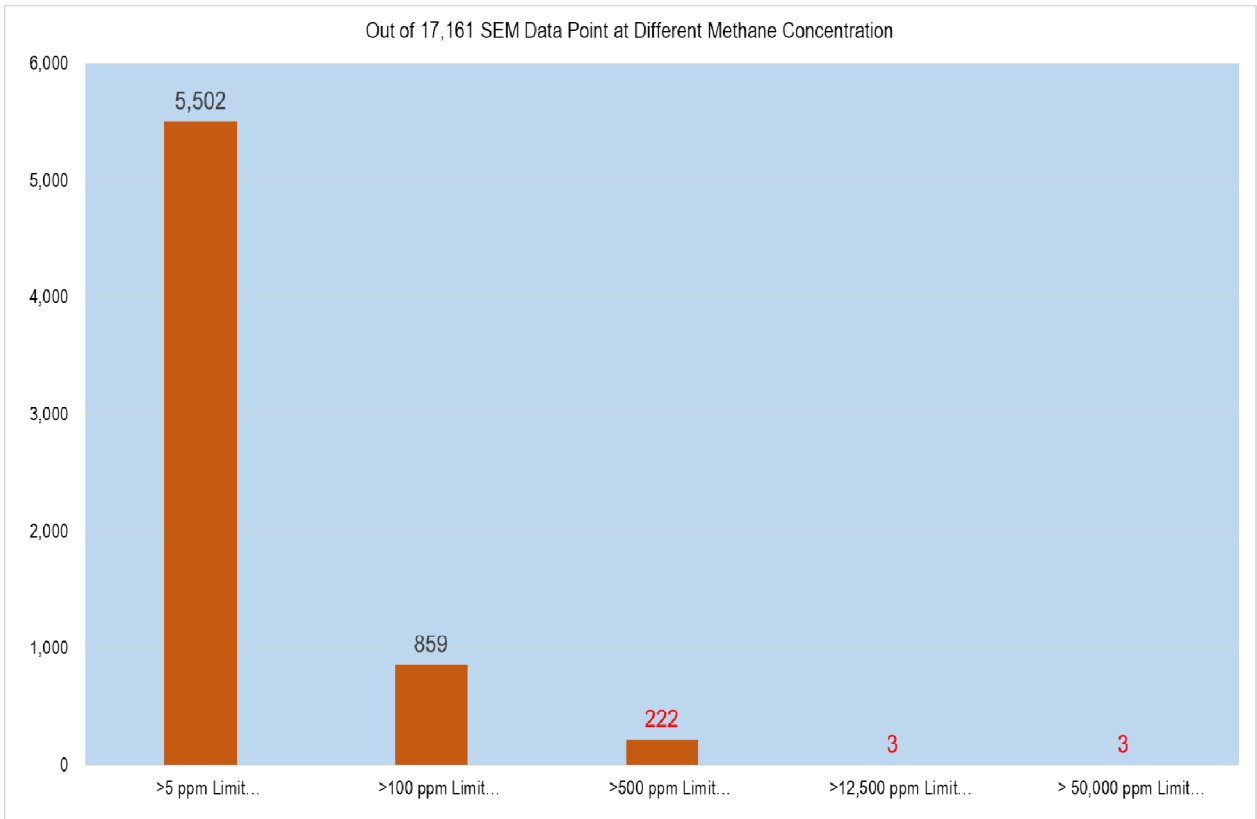
Direction (out of): 2 mph N.E.

