



January 12, 2024

Ms. Rachel Miller  
Environmental Group Manager  
Waste Management Program  
Pennsylvania Department of  
Environmental Protection  
2 Public Square  
Wilkes Barre, PA 18701

**Re: Keystone Sanitary Landfill, Inc.  
PADEP Permit No. 101247  
Dunmore and Throop Boroughs  
Response to DEP Correspondence dated December 13, 2023**

Dear Ms. Miller:

The Department's Notice of Violation ("NOV") dated December 13, 2023, requested a proposed plan and schedule to address the correction and prevention of the alleged violation. Keystone Sanitary Landfill, Inc. ("KSL"), while respectfully disputing the findings and conclusions of the NOV, and reserving all rights with respect to the NOV, provides the following requested plan and schedule:

**1. Accelerated Installation of New Gas Wells and Other Collection Devices.**

KSL will immediately accelerate installation of new gas wells or other collection devices after the second (10) day re-monitoring if an exceedance is observed. KSL will then have additional collection devices installed within 30-40 days of the initial exceedance, which is well before the 120 calendar days allowed by KSL's Department-approved "Landfill Gas Collection and Control System Design Plan" (the "Plan").

Applicable air pollution control regulations and permitting requirements, which are being followed for both quarterly scans on all areas and monthly scans on active areas, require the following in accordance with KSL's Department-approved Plan:

- Any detection of 500 ppm or more of methane above background will be recorded as an exceedance and actions specified below followed to get the exceedance back in compliance.
  - I. The location of the exceedance will be marked and recorded.
  - II. Cover maintenance or adjustments to the vacuum of the adjacent wells to increase the gas collection in the vicinity of the exceedance will be made and the location will be re-monitored with ten (10) calendar days of the initial exceedance or, if inclement weather is observed, in accordance with the SEM variances provide in Section 4.6.2 of the approved plan.

- III. If the re-monitoring of the location shows a second exceedance, additional corrective action will be taken and the location will be re-monitored within ten (10) days of the second exceedance or, in accordance with the SEM variances provided in Section 4.6.2.
- IV. If methane concentrations in exceedance of 500 ppm above background are observed three (3) times within a quarter, necessary actions needed to mitigate the exceedance will be taken on-site as per NSPS regulations or in accordance with the SEM variances provided in Section 4.6.2. If needed, an alternate timeline request will be submitted to DEP for approval.
- V. For any locations where monitored methane concentrations equal or exceed 500 ppm above background three times within a quarterly period, a new well or other collection device shall be installed within 120 calendar days of the initial exceedance. An alternative remedy to the exceedance, such as upgrading the blower, header pipes or control device, and a corresponding timeline for installation may be submitted to the Department for approval.

KSL will, as noted above and notwithstanding its approved Plan, accelerate installation of new wells or other collection devices after the second (10) day re-monitoring if an exceedance is observed. KSL will then have additional collection devices installed within 30-40 days of the initial exceedance, which is well before the 120 calendar days allowed. As the Department is aware, gas well drilling is an essential work practice consistent with the requirements contained in KSL's operating permit. While KSL does not believe it is a potential cause of the vast majority of odor complaints received by the Department, it nevertheless recognizes that gas well drilling requires exposure and disturbance of aged garbage within the active area, which in turn has the potential to cause localized onsite odors. KSL routinely provides notice to the Department prior to the commencement of drilling activities and will continue to do so.

By addressing and installing the additional control devices within the accelerated 30-40-day time frame, well before the allowed 120 days, KSL believes that emissions at the site will be reduced.

## **2. Accelerated Installation of Permanent Cap.**

KSL has issued a purchase order for an additional twenty-five acres of permanent cap for installation within Phase II. Immediately upon delivery of materials, and as weather permits, KSL will accelerate installation of permanent cap within the Phase II area well in advance of the schedule required by the facility's permit and applicable regulations. KSL anticipates that installation of the additional twenty-five acres of permanent cap will, materials availability and weather depending, be completed by May 2024. Accelerated installation of this permanent cap liner, beyond what is required by applicable regulations and the facility's permit, will help with the collection of gas within the Phase II area of the landfill, thus reducing emissions and potential odors.

