

**Cedar Hills Regional Landfill  
Spring 2023 Community Meeting  
Oct. 11, 2023  
In-person Presentation**

Facilitator Kalyn Brady opened the meeting. Tonight's speakers are:

**Pat McLaughlin, Solid Waste Division Director**

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**Laura Belt, Solid Waste Division Supervising Engineer**

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**Joseph Newton, Cedar Hills Regional Landfill Supervisor**

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## **Introduction**

Pat McLaughlin welcomed everyone. The goal of this semi-annual meeting is to provide neighbors of the Cedar Hills Regional Landfill an update on construction, environmental monitoring, and new technologies; to get feedback from members of the community; and to answer questions. Pat shared his excitement to have this meeting and expressed gratitude to all those attending.

The Division staff work hard to manage the solid waste in King County, and we are committed to continuous improvement in our everyday work.

We spend a lot of time trying to educate and inspire people to reuse materials but there is still the problem that 70 percent of materials coming to the landfill do not belong there. Another way of expressing that is that of the approximately 140 truck trips made to the landfill each day, about 100 are carrying materials that do not belong there.

We are continuously trying to figure out how to divert these materials from the landfill. Some of the materials, like food waste, are pest attractants and produce odors; better things can be done with these materials than burying them.

If there are concerns regarding operation of the landfill, we encourage you to call the 24/7 landfill hotline at 206-477-4466. There is always staff at the landfill.

Pat noted that due to pending litigation pertaining to some aspects of landfill gas collection and processing, we may not be able to address certain related topics this evening.

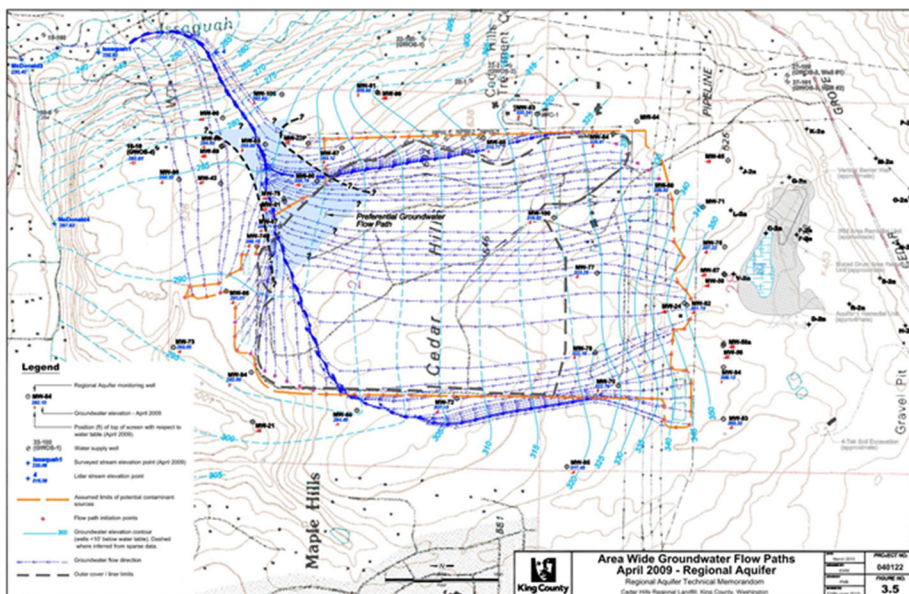
The audience can ask questions during the Q&A. If we run out of time, there will be another format available to ask questions.

## Construction and Environmental Monitoring: Laura Belt

We completed an analysis of our landfill gas system in 2021, and from that received a recommendation to incorporate more vertical wells in Areas 4 through 7. In 2021, nine vertical wells were added in Area 7. In 2022, SWD initiated design and location of 20 vertical wells in Areas 4 through 7.

Construction of additional vertical wells for extraction of landfill gas began in September and we expect this work to be completed by the end of the year. We are continuing to evaluate gas flow daily to identify any issues and make repairs where needed. We are also continuing to conduct quarterly surface emissions monitoring. In the future, we will be testing the use of drones and stationary locations to aid in the evaluation of emissions.

There are 48 groundwater monitoring wells located throughout the site. Monitoring for compliance focuses on the northeast corner of the site, which is the direction in which the groundwater flows under and exits the site. The groundwater level and quality are tested quarterly and the groundwater leaving the site is compliant with regulations and meets drinking water standards.



We are continuing to monitor the perched zone –the area impacted by past landfilling--and work with the Department of Ecology to implement recommendations and best approaches for dealing with this issue. We are in the process of performing an inspection of several monitoring wells, identifying wells for decommissioning and replacement as part of regular maintenance.

