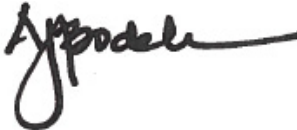


October 21, 2024

TO: Supervisor Lindsey P. Horvath, Chair
Supervisor Hilda L. Solis
Supervisor Holly J. Mitchell
Supervisor Janice Hahn
Supervisor Kathryn Barger

FROM: Amy J. Bodek, AICP
Director of Planning



FINAL REPORT BACK: AUDIT OF SUNSHINE CANYON LANDFILL OPERATIONS AND ODOR MITIGATION EFFORTS (APRIL 9, 2024 – AGENDA ITEM NO. 13)

On April 9, 2024, the Los Angeles County Board of Supervisors (Board) instructed the Department of Regional Planning (DRP), Department of Public Works, and Department of Public Health, as part of the Sunshine Canyon Landfill Technical Advisory Committee, to engage an independent technical expert to provide an assessment of the odor issues that occurred at Sunshine Canyon Landfill (SCL) between 2023 and 2024, a diagnostic of which remediation actions worked and which did not, and recommendations for the near- and long-term operations of the landfill to ensure the odor issues are effectively addressed.

The motion instructed the departments to report back to the Board, within 150 days and before the start of the traditional rainy season, the findings and recommendations for operational changes at SCL. The report back to the Board was due on September 6, 2024; however, on September 4, 2024, the departments respectfully requested a 45-day extension to allow UltraSystems, the independent technical expert conducting the assessment, additional time to finish their analysis and develop the recommendations. The extension also provided partner agencies, including the Sunshine Canyon Landfill Local Enforcement Agency and the South Coast Air Quality Monitoring District, an opportunity to review the final draft of the assessment and provide feedback.

UltraSystems has finalized the report, and it is attached to this letter. The report, along with the source documents listed on the last page of the report are available on LA County Planning's

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website at <https://planning.lacounty.gov/public-hearings-and-meetings/sunshine-canyon-landfill/documents/>.

This concludes our response to Items 1 and 4 of the April 9, 2024, Board Motion. If you have any questions, please contact Steven Jareb of the Zoning Enforcement Special Projects Section at (213) 974-6483 or sjareb@planning.lacounty.gov.

AJB:SG:AG:SJ:DG:ar

Attachment

c: Executive Office, Board of Supervisors
County Counsel
Public Health
Public Works

S_LUR_10_21_2024_BM_SUNSHINE_CANYON_LANDFILL_MOTION_RESPONSE

**Sunshine Canyon Landfill
Assessment of Odor Issues
2023 and 2024**

Prepared For:

County of Los Angeles



Prepared By:



16431 Scientific Way
Irvine, California 92618

Prepared On:

October 16, 2024

Assessment of Odor Issues

This report's Scope of Work is provided as a guide to achieve the objectives set forth in the Los Angeles Board of Supervisors' April 9, 2024 action to provide an assessment of the reported odor issues that occurred at the Sunshine Canyon Landfill (SCL) between 2023 and 2024; an analysis of which odor remediation actions were successful in controlling offsite landfill odors and which were not; and recommendations for the near- and long-term remedial plans so that odor issues are effectively addressed, with an assumption that the extreme 2023 to 2024 weather will be more common in an era of climate change.

Scope of Work

- A) Provide an assessment of odor issues that occurred at the Sunshine Canyon Landfill during 2023 and the first quarter of 2024.
 - 1. Use existing landfill data and reports (see Page 10 – Source Documents list below) and UltraSystems (UEI) monthly monitoring reports to identify any patterns that led to elevated levels of complaints and Notices of Violations in landfill gas and/or waste odors.
 - 2. Use existing data and UEI monitoring reports to assess the adequacy of the gas and liquids management system. Identify operational deficiencies that may have contributed to odor complaints and Notices of Violation.
 - 3. Use existing data and UEI monitoring reports to assess the landfill's resiliency against all extremes of weather conditions and to identify potential odor sources that were not being controlled.