## **3. Installation of Temporary Geomembrane Liner.**

KSL, as noted above, will be aggressively installing final permanent cap within the Phase II area of the landfill. In addition to aggressively installing final permanent cap, KSL is proposing to utilize temporary geomembrane liner in active areas of the landfill that do not have, or that are not scheduled to have, final permanent cap installed, which are experiencing emissions that are detected during routine surface scans or drone flights. KSL is requesting the Department's immediate approval to implement the installation of temporary geomembrane liner to assist in controlling potential odors within active areas of the landfill.

#### **4. Aerial Drone Methane Detection.**

KSL, in conjunction with Archaea Energy, has been investigating different technologies to optimize gas collection, thus reducing the potential for methane concentration exceedances. One of those technologies is an aerial drone equipped with a methane imaging laser. Use of an aerial drone will allow KSL to scan the entire site in a period of 4-5 hours and generate a same day map. This will increase KSL's efficiency regarding landfill gas collection by identifying areas where methane concentrations are present and will enhance KSL's ability to complete gas well tuning to improve the collection of methane, thus reducing exceedances. KSL is not proposing to use the aerial drone as an alternative to the Quarterly and Monthly surface scans, but as an *additional* tool to minimize and eliminate methane exceedances. A sample drone mapping is attached for the Department's review (see attached Drone Map). The grid layout for the current surface scans is 150' x 150' and the grid for the drone scans is 13' x 13' which provides a much more accurate representation of any exceedances. KSL is committing to utilize these drone flights, which will be completed in the third full week of the month, in addition to surface scans, which will be completed in the first full week of the month, to increase the effectiveness of identifying emissions in a timelier manner which can be corrected, thus reducing potential odors.

#### **5. Installation of Leachate Storage Tanks.**

KSL currently stores leachate generated at the landfill in two surface lagoons. KSL has issued a purchase order for two (2) 2,500,000-gallon enclosed storage tanks for leachate generated at the site. Shop drawings are being reviewed for approval, and a request for a pre-application meeting with the Department was made on December 19, 2023. KSL upon receipt of all approvals will have the tanks installed with a projected completion date of January 2025. By utilizing enclosed tanks, leachate storage lagoon-related odors will be eliminated.

KSL will, in the interim and until the proposed tanks can be fabricated and installed, utilize a foaming operation at the two existing surface lagoons. KSL will have the equipment installed and operational within the next 2-3 weeks. The application of this foam on the surface of the lagoons will minimize any odors being emitted from this area of the landfill.

#### **6. RO Concentrate Treatment and Disposal.**

KSL has invested extensively in state-of-the-art reverse osmosis (RO) systems to treat landfill leachate. RO systems are the best available technology to treat landfill leachate and produce effluent that meets drinking water standards. Three RO trains have been installed and are operating and a fourth RO train will be installed and operational by March 2024.

While RO treatment is a highly effective method for handling wastewater, it produces concentrate (or reject water) that must be properly treated and/or disposed of. Currently, concentrate from the RO systems that treat the facility's leachate is being disposed of at the landfill, in accordance with the facility's permit. KSL is actively investigating alternatives to disposing of RO concentrate at the landfill. Upon vetting those alternatives, KSL will share the results with the Department and seek any necessary approvals for the alternative treatment or disposal methods. Alternative treatment or disposal methods for the RO concentrate will assist KSL in minimizing potential odor causing conditions created by the current disposal of RO concentrate at the facility.

## 7. Engaging Additional Independent Contractors.

As part of KSL's commitment to maintain an efficient comprehensive gas collection system, KSL has recently engaged two independent contractors to assist KSL's staff in constructing horizontal collectors, vacuum lines, shallow collectors on slopes, condensate management controls, traps, etc. The retention of these additional independent contractors will free KSL staff to further focus on balancing the site's overall gas collection system, thus reducing potential emissions and odors.

KSL, in addition to providing the foregoing plan and schedule, would like to provide some observations regarding the Department's NOV.

**First**, KSL respectfully disagrees with, and disputes, the Department's contentions in the NOV that "KSL failed to maintain a uniform intermediate cover" and that "KSL's enhanced surface monitoring results for the months of September and October of 2023 indicated extensive areas of intermediate cover with excessive methane issues." As previously noted, the monthly SEM Isopach Maps that are generated are prepared by plotting a point within the center of (150' x 150') grid and at well locations. For September 2023, there were eight grid points and twelve wells, and for October 2023, there were twelve grid points and nine wells. The size of the exceedance area is then created by interpolating between these points to establish the same. Therefore, if a well exceedance, which typically is isolated at the well, is close to a grid exceedance the *entire* area of the grid and area between the two get labeled as an exceedance area. Due to this CAD programming fault, the exceedance area is *overstated* and not representative of actual field conditions. KSL staff have now been instructed to provide its consultant, EARTHRES, for all exceedance points a radius around the exceedance to better define these areas. Pictures of all exceedance points are also documented. It is also noted that all the exceedances that were recorded in September 2023 (20) and October 2023 (21) were addressed and corrected within the second ten-day re-monitoring, in accordance with applicable regulations and the facility's permits.

