

# December 2024 Monthly Compliance Report

Solid Waste Permit #221  
Bristol Integrated Solid Waste Management Facility  
2655 Valley Drive  
Bristol, VA 24201  
(276) 645-7233

## Table of Contents

Section	Page
Introduction.....	1
2.0 Cover Integrity and Exposed Wastes .....	1
2.3 Surface Emissions Monitoring.....	1
3.0 Gas Collection .....	1
3.1 System Optimization .....	1
3.2 Optimization Plan and Reporting .....	1
3.2.1 Optimization Plan.....	2
3.2.2 Optimization Actions.....	2
3.2.3 Monthly Wellhead Monitoring .....	3

## Tables

Table 1.	Monthly Average Wellhead LFG Composition – SWP No. 221 Wells.....	2
----------	---	---

## Appendices

Appendix A December Monthly Wellhead Monitoring Data

Appendix B Annual Surface Emissions Monitoring

## **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 December 2024.

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. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint. During the monitoring event no exceedances were detected on the serpentine route or at pipe penetrations. Details of the surface emissions monitoring are included in Appendix B.

## **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 2. 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 <sub>4</sub> (% Vol)	Average CO <sub>2</sub> (% Vol)	Average O <sub>2</sub> (% 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

## 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 18 December 2024, the City performed monitoring of the landfill gas wells. The results of the monthly monitoring were submitted to VDEQ on 20 December 2024 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

### December Monthly Wellhead Monitoring Data

## Bristol Virginia Landfill - Permit #221 Well Data: 1 – 31 December 2024

Point Name	Record Date	CH4 [%]	CO2 [%]	O2 [%]	Bal Gas [%]	Max Gas Temp [°F]	Init Stat Press [“H2O]	Adj Stat Press [“H2O]	Sys Pressure [“H2O]	Comments
01	12/18/2024 1:12:54 PM	27.8	23.0	8.0	41.2	63.5	-16.24	-2.56	-16.27	Adjusted vacuum to -2.55
02	12/18/2024 1:18:39 PM	33.8	23.1	9.0	34.1	60.8	-16.38	-2.06	-16.44	Adjusted vacuum to -2.06
03	12/18/2024 1:25:03 PM	19.0	23.5	7.0	50.5	61.7	-15.98	-12.23	-16.47	Closed 1/2 turn
04	12/18/2024 1:29:50 PM	38.2	36.2	0.9	24.7	62.6	-16.15	-16.12	-16.29	Comments: No Adjustment
05	12/18/2024 9:17:40 AM	46.1	35.0	3.6	15.3	52.2	-16.46	-16.45	-16.15	Comments: No Adjustment
06	12/18/2024 9:41:39 AM	36.4	23.6	8.4	31.6	55.5	-16.42	-2.48	-16.42	Closed 1 3/4 turns
07	12/18/2024 9:46:18 AM	51.9	37.8	1.4	8.9	56.4	-15.97	-16.02	-16.55	Comments: No Adjustment
08	12/18/2024 12:31:42 PM	59.6	37.1	0.7	2.6	62.5	-15.84	-15.97	-16.22	Closed 1/2 turn
09	12/18/2024 12:37:17 PM	45.3	32.0	4.4	18.3	65.4	-16.13	-16.27	-15.98	Closed 2 turns
10	12/18/2024 12:41:51 PM	50.6	38.2	2.1	9.1	62.3	-16.40	-16.40	-15.96	Comments: No Adjustment
11	12/18/2024 12:59:58 PM	28.9	20.2	10.2	40.7	63.1	-1.49	-1.45	-16.14	Adjusted vacuum to -1.32
12	12/18/2024 1:05:28 PM	50.2	34.4	3.1	12.3	62.5	-16.16	-16.36	-16.53	Closed 1/4 turn
13	12/18/2024 9:23:23 AM	37.8	33.2	1.9	27.1	57.9	-13.18	-13.22	-16.28	Comments: No Adjustment
14	12/18/2024 9:28:11 AM	60.0	36.1	1.0	2.9	52.8	-16.31	-16.35	-16.55	Comments: No Adjustment
15	12/18/2024 12:45:45 PM	57.9	39.2	0.5	2.4	59.5	-16.25	-16.25	-16.19	Comments: No Adjustment