- B) Provide a diagnostic of remediation measures that were successful and ones that were not.
 - 1. Mitigation measures implemented by Republic Services.
 - 2. The Local Enforcement Agency (LEA) and the South Coast Air Quality Management District (SCAQMD) consulted mitigation measures implemented in 2023 and the first quarter of 2024.
 - 3. Remedial actions that resulted from the SCAQMD 2017 Stipulated Order for Abatement, SCAQMD Letter dated June 1, 2023 response to recommended odor mitigation measures, the SCL-LEA's current recommended odor mitigation measures, and any other remedial measure implemented.

- C) Recommended near- and long-term remedial measures including measures specific to windy and rainy seasons.
 - 1. Recommended current and future cell development sequencing plan and timing of other infrastructure to minimize site odors.
 - 2. Recommend remedial measures for current and long-term control of fresh waste odors, and landfill gas and liquids control.
 - 3. Identify remedial measures that were used at the landfill site to abate odors.
 - 4. Identify metrics used to quantify the effectiveness of mitigation measures.

Typical Sources of Landfill Waste Odors and Waste Disposed

Waste that is placed in the landfill will go through bacterial decomposition. Initially, aerobic bacteria will consume any oxygen in the waste and produce primarily carbon dioxide, nitrogen and liquids. This will last for days to months. This is a non-methane producing process.

Newly placed waste and the aerobic decomposed waste have a similar odor and will smell like moist household waste that has been in a trash container for about a week. This may be what a person calls a fresh waste odor.

The next three phases of decomposition are anaerobic with end results of 45 to 60% methane (by volume), 40% to 60% carbon dioxide, and 0% to 2% sulfides (hydrogen sulfide, and reduced sulfur compounds). These sulfides generate a rotten-egg odor. A similar odor can also be found in the landfill leachate and gas condensate.

Methane Gas Recovery and Control

Methane gas produced by anaerobic decomposition is lighter than air and will emit from the landfill surface if not recovered and controlled. A portion of the gas recovered is used to generate electricity at SCL. The remainder of recovered gas is burnt in flares. Gas that goes to the flares need the flare's operating temperatures to be high enough and the exhaust retention times long enough to destroy the odorous sulfides.

Any gas not recovered could become a surface emission and will cause a rotten-egg (sulfides) smell that can travel over the landfill's surface. Surface emissions are monitored monthly in areas that had prior surface odor concerns. Gas wells have the vacuum tuned twice per month to maximize gas recovery and minimize the potential of surface emissions. Pumps were installed and maintained to dewater gas wells to promote efficient gas recovery. New gas wells were planned for completed waste cell areas and installed when gas generation was anticipated to occur.

Assessment of Odors in 2023 and First Quarter of 2024

In the 2023 to mid-2024 period, there was a 100-year storm with frequent rain events that caused major landfill washouts and erosion. Slope erosion was the major cause of exposed waste and potential for landfill surface odors that were uncontrollable due to wet soil conditions. The reoccurring rain events caused high levels of complaints. This not only caused waste odors but could also cause gas odors. Some of these areas had exposed waste and caused odor sources. The frequency of the rain events made access and repair of the impacted areas by heavy soil moving equipment not possible until the soil had time to dry.

Data Tables

The following matrix "Table 1 – Proposed Activities to Identify and Control Odors" identifies proposed activities by source (e.g. SCAQMD, LEA, Republic Services), and is sorted chronologically. Each cell contains individual activities that were proposed or ordered to mitigate landfill odors. The shaded cells are activities that were effective at keeping odors from leaving the site. This effectiveness is based on a lower level of odor complaints that were verified by SCAQMD and no Notice of Violation (NOV) being issued to the operator. Basing the effectiveness of a mitigation measure on reducing the number of complaints and no NOVs only works for a specific identified odor source, for example, the active working area. Other mitigation measures can be effective for odor

control for the entire site, but not reduce the number of complaints that are generated by one unmitigated source.