Northing (UTM #)	Easting (10 T #)	Time	Comments
<u>NO EXCEEDANCE</u>			

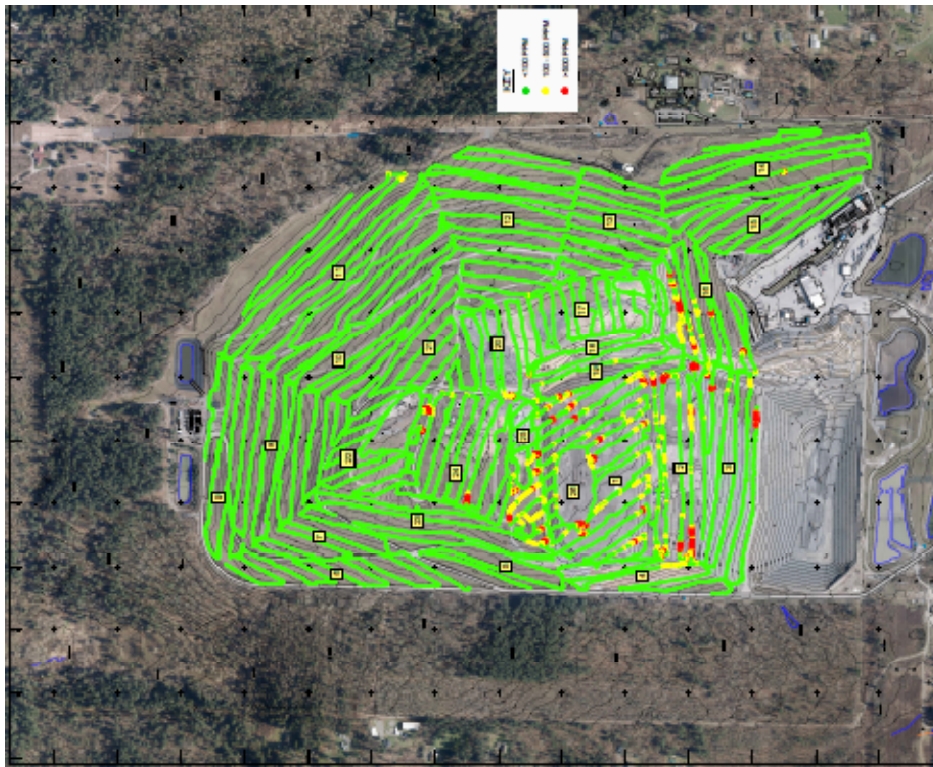
Neither Ecology nor PSCAA indicate what and how an instrument should be used for reliable demonstration of the quarterly methane SEM at landfills. Both the GEM 5000 and SEM 5000 instruments have data loggers that register methane concentration during quarterly SEM once every 5 seconds without any human interference. These data points can be plotted to show how many methane readings were actually above or below 500 ppm.

While KCSWD has previously provided no evidence for quarterly methane SEM field readings, the one time that KCSWD used a professional 3rd party consultant to conduct a methane SEM at CHRLF on October 15, 2018, the result was astonishing evidence of non-compliance with numerous methane hits centered around the intermediate cover Areas (please see graphs of 17,161 data points collected during the 2018 methane SEM).





As shown in the above graph, 222 data points had methane concentration above 500 ppm, and 3 data points were above 50,000 ppm. The highest methane reading was at 82,400 ppm, these are a significant emission of raw LFG into the ambient air!



This is the illustration of the serpentine pattern monitoring performed by the professional 3rd party consultant.

These examples and data show why it is so important for a landfill to monitor ALL surfaces. How much methane has been leaking from CHRL over the years because it was allowed to exclude the areas that are most prone to leakage?

Ecology and PSCAA are obliged to close these egregious loopholes to fully comply with the USEPA's intent in requiring quarterly methane SEM at landfills. Rather than outlining numerous opportunities to relax the USEPA regulations for landfill operators, Ecology and PSCAA must make their rules more stringent when violators take advantage of these loopholes.

Page 16: WAC 173-408-120 Test methods and procedures

(1)(a) EPA Reference Method 21, Determination of Volatile Organic Compound Leaks, 40 C.F.R. Part 60, Appendix A (as last amended 65 Fed. Reg. 61744 (October 17, 2000)), which is incorporated by reference herein, except as follows: Page 16

The use of the best available technology for methane monitoring can significantly improve the methane monitoring process and should be used. Drones are the best option to perform testing across the entire landfill, with no exclusions for “dangerous” areas or other excuses. The EPA has approved the use of the Sniffer DRONE for methane monitoring under OTM-051 - UAS application of Method 21 for Surface Emissions Monitoring.

<https://www.epa.gov/system/files/documents/2022-12/OTM%2051-%20UAS%20Application%20of%20Method%2021%20for%20Surface%20Emission%20Monitoring%20of%20Landfills.pdf>

<https://www.snifferrobotics.com/post/us-epa-approves-the-snifferdrone-for-monitoring-landfill-methane-emissions>

Use of drones should be mandatory, especially for the large landfills, to replace the need to have employees walking the serpentine patterns. In addition to time saving, it eliminates any human error when taking and recording readings from the hand held devices. For a landfill which may have a waste footprint over 400 acres, walking the serpentine pattern is time consuming and can lead to operator error due to tediousness and just plain exhaustion. It's human nature. With the drone, a landfill could increase the frequency of monitoring if necessary. Having an electronic record of all the readings, even if under the threshold lends more credibility to the results, especially when self monitoring. Some data from self monitored facilities can be suspect as to whether it is really accurate or if it has been manipulated in some way. This is true when non-compliance leads to substantial fines.