**Second**, KSL incorporates herein its initial and supplemental responses to the Department's January 25, 2023, Notice of Violation and November 21, 2023, Suspension of Settlement Accommodation Plan Operations. As reflected by those prior submissions, KSL takes odor management seriously and is committed to making best efforts to examine, enhance and improve the landfill's odor management activities and practices, continuously going well beyond what is required by applicable regulations and the facility's permit. For the reasons set forth in KSL's prior submissions and based on the data and information currently available to it, KSL must question whether the vast majority of odor complaints received by the Department, to the extent not baseless or falsely reported, can be reasonably attributed to the landfill's operations.

**Third**, methane is the primary element of landfill gas. Methane is completely colorless and odorless. There is a flawed correlation being made between onsite, localized methane readings detected by a flame ionization detector (FID) instrument and odors. It is impossible to say without more data that an onsite, localized surface exceedance of methane at the landfill means there is an odor, especially an offsite odor caused by KSL, and especially when there is no corresponding offsite FID or other data (including weather, atmospheric conditions, sampling, and other important data relating to source identification). It is an undeniable fact that there are any number of other sources of potential odor-causing air emission releases in the vicinity of the landfill. Additionally, as the Department is aware, the EARTHRES and CPF report on the "Evaluation of Ambient Air Monitoring Program, Keystone Sanitary Landfill", dated June 26, 2023, provides an analysis of detailed air measurements conducted during a recent year-long study at KSL. In that analysis, the authors found in several stations that averaged *upwind* concentrations of potential odor-



causing contaminants were *higher* than the corresponding averages recorded during downwind conditions. In other words, the report demonstrates that there are sources of potential odor-causing contaminants *upwind* of the landfill.

**Fourth**, modern landfills, like KSL, are necessary. In a perfect world, all waste would be recycled or reused. But the current reality is many materials cannot be recycled or reused. Humans generate enormous amounts of waste and some of that waste needs to be disposed of at landfills. Modern landfills, like KSL, are well-engineered, highly regulated and continuously-monitored facilities for the disposal of solid waste. Landfills are necessary because they allow us to do this in the safest way possible. There is no safe, cheap, or environmentally better way to dispose of garbage at this time. Ultimately, the best solution would be for humans to produce less waste. But until that happens, landfills are the next best solution.

**Finally**, KSL and its numerous employees and their families are members of the local communities surrounding the landfill. Contrary to what has been suggested by the local press, recent misinformed opinion pieces, and anti-landfill agitators like Friends of Lackawanna, KSL and its employees care about the environment and the overall well-being of the surrounding communities. That is why KSL, like the Department, conducts numerous daily odor patrols in the areas surrounding the landfill. That is why landfill gas emissions at the facility are controlled by an extensive comprehensive gas collection and control system. That is why KSL continuously conducts the enhanced landfill gas surface monitoring referenced in the NOV. That is why KSL maintains, updates, and implements a comprehensive and extensive Nuisance Minimization Control Plan. That is why KSL confers millions of dollars of benefits annually on the surrounding communities. ***And that is why KSL has been, and remains, firmly committed to improving the landfill's operations and has worked extensively and cooperatively with the Department to address legitimate operational concerns as they arise, investing millions of dollars in state-of-the-art environmental technology and other operational controls.***

KSL would like to arrange a meeting with Department staff to review the proposed plans and welcome any input to further address the Notice of Violation.

KSL, in closing, thanks the Department for this opportunity to provide its initial response to the NOV. KSL is well aware of its responsibility to operate and maintain the landfill in compliance with its permit and Department regulations. KSL is also well aware that the landfill will, from time to time, generate odors that have the potential to travel offsite. KSL remains committed to working cooperatively with the Department to address legitimate local concerns regarding the landfill's operations and to continually improve those operations.

Sincerely,



Dan O'Brien  
Business Manager

Enc.

cc: Joshua Matulevich, DEP