- We are currently negotiating a contract with a hydrogeology consultant to update the site-wide groundwater model.

- The leachate lagoon upgrades – which include reconstruction of lagoon liners, installation of cover, and aeration upgrades – are set to begin in 2024.
- We will soon begin the permanent facility relocation and will deconstruct current buildings once interim facilities are occupied.
- Area 8 planned construction for Stage 1 closure begins in 2024.
- Area 9 work will begin with soil removal in 2024.
- We are currently procuring a consultant for design of four interior landfill gas headers that are old and need reworking. This will most likely occur in 2024.
- Recent electrical upgrades completed at the North Flare Station have resulted in better operations and improved safety and accessibility for maintenance.
- We continue to plan for arsenic treatment options to address wastewater permit conditions.
- There are repairs taking place in the north buffer area to address erosion of a stream in the area.
- Maintenance projects on the landfill cover started this summer and will be completed this fall.
- This winter, we plan to install an additional flare for landfill gas from older landfill areas. We are also planning for buffer reforestation on the west side; reforestation of the western buffer is subject to permits so the division will have to determine what is needed.
- Later this year, there will be construction onsite as we build interim offices by the North Flare Station. Employees are being relocated to other areas of the landfill to accommodate new office space and support facilities.

### **Landfill Operations: Joseph Newton**

The fall public tour will be on Nov. 4 at 9:00 a.m. To sign up, call 206-477-4466.

We recently purchased eight properties along the east side for buffer reestablishment and have security patrols monitoring these properties three times between 9:00 p.m. and 5:00 a.m., seven days a week. Vegetation upkeep will continue during deconstruction of structures on the purchased properties.

The landfill is not open to the public and the front gate is now controlled by security access for employees and contractors only to prevent trespassing and unauthorized access.

***Kalyn Brady set the ground rules for the Q&A.***

## Question and Answer Period

**The transfer stations are doing a good job with encouraging and educating the public on cleaning their recyclables and putting them in to the right bins. How do you cooperate with the stations that collect the garbage?**

SWD operates the transfer stations and strives to get as many recyclables out of the waste stream as possible. SWD also educates the public about proper recycling and waste disposal, and how we process waste at the landfill. We look forward to finding more and different ways to facilitate reuse and recycling.

Pat discussed the Re+ initiative, a regional effort among local governments, haulers, residents, and businesses to put the 70 percent of recyclable or reusable materials currently going to the landfill back into the economy instead. RE+ can drive hundreds of thousands of tons out of the landfill.

Re+ refers to rethinking what we know as recycling and reimagining the materials stream. It continues to build on the fundamentals of recycling – reduce, reuse, recycle – and we are seeking to amplify our efforts in policies and partnerships. This is the right thing to do for the environment and the economy.

**A resident received notice of a notification on the facilities relocation project because the resident's property is within 500 feet of the landfill. What activity is happening that would impact their specific property? Regarding the Special Use Permit Notification, is work planned in or near the buffer?**

Notification regarding the Special Use Permit for new permanent facilities was issued by King County Permitting. Anyone whose property is within 500 feet of the landfill would get a notice from the permitting division, but it doesn't mean that a particular property would be impacted.

There will be no impact to the buffer.

**Regarding horizontal gas pipelines, a community member asked about gas leakage from some pipes that had sagged or settled. How long is going to take to get the vertical wells installed and what is the timeline to test the effectiveness of the vertical wells?**

The entire system is operating within permit standards. Many horizontal pipelines and wells are doing fine collecting gas, but some wells have settled, and SWD Operations has identified a process to fix them and get the vertical wells installed in those locations.

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Areas 4 through 7. Construction of additional vertical wells for extraction of landfill gas began in September and we expect this work to be completed by the end of the year.

**Does SWD need a bigger budget to manage all the work that needs to be done, and to do more?**

No. Budget is not currently a constraint; the current budget covers operations and maintenance needs at the landfill and across the entire system.

**Is it true the leachate ponds will be covered due to the presence of future office space?**

No.

**Are you concerned about the repairs throughout the landfill? Is SWD behind on repairs?**

No. We have conducted maintenance on all the facilities that need it, and these activities are ongoing.

**How many groundwater monitoring wells need to be replaced and where are they located?**

The groundwater monitoring wells that need to be redrilled and replaced consist of one on the west side and one on the east side.

**Where did the Area 7 soil and top covering come from?**

Most of the soil used is from soil excavated on site. These soils are tested and approved before we are allowed to use them.