Arguments for using a drone vs a handheld Sem unit:

- Potential injury, lost time, and increased costs caused by the safety and health
- As allowed by the permitting agencies, sections of the landfill may be omitted from the SEM due to steep slopes, type of cover and other safety concerns.
- High degree of subjectivity in the current SEM procedures due to inherent biases and preferences of the SEM operators.
- High degree of variability in conducting the SEM scan, resulting in inconsistencies; for example, the SEM walking path is imprecise resulting in significant gaps in the spacing.
- Errors in the 3” limit from the surface is a discrepancy waiting to happen, leading to operator error.

If drones aren't mandatory, then at least the self-reporting monitors should be so all electronic data points can be recorded, and again, not rely on hand written records.

With a drone, it may even be possible to respond to odor complaints by measuring any methane that may be present in buffer zones near to the odor complaints.

Page 17: (3)(a) Monitoring area: The entire landfill surface must be divided into individually identified 50,000 square foot grids. The grids must be used for both instantaneous and integrated surface emissions monitoring.

50,000 Sq ft is a little over 1 acre (1.15). For a landfill the size of Cedar Hills with actual waste area around 420 acres, will this be reasonable? Will the local permit from PSCAA override this requirement? Will this be one of those “exceptions” that will be allowed? With a drone, it should be programmable and not an issue.

Page 17: (3)(a)(i) Testing must be performed by holding the hydrocarbon detector's probe within three inches of the landfill surface while traversing the grid.

This measurement appears to also apply to the drone technology approved by the EPA – 5 to 10 cm. The statement says “performed by holding” – this assumes the handheld device. It should be updated to include drone technology and its use.

Page 17: (3)(a)(ii) The walking pattern must be no more than 25-foot spacing intervals and must traverse each monitoring grid

Cedar Hills permit from PSCAA has required 30 meter intervals. The difference between the air permit requirement and the proposed rule is substantial. The new rule needs to be very specific as to whether the new rules supersede regulations from other agencies.

Page 17: (3)(c)(ii)(A) If the owner or operator measures no exceedances of the limits specified in WAC 173-408-100(2), after any four consecutive quarterly monitoring periods, the walking pattern spacing may be increased to 100-foot intervals.

When reviewing the 4 consecutive quarterly monitoring periods, will the DOE look at what areas were actually monitored? The CHRLF has, in the past, excluded certain areas for various reasons. These areas that have been excluded include 2 areas with intermediate cover and the most recently filled area. The 2 areas are prone to leaks since they do not have final covers on them and there has been substantial evidence of the fugitive gas. The third area has had a final cover installed, but the capture system appears to be failing in areas so they have had to install vertical piping. The areas that *are* monitored rarely show any exceedances.

If the DOE were to allow a “partial” monitoring to establish the interval spacing to determine the increase of the walking pattern, then the rules have very little meaning.

This is also another area that is in conflict with the permitting agency, PSCAA, for CHRL. If a landfill fill were to qualify for the 100 foot intervals, then PSCAA requirement would be less than slightly less – 98.4 feet (30 meters). DOE should be consistent with units used by the USEPA and PSCAA to reduce confusion.

The rules should require ALL the data points from a drone or handheld device to be included in the quarterly reporting. While there may be a few exceedances, there may be a considerable number of values that are close to the limit. The raw data should be in the quarterly reporting that is made available to the public.

Page 19 WAC 173-408-130 Alternative compliance measures.

(1) The owner or operator of a MSW landfill may request alternatives to the compliance measures, monitoring requirements, and test methods and procedures set forth in WAC 173-408-080, 173-408-110, and 173-408-120. Any alternatives requested by the owner or operator must be submitted in writing to the department.

There should not be “alternative compliance” measures. Either they follow the rules or not. Injecting loop holes into the new rules does nothing but weaken the rules. Too often facilities use these loopholes to skirt the regulations. It also sets up situations where requests are made that get rubber stamped just because of who the owner/operator is. Do not allow alternative compliance rules.

Compliance Inspections?:

(iv) Any exceedances of the limit specified in WAC 173-408-100 (2)(a) detected during any compliance inspections that cannot be remediated within 10 calendar days will result in a return to quarterly monitoring of the landfill.

(iv) Any exceedances of the limits specified in WAC 173-408-100 (2)(b) detected during any compliance inspections will result in a return to quarterly monitoring of the landfill.