Effectiveness of an odor measure is based on the level of complaints, UltraSystems' expertise and experience, and our conversations with Republic Services, the LEA, AQMD field staff, etc. which all help in assessing the measure's effectiveness.

Effective measures include the use of Buffalo Monsoon odor neutralizer and water mixture misters for specific odor sources, portable odor control fans-trailers "Odor Domes" with odor neutralizer at the active disposal area, fixed perimeter vapor atomizing liquid neutralizer systems 24 hours per day on operating days, and the odor patrols by trained employees of the onsite operations and the residential areas for odors, coordinating with the operation manager to remediate any odors. These measures worked best on specific odor sources.

"Table 2 – UltraSystems Site Monitoring Observations" presents odor-related observations during our monthly site visits, from 2022 Q4 to 2024 Q1. UltraSystems monitors the site monthly for compliance with over 1,400 conditions based on the CUP.

During our monthly site visits, fresh trash odors were present in the neighborhood when erosion due to heavy rain exposed previously buried trash. This exposed trash could not be re-covered due to heavy rain and muddy conditions. When heavy equipment cannot access an erosion area, it is recommended that a foam odor neutralizer be sprayed onto the exposed trash.

Table 1 – Proposed Activities to Identify and Control Odors

Proposed Activities	Source															
	Republic Odor Feasibility Study 2012	LEA Programs 2015	SCAQMD Abatement Order 2016	SCAQMD Abatement Order 2017	Republic Fresh Trash BMP 2017	SWMC Recommended Odor Mitigation Measures 2022	Republic 2022 Q4 Dust/ Odor Complaint Report	Republic 2023 Q1 Dust/ Odor Complaint Report	Republic Completion Summary of Action Plan 2023	Republic 2023 Q2 Dust/ Odor Complaint Report	Republic Wet Weather Preparedness and Odor Mitigation Measures 2023	Republic 2023 Q3 Dust/ Odor Complaint Report	Republic 2023 Q4 Dust/ Odor Complaint Report	LEA Additional Odor Mitigation Measures 2024	Republic Status Update of the LEA Additional Odor Mitigation Measures 2024	Republic 2024 Q1 Dust/ Odor Complaint Report
Use a portable neutralizer system on identified odorous loads during first three hours of operations to control fresh trash odor.	Focus on the best overall combination of practical preventative programs, facility design features, operational practices, maintenance protocols, and odor mitigation programs that provide for the optimal operating conditions at the working face of the landfill gas collection system.	Hours of Operation: Prohibit unloading of transfer trailers before 9 am to limit fresh trash odors	Hours of Operation: Prohibit unloading of transfer trailers before 9 am to limit fresh trash odors	Use a portable neutralizer system on identified odorous loads during first three hours of operations to control fresh trash odor.	Hire an independent third party monitor near the school's vicinity.	Odor Patrol - Pause in operations during unfavorable conditions	Large rain events caused erosion and washouts in waste-filled areas exposing waste and emitting odors. Repair could not be immediate.	Install 40 new or replacement wells by 6.30.2023	Construct landfill collection piping and wells to increase gas and leachate recovery to mitigate large rain event impacts.	Seeps prevention: install trench collectors	Odor complaints and NOVs increased in this quarter due to heavy rain events that caused dirt, major erosion, some washout areas. The temporary drainage system could not handle the high volume of water.	Try to distinguish trash, gas and liquid odors to a non-landfill person.	Over 100 compounds contribute to landfill odors. Use from spray to control fresh trash odors. Three distinct types of odors: 1. Fresh trash odors 2. LFG odors 3. Leachate odors	Use foaming spray to reduce fresh trash odors	Train site personnel to identify odorous loads and what action to take.	Provide Quarterly Instantaneous Surface Monitoring, and:
Reduce size of working face in select areas to control odors.		Food Waste and Organics Diversion Program: limit fresh trash odors	Food Waste and Organics Diversion Program: limit fresh trash odors	Use of additional misting fan units (cost: \$500 or equivalent) to treat on-site odors	Hours of Operation: Prohibit unloading of transfer trailers before 9 am to limit fresh trash odors	Park or Delay tipping of odorous loads	Use of temporary rainwater control systems	Install 5,550 ft of horizontal gas collectors by 6.30.2023	Onsite and offsite odor patrols to remediate odors	Refuse compaction, including BMPs such as hydroseeding, jute setting, straw wattles, etc.	Onsite and offsite odor patrols to remediate odors	Onsite and offsite odor patrols to remediate odors	Use compost as ADC.	Use ADC Encroacher on weekends pending approval from PW.	Onsite and offsite odor patrols to remediate odors	Monthly Integrated Surface Sampling