**When will SWD close Area 8? Will there be vertical wells installed there?**

We anticipate this happening in 2026, given the rate at which we are currently receiving waste. The wells will be installed during staged closures and final closure.

**With all the questions about landfill gas and leachate aeration, when is SWD going to begin addressing community concerns about health? Are people safe and what can be shown to support that? How does SWD know emissions aren't impacting the community? What kind of protection is given to employees who work at Cedar Hills? Why isn't SWD notifying the Puget Sound Clean Air Agency about community concerns including the presence of an elementary school, and asking for more testing as a community protection measure?**

Staff follow various prescribed protocols and are equipped with personal protective equipment specific to the location and type of work they are performing. Updates are implemented as needed. There is no indication of a condition that would put residents or employees at risk. Residents are safe, and employees are safe. If we discover something is not safe, we address the issue immediately.

SWD has reached out to PSCAA to discuss our current permit conditions and potential approaches for studying flare emissions further.

**How is landfilling better than other disposal options if methane gas is still escaping? Will there or could there ever be a point that SWD will go to the Council and suggest a new disposal option like waste to export and close the landfill?**

Regarding other disposal options, an updated study is underway to understand how landfilling compares to other options in terms of environmental and other factors. A 2026 update to Comprehensive Solid Waste Management Plan will reflect that analysis in a new, long-term disposal method.

## LANDFILL GAS AND GHG EMISSIONS

**The County's greenhouse gas (GHG) reports indicated elevation of gas emissions. How will SWD address this problem? When calculating the emissions, which method did you use? Is SWD still using the same formula to calculate emissions?**

The issue of emissions is addressed through repair and maintenance of the landfill cover systems and the many components of the landfill gas collection system.

The Greenhouse Gas report table is a very formulaic approach for estimating what the landfill is potentially emitting. The model for what a landfill is potentially producing is a very simplified model approved by the EPA and applicable to all landfills nationwide. These formulas are generic, rather than specific to a particular landfill.

When we refer to fugitive emissions, the best method is to use models to calculate, as well as onsite monitoring to identify areas where emissions may be occurring. For modeling, we use the formulas prescribed by our regulator (Environmental Protection Agency).

We are using both HH6 and HH8.

- Equation HH6 estimates methane emissions from a landfill when the modeled methane (HH1) is greater than the recovered methane (HH4). The difference between the estimated amount generated and the amount collected results in the modeled level of emissions.
- HH8 applies gas collection efficiency to the measured amount of CH<sub>4</sub> recovered from the landfill to estimate emissions, based on factors such as the collection system coverage and landfill cover materials, e.g., daily soil cover versus final cover.



## **Why doesn't SWD go above and beyond regulations and test beyond what is required?**

SWD regularly goes above and beyond regulatory requirements such as our methods for logging detections during surface monitoring and conducting odor checks. Regular monitoring for emissions is conducted as described below:

- Once per month: monitoring of 150 monitoring probes installed on the perimeter of the landfill to locate any potential subsurface gas migration.
- Once per month: monitoring of 815 gas wells throughout the landfill, as required by EPA; the landfill gas crew attempts to conduct this monitoring twice per month, and once per week on some wells in the vicinity of the active refuse area.
- Quarterly monitoring for surface emissions across the entire landfill, about 35 to 40 linear miles in total; this method, called the "serpentine walk" is conducted by walking and/or operating a utility cart across passes spaced 30 meters apart.
- Quarterly monitoring inside buildings at the landfill and around the outside building perimeters.
- Quarterly monitoring for hydrogen sulfide at the active refuse area face to ensure worker and public safety.

Recent results are as follows:

- Monitoring data over the last several years from both subsurface probes and surface monitoring have indicated no increase in LFG emissions from previous years when modeled emissions were lower.
- Evaluations conducted inside and outside the buildings at Cedar Hills from 2019 to the present have found no detections of methane at the facilities.
- There have been no hydrogen sulfide detections since operations began at the active refuse cell where it is monitored.

## **Why did the level of gas collection drop from 95% to 78%?**

This issue continues to be carefully studied. To determine why we are collecting less landfill gas, we are looking at the possibility of less gas being produced, evaluating changes in our emissions measurements, and looking at the gas probes around the site. As described above, we conduct regular "serpentine walks" to monitor cover emissions and have installed probes around the landfill to monitor subsurface conditions. These monitoring efforts have shown no significant changes in emissions.