## Appendix B

### December 2024 Surface Emissions Monitoring



# Bristol Virginia Landfill - Permit #221 SEM 12 December 2024

LOGGED DATA  
VER= 2.00

VOC DATA

DATE	TIME	TAG	PID BACKGROUND	PID CONCENTRATION	FID BACKGROUND	FID CONCENTRATION	GPS DATA
12 DEC 24	10:04:12	UPWIND	0.0 PPM OK	5.5 PPM OK	0.0 PPM OK	-0.1 PPM OK	No Comms
12 DEC 24	10:06:02	DOWNWIND	0.0 PPM OK	5.8 PPM OK	0.0 PPM OK	0.1 PPM OK	No Comms
12 DEC 24	10:08:53	1	0.0 PPM OK	5.7 PPM OK	0.0 PPM OK	-0.4 PPM OK	No Comms
12 DEC 24	10:09:15	2	0.0 PPM OK	5.6 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:09:46	3	0.0 PPM OK	5.6 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:10:21	4	0.0 PPM OK	5.7 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:10:51	5	0.0 PPM OK	5.6 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:12:41	6	0.0 PPM OK	5.6 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:13:51	7	0.0 PPM OK	5.5 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:14:37	8	0.0 PPM OK	5.5 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:15:08	9	0.0 PPM OK	5.5 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:15:38	10	0.0 PPM OK	5.5 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:16:11	11	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:16:41	12	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	0.3 PPM OK	No Comms
12 DEC 24	10:17:10	13	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:17:38	14	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:18:07	15	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:18:23	16	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:18:58	17	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:19:26	18	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:19:51	19	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:20:21	20	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:20:46	21	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:21:08	22	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.8 PPM OK	No Comms
12 DEC 24	10:21:29	23	0.0 PPM OK	5.4 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:21:57	24	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:22:31	25	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:22:59	26	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:23:28	27	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:23:57	28	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:24:15	29	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.3 PPM OK	No Comms
12 DEC 24	10:24:53	30	0.0 PPM OK	5.3 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:25:25	31	0.0 PPM OK	5.2 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:25:54	32	0.0 PPM OK	5.2 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:26:23	33	0.0 PPM OK	5.2 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:26:44	34	0.0 PPM OK	5.2 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:27:04	35	0.0 PPM OK	5.2 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:27:32	36	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:28:01	37	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.3 PPM OK	No Comms
12 DEC 24	10:28:19	38	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.1 PPM OK	No Comms
12 DEC 24	10:28:54	39	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.1 PPM OK	No Comms
12 DEC 24	10:29:22	40	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:29:47	41	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:30:17	42	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.4 PPM OK	No Comms
12 DEC 24	10:30:47	43	0.0 PPM OK	5.1 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:31:16	44	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:31:38	45	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	6.5 PPM OK	No Comms
12 DEC 24	10:38:38	46	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.3 PPM OK	No Comms
12 DEC 24	10:39:03	47	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:39:41	48	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:40:10	49	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:40:39	50	0.0 PPM OK	5.0 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:41:08	51	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:41:37	52	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24	10:41:57	53	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:42:39	54	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.3 PPM OK	No Comms
12 DEC 24	10:43:08	55	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:43:36	56	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24	10:44:05	57	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:44:35	58	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.5 PPM OK	No Comms
12 DEC 24	10:45:24	59	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.4 PPM OK	No Comms
12 DEC 24	10:45:54	60	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms

# Bristol Virginia Landfill - Permit #221 SEM 12 December 2024

12 DEC 24 10:46:19 61	0.0 PPM OK	4.9 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:46:48 62	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:47:18 63	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:47:46 64	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:48:15 65	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:48:44 66	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.4 PPM OK	No Comms
12 DEC 24 10:49:14 67	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:49:45 68	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:50:13 69	0.0 PPM OK	4.8 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:50:42 70	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:51:12 71	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:51:42 72	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:52:12 73	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:52:41 74	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:53:10 75	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:53:41 76	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:54:11 77	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:54:38 78	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:55:01 79	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:55:24 80	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:55:47 81	0.0 PPM OK	4.7 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 10:56:10 82	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:56:56 83	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:57:20 84	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:57:44 85	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:58:07 86	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:58:32 87	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.7 PPM OK	No Comms
12 DEC 24 10:59:32 88	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms
12 DEC 24 11:00:00 89	0.0 PPM OK	4.6 PPM OK	0.0 PPM OK	-0.6 PPM OK	No Comms

END