Coordinate working face locations with meteorological conditions.	Control surface emitters and trapped pockets of LFG.	Landfill Cover: Use ADC instead of soil cover to promote LFG and leachate collection	Landfill Cover: Use ADC instead of soil cover to promote LFG and leachate collection	Use of alternative working faces located in more advantageous locations for early morning unloading	Implement odor mitigation BMPs at transfer stations	Use of seven (7) Buffalo Monsoon water misters (as needed)	Use of seven (7) Buffalo Monsoon water misters (as needed)	Use of seven (7) Buffalo Monsoon water misters (as needed)	Use of seven (7) Buffalo Monsoon water misters (as needed)	Erosion prevention, including construction of diversion berms, and cleaning of drainage channels.	Use of seven (7) Buffalo Monsoon water misters (as needed)	Operate three large scale misting systems with neutralizer	Use vegetative cover.	Use Custom Cubes and Horizontal LFG Collection to help control odors.	Use of seven (7) Buffalo Monsoon water misters (as needed)	Monthly Perimeter Gas Probe Monitoring
Adopt working face controls which includes special areas for disposal of odorous loads, and for "bad weather" conditions	Use of Alternative Daily Cover (ADC) spray-on products should be used instead of the on-site soil weather" conditions	Improved Gas Collection Well Efficiency and Integrity: de-water gas collection wells to improve LFG collection	Improved Gas Collection Well Efficiency and Integrity: de-water gas collection wells to improve LFG collection	Immediate covering/burying of odorous loads at the working face	Evaluate physical barriers such as the oak tree mitigation berm and odor neutralizer systems at the working face.	24 hour operation of three vacuum Boss neutralizer product (large units)	Landfill gas and liquid recovery weekly oversight by operations and management team. Improvements made to control odors due to landfill gas and liquids.	Evaluate new and existing wells for liquid and install pumps if needed	Landfill gas and liquid recovery weekly oversight by operations and management team. Improvements made to control odors due to landfill gas and liquids.	Maintain positive drainage, including grading to eliminate stormwater ponding.	Landfill gas and liquid recovery weekly oversight by operations and management team. Improvements made to control odors due to landfill gas and liquids.	Landfill gas and liquid recovery weekly oversight by operations and management team. Improvements made to control odors due to landfill gas and liquids.	Use Fossilized and Closure Turf	Complete front entrance berm to control odors.	Landfill gas and liquid recovery weekly oversight by operations and management team. Improvements made to control odors due to landfill gas and liquids.	Monthly Ambient Air Monitoring
Application of odor shell (or equivalent) for odorous loads and active soil areas.	Proposed use of Enviro-Cover Plastic ADC with Revision of Landfill Cell Development and Filling Sequencing	Well Integrity Testing Program: Improve well performance and reduce LFG odors	Well Integrity Testing Program: Improve well performance and reduce LFG odors	Application of Odor Shell" for equivalent products designed for odor control for odorous loads	Hire an independent third party to evaluate operations during the wet weather season.	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Increase existing dewatering pump operational efficiency from 70% to a minimum of 80%	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Run-off controls include proper surface slopes (minimum 3% gradient).	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Use of Alternative Daily Cover on Present or Pending Approval by LA County Public Works)	Use alternative grading techniques during wet weather.	Gas-related odors controlled by twice per month tuning and monthly surface emission monitoring	Quarterly Gas Collection System Sampling
