

April 2025 Monthly Compliance Report

Solid Waste Permit #221
Bristol Integrated Solid Waste Management Facility
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1.0 INTRODUCTION

The City of Bristol, Virginia (City) prepared this report for the Virginia Department of Environmental Quality (VDEQ). This report covers the Solid Waste Permit (SWP) #221 Landfill during the month of April 2025.

The following sections outline actions completed towards the applicable items in Appendix B of the Consent Decree.

2.0 COVER INTEGRITY AND EXPOSED WASTES

As outlined in Appendix B of the Consent Decree, cover integrity of the SWP #221 Landfill will be managed primarily through ongoing surface emissions monitoring in accordance with Federal and State regulations.

2.1 SURFACE EMISSIONS MONITORING

On 12 December 2024, the City performed annual surface emissions monitoring (SEM) on the landfill. During the monitoring event no exceedances were detected on the serpentine route or at pipe penetrations. Details of the surface emissions monitoring were included in the December 2024 Monthly Compliance Report for the SWP No. 221 Landfill.

The 2025 Annual SEM Event will be performed later this year.

3.0 GAS COLLECTION

The City took steps to optimize gas collection and minimize air intrusion as outlined in the sections below.

3.1 SYSTEM OPTIMIZATION

There are currently 15 vertical extraction wells in the SWP #221 Landfill (Well Nos. 1 – 15). In waste disposal units where the age of the buried wastes is greater than 40 years, as is the case at SWP #221 Landfill, the rate and quantity of decomposition gas production declines significantly compared to the rate and quantity of LFG generated in more recently buried wastes. However, some of these devices will show normal methane ranges and are tuned accordingly. There is no historical evidence of elevated temperatures in the SWP #221 Landfill. Also, the #221 Landfill Area is not believed to be a significant source of fugitive LFG emissions or odors.

Each month, adjustments are made during routine wellfield monitoring to optimize applied vacuum (and thereby minimize emissions) on the SWP #221 wells. The average gas composition in the SWP #221 wells is shown in Table 1. Gas composition and a summary of adjustments made to individual wells are listed in Appendix A.

Table 1. Monthly Average Wellhead LFG Composition – SWP #221 Wells

| Month | Average CH ₄ (% Vol) | Average CO ₂ (% Vol) | Average O ₂ (% Vol) | Average Pressure (inches w.c.) |
|----------------|------------------------------------|------------------------------------|-----------------------------------|-----------------------------------|
| November 2022 | 47.4 | 33.7 | 3.3 | -11.9 |
| December 2022 | 58.7 | 39.6 | 0.3 | -2.7 |
| January 2023 | 39.8 | 27.0 | 6.0 | -20.6 |
| February 2023 | 42.5 | 28.1 | 7.2 | -15.6 |
| March 2023 | 53.5 | 33.6 | 2.9 | -20.4 |
| April 2023 | 56.7 | 35.2 | 1.2 | -20.7 |
| May 2023 | 52.9 | 35.4 | 1.8 | -18.8 |
| June 2023 | 57.4 | 38.3 | 0.4 | -17.4 |
| July 2023 | 57.5 | 37.7 | 0.3 | -5.2 |
| August 2023 | 52.4 | 35.4 | 1.3 | -16.8 |
| September 2023 | 16.5 | 12.9 | 15.6 | -6.4 |
| October 2023 | 21.6 | 15.1 | 12.6 | -4.9 |
| November 2023 | 36.2 | 26.5 | 7.1 | -20.7 |
| December 2023 | 22.0 | 16.1 | 12.8 | -18.9 |
| January 2024 | 30.7 | 22.1 | 9.5 | -16.8 |
| February 2024 | 32.8 | 22.4 | 9.5 | -16.6 |
| March 2024 | 30.5 | 21.4 | 10.9 | -13.0 |
| April 2024 | 55.5 | 35.6 | 1.4 | -12.4 |
| May 2024 | 24.4 | 15.7 | 12.1 | -12.2 |
| June 2024 | 54.6 | 36.4 | 1.5 | -15.4 |
| July 2024 | 56.5 | 39.8 | 0.2 | -2.73 |
| August 2024 | 57.5 | 38.9 | 0.8 | -1.58 |
| September 2024 | 55.5 | 37.2 | 1.0 | -6.3 |
| October 2024 | 51.2 | 35.3 | 2.3 | -14.8 |
| November 2024 | 43.7 | 32.0 | 4.4 | -15.7 |
| December 2024 | 42.9 | 31.5 | 4.1 | -16.3 |
| January 2025 | 45.1 | 30.1 | 4.9 | -16.9 |
| February 2025 | 28.8 | 19.1 | 11.8 | -20.7 |
| March 2025 | 29.0 | 18.6 | 10.5 | -23.5 |
| April 2025 | 29.4 | 18.1 | 10.2 | -23.0 |