## **Will drones provide more accurate information modeling? Would a drone be able to cover the entire surface of the landfill and take readings of widespread methane?**

We are planning to conduct a pilot project with a drone to test the accuracy of methane emission detection. With the drone studies, we need to know that we will be able to duplicate

it out in the field and test what the emissions are. We do not know if it will give us more accuracy or provide us with a faster read.

We have researched two different drone technologies. The first one, Pergam, uses a laser to measure the amount of methane in a 10-meter column. This does not meet our regulatory requirements. The second option is to use a Sniffer Drone, and we have scheduled a test of this technology for October 25, 2023. There will be a tube on the drone, and we have concerns about the tube nearing uneven surfaces and possibly running into infrastructure on the landfill. We will also be putting stationary sensors out to detect what is happening over time in each location.

**BEW is prepared to do another drone flight. When BEW planned an unauthorized flight, SWD was prepared to charge BEW with trespassing. Is that still SWD's position?**

Yes. If BEW conducts an unauthorized flight over the landfill, it would be considered trespassing.

### FLARES

**Can a candlestick flare be installed that can be stack tested? Why are you choosing to burn the flares?**

Candlestick flares operated at required temperatures will achieve destruction levels.

We cannot stack test the turndown flare or low-BTU flare. We do conduct stack tests on the closed flares at the North Flare Station.

We are required to burn the gas when BEW's plant is not operating and not accepting landfill gas. If or when BEW decides to operate again, we will send them the gas currently being flared. In the meantime, we are required to operate the flares and burn the gas that BEW does not process into electricity or natural gas. We are prepared to deliver all our gas to BEW when their plant, which has been down since July, resumes operation.

**The stacks that are burning methane, is there treatment for that air? How do we evaluate with other technologies? Do we treat any other types of gases? Given concerns about potential emissions from flaring gas, how long will it take for the planning to happen for monitoring?**

The entire gas stream goes into the flare, the heat oxidizes the constituents, and most are burned off. SWD operates the gas flares as required under our permit with Puget Sound Clean Air Agency (PSCAA) which includes testing for a variety of different compounds. We must show that we meet or exceed the permit requirements of 95.8 percent of pollutant removal.



Monitoring for specific pollutants is guided by regulators, based on what compounds they expect to be found in landfill gas. We are working with them to help identify any new pollutants we should be testing for that have not been required under our existing permit.

The length of time to test for new pollutants is not currently specified under the existing permit and needs to be determined by the regulators. While SWD does not control that timeline, we are seeking to move quickly.

**If someone wants access to the site to do their own testing of water or emissions, who do they go to for permission? Are updated standards adopted after the public comment period? Can SWD publish the standards that it adheres to?**

The division tests its air quality emissions and groundwater under permitted guidelines. Activities not authorized or directed by the Division Director are prohibited. People wishing to visit the landfill are welcome to join a public tour.

Regarding the comment period associated with our air quality permit, PSCAA, the permitting agency, is responsible for enforcing regulations that govern our permit. We operate in accordance with their regulations.

Regarding the final question, the standards with which we comply are established in regulations enforced by Public Health-Seattle & King County, PSCAA, and the Department of Ecology. These include:

- For solid waste: WAC 173-351 and 173-350
- For air quality: WAC 173-401/PSCAA Regulations I for Title V air permits. Federal regulations for air are in 40 CFR Part 60 subpart WWW.
- Groundwater is regulated under WAC 173-200

## ARSENIC CONCERNS

**What is the context of the arsenic discussion? Will SWD be testing for arsenic and what else will be tested? What isn't King County testing for that? Is arsenic emitted through the stacks that flare landfill gas? Can SWD test the air for arsenic and metals independently without regulatory guidance or approval?**

The question relates to arsenic in landfill gas and in the condensate that is created by the BEW process. Arsenic can be dangerous, and it is understandable that there are concerns. Arsenic is common in the region for historical reasons. The conversation tonight pertains to arsenic levels and the operation of the landfill.

We conduct the required testing associated with our wastewater discharge permits which include arsenic monitoring. Although we are fully compliant with our air emissions permit, we

have reached out to discuss this issue and seek guidance on what actions to take for testing for pollutants that aren't required under our current permit. We are working with the Department of Ecology, Public Health-Seattle & King County, and PSCAA.

Whether arsenic is emitted through flaring can only be determined through testing, and as mentioned above, we are working with PSCAA to obtain guidance related to testing.

**Has SWD made the regulators aware of potential arsenic emissions from the gas flaring?**

SWD has followed up with regulators regarding this concern.

**Meeting adjourned at 8:30 p.m.**