Use of Alternative Daily Cover (ADC) tarps to cover working face at night	Daily peel-back of 9-inch daily soil cover with upgraded landfill gas collection system	Treatment of Fresh Trash Odors: use additional fans, cover odorous loads, use dry vapor phase treatment and odor neutralizing spray to reduce fresh trash odors	Treatment of Fresh Trash Odors: use additional fans, cover odorous loads, use dry vapor phase treatment and odor neutralizing spray to reduce fresh trash odors	Identify meteorological conditions before the start of operations to determine best procedures/practices taken to minimize odor transport into the neighborhood		Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Prohibit new wet drilling before 9 am.	Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Control surface water run-on and run-off by providing proper drainage control systems.	Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Increase monitoring for early morning odors.	Collaboration with Human Automation Training Solutions (HATS) for data collection	Operate three portable odor control Fans-Trailers "Odor Domes" at the working face (during operating hours)	Monthly Perimeter Gas Probe Sampling
	Organic reduction in the incoming waste stream to reduce "fresh trash" odors and landfill gas generation.	Use of seven (7) Buffalo Monsoon water misters (as needed)	Use of seven (7) Buffalo Monsoon water misters (as needed)	Use dry vapor phase treatment and odor neutralizing spray to reduce fresh trash odors	Installation of liquid collection jumps in the vertical gas extraction wells	Part 214 gas recovery and liquid removal systems.	Tune all wells at least monthly.	Install atomizing system on the southern perimeter to test for its effectiveness.	Train site personnel to identify odorous loads and what action to take.	Train site personnel to identify odorous loads and what action to take.	Reduce / Recycle Organics	Use of a "laydown yard" system to handle odorous transfer station loads.	Park or Delay tipping of odorous loads	Continuous Wind Speed and Direction Monitoring		
	Reduce sources of sulfur (and other chemical compounds)	Use a misting fence at the working face on a daily basis	Use a misting fence at the working face on a daily basis			Operate three fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Position an odor-neutralizer delivery system at each drill rig	Operate three fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Operate three fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Operate three fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Operate four fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Eliminate perched water	Operate three fixed perimeter vapor atomizing units with neutralizer 24 hours per day.	Provide quarterly flare component leak testing		
		Design the front entrance berm with an flow modeling				Operate three large-scale misting systems with neutralizer.	Reduce traffic lanes into the working face	Operate three large-scale misting systems with neutralizer.	Operate three large-scale misting systems with neutralizer.	Operate three large-scale misting systems with neutralizer.	This quarter had 5.8 inches of rain in large storm events. Transfer stations had prompt movement of waste that was wet. Odorous, wet loads were placed in a "laydown yard" until the weather conditions allowed for disposal. Total control of odors was highly unlikely during these extreme conditions.	Enhanced Intermediate Cover Approach: Increase Monitoring (LIDAR Scanning, Tracked Robot, etc.)	Field evaluation of the gas and liquid recovery system with the results of a new GCOS design by a third-party engineering consultant.			
		Implement odor mitigation BMPs at transfer stations				Use of control systems to stop rainwater infiltration into the landfill	Apply tarps to areas of working face that have not been disturbed for ten hours; apply neutralizer when tarps are removed.	Train site personnel to identify odorous loads and what action to take.	Finalize the installation of the collection system approved for the Q3 design.	Construction of Berm Landscaping (Visual and Odor Barriers), Misting and/or Wireless Vapor System on Berm		Monthly surface emissions monitoring				
		Division of organic wastes				Installation of an 18-inch-diameter header pipe near Cell CC-4 Part 4	Full odor patrols (3-4 people) starting at 6 am will be assigned inside and in the neighborhood until unless a favorable mid-day weather pattern is established.	Use dry vapor phase treatment and odor neutralizing spray to reduce fresh trash odors	Improve the landfill's liquid handling system.							
		Use of a portable building with a rigid frame and fabric siding that may be used to control dust and odor resulting from "topper" operations, unloading of trucks with odorous loads, or potentially used directly at the working face.				Operate landfill stationary wet and dry misting systems 24/7		Try to distinguish trash, gas and liquid odors to a non-landfill person.	Mitigate gas-related odors through inspections, equipment adjustments and improvements, and monitoring.							