3.2 OPTIMIZATION PLAN AND REPORTING

3.2.1 Optimization Plan

On December 1, 2022, on behalf of the City, SCS submitted a plan that provides for means and methods for optimizing the performance of the existing gas extraction system in the Solid Waste Permit #221 landfill. Additional details about that plan were included along with a copy of the plan in the November 2022 Monthly Compliance Report for the SWP #221 Landfill.

3.2.2 Optimization Actions

During the month of January 2023 actions were taken to implement the submitted Optimization Plan. The actions taken at the SWP #221 Landfill in accordance with the Plan were summarized in the January 2023 Monthly Compliance Report for the SWP #221 Landfill. SCS prepared a report that detailed the results of each of these activities and the report was submitted to VDEQ on February 1, 2023.

3.2.3 Monthly Wellhead Monitoring

On 29 April 2025, the City performed monitoring of the landfill gas wells. The results of the monthly monitoring were submitted to VDEQ on 5 May 2025 and are included in Appendix A. The results of the monthly monitoring also include comments regarding observations and adjustments made by the field technician.

Appendix A

April Monthly Wellhead Monitoring Data

| Point Name | Record Date | CH4 [%] | CO2 [%] | O2 [%] | Bal Gas [%] | Adj Temp [°F] | Sys Pressure ["H2O] | Comments |
|------------|-----------------------|------------|------------|-----------|----------------|------------------|------------------------|-------------------------|
| 01 | 4/29/2025 10:25:00 AM | 19.2 | 11.5 | 13.5 | 55.8 | 87.0 | -24.08 | Closed 1/2 Turn |
| 02 | 4/29/2025 10:28:00 AM | 0.0 | 0.1 | 19.8 | 80.1 | 82.0 | -20.27 | Closed 1 Turn |
| 03 | 4/29/2025 10:31:00 AM | 16.1 | 9.6 | 14.6 | 59.7 | 85.3 | -23.46 | Closed 1/2 Turn |
| 04 | 4/29/2025 10:35:00 AM | 12.4 | 7.8 | 15.5 | 64.3 | 96.1 | -24.63 | Closed 1 Turn |
| 05 | 4/29/2025 9:39:00 AM | 40.3 | 28.1 | 6.4 | 25.2 | 83.0 | -24.26 | Comments: No adjustment |
| 06 | 4/29/2025 9:53:00 AM | 65.7 | 33.8 | 0.0 | 0.5 | 83.6 | -22.56 | Opened 1/2 Turn |
| 07 | 4/29/2025 9:56:00 AM | 49.4 | 33.9 | 2.5 | 14.2 | 83.4 | -24.06 | Comments: No adjustment |
| 08 | 4/29/2025 9:59:00 AM | 40.5 | 24.0 | 6.7 | 28.8 | 86.4 | -25.41 | Comments: No adjustment |
| 09 | 4/29/2025 10:02:00 AM | 59.9 | 38.2 | 0.0 | 1.9 | 88.8 | -24.12 | Opened 1/2 Turn |
| 10 | 4/29/2025 10:06:00 AM | 24.8 | 17.5 | 11.5 | 46.2 | 81.8 | -25.33 | Comments: No adjustment |
| 11 | 4/29/2025 10:15:00 AM | 7.6 | 4.9 | 17.1 | 70.4 | 83.7 | -20.47 | Comments: No adjustment |
| 12 | 4/29/2025 10:20:00 AM | 19.6 | 12.1 | 13.2 | 55.1 | 83.2 | -19.67 | Comments: No adjustment |
| 13 | 4/29/2025 9:46:00 AM | 18.1 | 12.0 | 14.1 | 55.8 | 83.9 | -23.51 | Closed 1/4 Turn |
| 14 | 4/29/2025 9:50:00 AM | 49.6 | 26.4 | 4.6 | 19.4 | 86.4 | -23.62 | Comments: No adjustment |
| 15 | 4/29/2025 10:12:00 AM | 18 | 11.2 | 13.8 | 57 | 83.3 | -19.42 | Closed 1/2 Turn |