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(A) If the owner or operator measures no exceedances of the limits specified in WAC 173-408-100(2), after any four consecutive quarterly monitoring periods, the walking pattern spacing may be increased to 100-foot intervals. The owner or operator must return to a 25-foot spacing interval upon detection of any exceedances of the limits specified in WAC 173-408-100(2) that cannot be remediated within 10 calendar days or upon any exceedances detected during a compliance inspection.

Page 17 & 18

(B) If an owner or operator of a MSW landfill can demonstrate that in the past three years before the effective date of this chapter that there were no measured exceedances of the limits specified in WAC 173-408-100(2), by annual or quarterly instantaneous surface emissions monitoring, the owner or operator may increase the walking pattern [17] OTS-4735.2spacing to 100-foot intervals. The owner or operator must return to a 25-foot spacing interval upon detection of any exceedances of the limits specified in WAC 173-408-100(2) that cannot be remediated within 10 calendar days, or upon any exceedances detected during a compliance inspection. The demonstration must prove to the satisfaction of the department or local authority that any instrument used for methane detection meets the requirements of subsection (1) of this section.

The above sections in the proposed rules mention compliance inspections, but there doesn't appear to be any mention of how often a compliance inspection is expected – annually? scheduled or unannounced? Only when there is a violation? Is it the permitting agency that dictates when there is a compliance inspection? This should be made clear.

Compliance inspection is also not mentioned in the Chapter 70A.540 RCW LANDFILLS—METHANE EMISSIONS or in WAC Chapters 173-351 on Criteria for Municipal Solid Waste Landfills, at least not that I could find.

Without regular monitoring/inspections by the DOE, how can the department be sure the reports they or the “local authority” received from the landfills are accurate and true? The suggestion that some

landfills may manipulate their data and quarterly reports in such a way to stay compliant is not a foreign idea.

It should be clear if DOE or the local authority will be conducting compliance inspections, when, regular and/or unannounced, only upon violations etc.. For these rules to be valid, compliance testing must be done and not dependent on self-monitored results.

Page 20: WAC 173-408-160 Recordkeeping requirements.

Page 21: (1)(a)(v) Records of all instantaneous surface readings of 200 ppmv or greater, pursuant to WAC 173-408-120 (3)(b)(i).

The requirement to record all instantaneous surface readings of 200 ppmv also appears in Chapter 173-408-120 (3)(b)(i). If the permitting agency or "local authority" only requires a level of 500 ppmv to be recorded, which limit will take precedence? The more stringent?

Page 23: WAC 173-408-170 Reporting requirements.

Records described in this subsection must be retained in the operating record required by WAC 173-351-200 (10)(a).

Who will be reviewing the quarterly reports? Will someone collate all the data to analyze? Will there be any comparison year to year to see if the rules are accomplishing what the state is requiring? There needs to be a point person/department to manage this on a statewide basis, otherwise, there can be no accounting, as a state, as to whether or not it is reaching its goal of reducing methane from the landfills.

The Department of Ecology should consider conducting an aerial methane survey to find point-source methane emissions by using an airborne imaging spectrometer capable of rapidly mapping methane plumes. This type of survey was used by C.A.R.B. in 2020 and was instrumental in assisting landfills and compost facilities to identify their problem areas.

To summarize the comments, the following are the key points that need to be considered:

1. All landfills that produce methane should be included
2. All areas of the landfill should be monitored, no exemptions, no exclusions. Excluding any area only weakens the rules.
3. Equipment that records all data points automatically should be required and reports showing all data points should be submitted
4. Drones should be required in any area that a landfill believes should be excluded – as previously mentioned, there should be no exemptions or exclusions.
5. Clarification as to which regulations are to be used if the DOE and permitting agency or local authority have different requirements
6. Both instantaneous and integrated reports should be required, especially for the larger landfills. If the data points are recorded, it should be an easy option. A landfill may be compliant with the instantaneous monitoring, but not with the integrated.

7. Alignment with the USEPA regulations and definitions should be required, unless the regulations are more stringent. Again, it must be clear which takes precedence.
8. Event-driven surface emissions monitoring should be required and reported if exceedances are recorded.
9. Independent 3rd party consultants should perform quarterly SEM's. No more self-monitoring.

Department of Ecology has a good start on rules to reduce methane emissions, but the agency needs to close all loopholes to have a significant impact for reduction in methane emissions.

Thank you for your time.

Respectfully submitted,

Janet Dobrowolski