Shaded Cell = Effective at keeping odors from leaving site
 Column Header Shading: Green = Republic Light Green = Non-Republic

Table 2 – UltraSystems Site Monitoring Observations

Site Visits by Quarter						
	2022 Q4	2023 Q1	2023 Q2	2023 Q3	2023 Q4	2024 Q1
Monitoring Observations	<p>10-24-2022 No landfill odors were detected offsite. Tipping odors were localized. No odor-causing site conditions were seen.</p>	<p>01-17-2023 No landfill odors were detected offsite. Recent rain events caused slope erosion rills on the old City South slopes and damaged a Terminal Basin outlet riser drain. The Closure Turf downcomer had exposed waste next to at the bottom of it. Exposed waste was seen on the wet weather slopes.</p>	<p>04-18-2023 No landfill odors were detected offsite. Only 50% of the PM-10 berm ridgeline neutralizer misting system was operating. Landslides, water washouts and erosion occurred during recent rain events.</p>	<p>07-25-2023 There was a distinct landfill fresh trash odor in the adjacent neighborhood at Timber Ridge at 7:30 am. Neutralizer misters were operating. Cell CC-4 Part 4 was accepting waste.</p>	<p>10/30/2023 No landfill odors were detected offsite. Recent rain events caused slope erosion rills along the main haul road. Cell CC-4 Parts 4 and 5 were accepting waste. There were no active fill waste odors detected on City deck A. The gas recovery and flare systems were not operating due to an Edison power outage.</p>	<p>01-08-2024 The new access road had areas that cut into old City South landfill waste. No odors or gas were detected. Recently covered waste was exposed by erosion. Some areas were not repaired. The Closure Turf HDPE downcomer has exposed waste. Cell CC-4 Parts 3 and 4 had ponding water. Odors were not detected at the PM-10 oak tree berm.</p>
	<p>11-29-2022 (Same as above)</p>	<p>02-23-2023 No landfill odors were detected offsite. Most of the erosion rills were repaired. The wet weather deck was actively accepting waste. Wind-blown litter was a problem onsite.</p>	<p>05-16-2023 Rainwater runoff control and water-saturated soil movement was an issue. There were numerous landslides in native areas.</p>	<p>08-22-2023 No landfill odors were detected offsite. The slopes in Cell CC-4 Parts 3, 4 and 5 had many washout rills that were exposing trash. Cell CC-2A near the Closure Turf had numerous, large landslides exposing trash.</p>	<p>11/29/2023 No landfill odors were detected offsite. Cell CC-4 Part 4 was accepting waste.</p>	<p>02-15-2024 The terminal basin had floating debris at the riser drains. There was no odor detected. Erosion continued to be present on various slopes. The Closure Turf downcomer exposed waste was not repaired. The Cell CC-A and adjacent area erosion was being repaired.</p>
	<p>12-19-2022 (Same as above)</p>	<p>03-29-2023 No landfill odors were detected offsite. There was no new exposed waste due to recent rain.</p>	<p>06-21-2023 No landfill odors were detected offsite. There was a distinct liquids/ trash odor on the street at Woodley Avenue and Balboa Boulevard, and at Balboa boulevard and San Fernando Road. City road sweepers need to clean these areas. There was a distinct localized waste odor at the operations face.</p>	<p>09-19-2023 No landfill odors were detected offsite. Cell CC-4 Part 5 near Cell CC-2A was accepting waste.</p>	<p>12/11/2023 No landfill odors were detected offsite. There were distinct fresh trash odors along the southern ridge at City deck A at 10:20 am. Cell CC-4 Part 3, 4 and 5 were accepting waste. Distinct fresh trash odors were detected at the observation deck near City deck A. The gas recovery volumes were not steady due to SCS performing field adjustments.</p>	<p>03-07-2024 There were distinct landfill odors detected in the neighborhood on Constable Avenue. The old, exposed waste on the new access road slope was not repaired. The Closure Turf downcomer exposed waste was not repaired.</p>

Current Mitigation Measures Used for General Site Odor Control

Successful Odor Control Measures Implemented by Republic Services that Should be Continued

1. Operate three vapor atomizing liquid neutralizer systems 24 hours per day on operating days. In the landfill area where these vapor atomizers were being used, the landfill's general background odor was being controlled. This system is not used for a specific location source like the fresh trash odors from the active disposal area.
2. Use of Buffalo Monsoon Misters to control general landfill background odors. There are seven of these misters on site. These are portable self-contained units that can be used to mist an odor neutralizer and water mixture to control a general area's odor source where vapor atomizing systems are not installed. They are not as effective as the vapor atomizing system to control general landfill background odors. The Buffalo Monsoon Misters are more beneficial to control odors in landfill pockets. They are currently being used at gas well drilling sites and the new City cell development area where old, deposited waste may be uncovered.
3. Identify and control gas emissions. Identify landfill areas with gas odors by performing monthly surface emissions monitoring. Tune gas well vacuum at least twice a month to control emissions and increase gas recovery.
4. Control daily working face location odors based upon meteorological conditions. Daily and weekly meteorological data will help operations find the best locations for the active disposal cell and the best locations for the odor control "Odor Domes" equipment.
5. Operate odor patrols in the adjacent residential and school areas, and the landfill's current active fill area with trained landfill employees. Trained employees will monitor the residential and school areas, and the active disposal area for landfill odors. If odors are detected offsite, the patrol employees will coordinate efforts to advise the operations manager so that remedial action to control the odor source can be taken. Odor patrols are performed onsite and offsite by two employees from 6:00 am to 9:00 am and 8:00 pm to 12:00 pm on all operating days.
6. The landfill is currently using alternative daily cover (ADC) for daily cover. The landfill has been using ADC for daily cover during the week from Monday through Friday. LACPW has approved a 1-year Pilot Program to expand the use of geosynthetic panel as ADC on Saturday.

Odor Control Measures Implemented then Discontinued that Should be Reinstated

1. There are no odor control measures that were implemented and then discontinued that should be reinstated.

Odor Control Measures Implemented then Discontinued that Should Not be Reinstated

1. The DustBoss water misters were not effective at mitigating odors offsite, as they are not suited for this type of canyon site.

2. The 2016 and 2017 Abatement Orders restriction of not allowing transfer trucks from entering the landfill before 9:00 AM was terminated because the restriction caused a reduction in the number of trucks that could enter from specific transfer stations. This in turn caused waste to remain at the transfer station for an additional day(s). Now, the waste is brought to the landfill on the same day they receive it. Employees are trained in how to identify odorous transfer loads at the scales and at the access to the working face. Odorous loads will be directed to a laydown area to separate odorous transfer loads and handle them with odor control tipping methods. All transfer truck tipping will stop when handling the tipping of an odorous load. Odor controls will include immediate covering of the load and the application of an odor-neutralizing foam.

Recommended Remedial Measures

1. Develop an ultimate drainage control plan for the complete landfill site. Provide a sequence plan to show permanent and temporary grading and drainage control systems that will minimize erosion and washouts that cause exposed waste areas and possible odors during and after large rain events. This is a key measure to address the more irregular patterns of future storm seasons, and is recommended it be given a high priority for implementation. This plan should be submitted to Public Works for review and approval.
2. Currently, the landfill uses portable fan trailers (“Odor Domes”) to manage fresh waste odors at the working face. The locations where they are placed are determined upon meteorological conditions before the start of the day’s operation. This odor control remediation is highly effective in controlling offsite odors if the wind condition does not change during the landfill’s operating day, and should be continued to be implemented.
3. It is recommended that wireless wind meters on the southern City ridgelines and windsocks around the landfill’s waste limits be installed. This will provide current wind conditions during the whole operating day for the operations manager and a visual indicator for the operations personnel. With this additional meteorological information, the operations personnel could make field adjustments during the disposal day to better control fresh waste odors. As a secondary fresh waste odor control, the placement and periodic use of an orchard fan (e.g. Orchard-Rite Model 1400 or equivalent) is recommended on the Old City South landfill at an elevation higher than the access road, which could provide a strong secondary odor barrier.
4. The landfill is currently using ADC for daily cover. The landfill has been using ADC for daily cover during the week from Monday through Friday. The LACPW has approved a 1-year Pilot Program to expand the use of geosynthetic panel as ADC on Saturday. UEI has observed the ADC on Mondays and verified that no odor-causing activity was occurring because of no Saturday soil placement. UEI recommends that this soil exemption be allowed, excluding any disposal operations activities that damage the ADC and cause fresh waste odor to be detected offsite. There are long-term gas and liquids control and recovery benefits from not covering the ADC with soil.
5. Currently, the landfill’s gas and liquids recovery system has a weekly review by Republic Services by their operations and management personnel. Landfill gas is recovered with gas wells located throughout the landfill. Any necessary adjustments to the gas recovery vacuum system are made twice per month, with surface emissions monitoring once per month. Additional gas collection piping and wells were proposed and installed in 2023 and 2024. A development plan showing the current and future gas recovery capacity needed related to current and future cell development should be prepared. The scope of the gas recovery system expansion and timing of construction on operations should be estimated. This detailed gas recovery plan should include the current collection system and flaring capacities, gas collection piping systems and flares planned for the future, and infrastructure maintenance and its effects on efficiencies. These data will help to verify that the overall gas recovery systems will match the amount of ever-increasing decomposing trash. This plan should be submitted to Public Works for review and approval.

6. Currently, the SCAQMD requires annual flare stack emissions testing, including for NO_x (nitrogen oxide) and SO_x (sulfur oxide). Hydrogen sulfide mercaptans were shown to exist in the laboratory analysis of the recovered landfill gas. These compounds are odorous. The concentrations were in parts per million by volume (PPMV), with Hydrogen sulfide being 80 to 170 PPMV and mercaptans 0.5 to 5.0 PPMV. These gas components are being burnt in the landfill flares. Exhaust from the flare stacks should be tested to confirm there is no unburnt hydrogen sulfide or mercaptans in the flare exhaust. If the exhaust sample analysis shows there are unburnt components, changes in the flare operations should be considered by the gas recovery and operations engineers.
7. Review the current Cell Sequencing Plan and prepare a draft 5-year Cell Development Plan showing the current Cell CC-4 Part 6 and future Cells to the terminal toe berm area. A corresponding meteorological wind current flow analysis should be performed showing the existing canyon air flow and future air flows as the future cells are developed. A Draft Odor Control Plan should be developed showing the type of remedial action that is estimated to be required to control any onsite odors from the 5-year Cell Development Plan.
8. Republic is now using mulch/compost as part of erosion control, and as a biofiltration layer to enhance problematic grids. This measure should be continued, with its effectiveness analyzed on a quarterly basis. Erosion control can have a direct impact on odor control by reducing washouts and exposed trash.

Sunshine Canyon Landfill Imagery

Photos taken 9/24/24

Observation Deck



Image 1: View from observation deck looking north towards the active area.



Image 2: View from observation deck looking northeast towards the closure turf and new cell development.

PM10 Trees



Image 3: View of PM10 trees looking southeast.



Image 4: View of PM10 trees looking west.

Toe Berm, Terminal Basin, Scales



Image 5: View of Toe Berm project, terminal basin and scales.



Image 6: View of Toe Berm project, terminal basin and scales.

Active Area



Image 7: View of the active area looking north.



Image 8: View of active area looking northeast.



Image 9: View of active area looking southeast.

Closure Turf, New Cell Development



Image 10: View of closure turf and new cell development looking east.



Image 11: View of closure turf and new cell development looking west.

List of Source Documents

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