



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029**

VIA ELECTRONIC MAIL

Mr. Randall Eads
City Manager
Bristol Virginia
2125 Shakesville Road
Bristol, VA 24201
CityManager@bristolva.org

Re: Approval of Higher Operating Temperature Values for Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Facility

Dear Mr. Eads:

The Environmental Protection Agency Region III Office ("EPA" or RIII") is in receipt of an electronic letter dated July 26, 2021 ("July 2021 Letter"), requesting several alternatives for the gas collection and control system (GCCS) at the Bristol Virginia Integrated Solid Waste Facility ("Bristol Landfill" or "Facility").

The Bristol Landfill is a municipality-owned solid waste landfill that has been in operation since the early 1990s and holds a Title V Permit No. SWRO11184, issued to the Facility (Registration number 11184) on March 13, 2021 by the Virginia Department of Environmental Quality. As a solid waste landfill, the Facility is subject to the rules found at 40 CFR Part 60 Subpart WWW and will become subject to the new requirements of 40 CFR Part 63 Subpart AAAA in September 2021 (collectively, "the landfill rules") including provisions to install and operate a GCCS for the purposes of capturing landfill gases (LFG) and treating and combusting those gases. The provisions of the landfill rules are also incorporated into the TV Permit. Bristol Landfill partners with Ingenco to combust the landfill gas in turbines to produce electricity. Bristol also owns and operates a flare system for LFG combustion when the Ingenco units are unavailable, or the gas quality doesn't meet turbine requirements. The landfill rules include compliance provisions for the LFG control system to ensure LFG is fully combusted, including use of an open flare, a system designed to reduce the non-methane hydrocarbon (NMOC) emissions by at least 98%, or a system that fully processes the LFG for resale.

The landfill rules require monitoring at each collection well, which must meet standards for pressure, temperature, and either nitrogen or oxygen content. The temperature limitation in the rule is 55°C (131°F); however, if a landfill measures temperatures that exceed 131°F, it may request a higher operating value (HOV) for each exceeding well. The July 2021 Letter indicates that during routine well monitoring, the Facility has identified wells that are greatly exceeding the 131°F temperature limit. The body of the Letter includes a discussion of four wells (# 39, 40, 46 and 47) that are elevated; however, the data table indicate there are actually five with the inclusion of #35¹. Temperatures have been

¹ Via anemail on July 30, 2021, Bristol's consultant Draper Aden confirmed that the consideration should be for all 5 wells.

steadily increasing at these wells, with wells 46 and 47 being in the 195°F range. Bristol Landfill has investigated the cause of the temperatures, and indicates in its Letter that there is no indication of a fire (ie no smoke, or burning smells). LFG samples in this well location and at an area called the Southern Chimney (a gas conveyance feature up the existing quarry wall) have demonstrated that the LFG quality in the area is in decline, with low methane, high carbon dioxide, and the presence of hydrogen. These factors have led Bristol Landfill to believe that there is an unknown subsurface reaction (“SSR”) occurring in this area.

In order to attempt to control the SSR, improve LFG production and lower temperatures, Bristol Landfill plans to install at least nine new wells in the vicinity of the five elevated temperature wells. Under normal conditions, new GCCS wells would be connected to the existing system and the LFG conveyed to the Ingenco facility or the flare system. Due to the low quality of the gas, Bristol Landfill has proposed to install the new wells, evaluate the gas being produced and then decide on either connecting the wells to the existing system, or undertake one of the following collection and treatment options:

- Install one or more solar powered spark ignition passive flares. These flares are mounted on individual wells or a header that isolates wells from the GCCS, and work by using solar energy to treat the LFG. While these units do not meet Part 60 requirements because they do not employ a thermocouple and pilot flame, use of this unit would reduce NMOC by 98%.
- Use of a Passive Carbon Adsorption System. The Facility would either use passive flow or via a blower to pull LFG through the carbon, thus removing hydrocarbons.
- Installation of an additional blower flare system that would operate on the same basis as the flare system already at the Facility; this new flare would be dedicated to treating LFG generated in the SSR area, and may need to become permanent based on the behavior of the landfill in the area.

Because some of the treatment options above do not meet the requirements of the Landfill Rules and the TV Permit, Bristol Landfill was directed by VADEQ to submit a formal request for approval to EPA RIII. In the interest of bringing the SSR under control and improving the LFG production in that area of the landfill, EPA RIII approves a HOV for the five wells that have been identified as being involved in the SSR. Further, pending the installation of the nine new wells, EPA RIII agrees that Bristol may need to utilize a collection and treatment system that may not meet the requirements of the Landfill Rules and the TV Permit. Due to the evolving situation at the site, EPA will require the following additional actions, and compliance provisions:

1. Upon completion of the new wells and analysis of the LFG quality, Bristol Landfill must submit to EPA RIII (Kris Hall at hall.kristen@epa.gov) and VADEQ (crystal.bazyk@deq.virginia.gov) a request for approval of an alternative control method if connecting to the existing GCCS is not feasible.
2. On a bi-weekly basis (twice monthly, with the first submission being due September 1, following submissions on the 1st and 15th of each month), Bristol Landfill shall submit a status report to both EPA RIII and VADEQ, as above. The report will include daily temperature readings for each existing well, and once installed, daily temperature readings for each of the new wells that are added. Additionally, the report will include a summary of the work accomplished during the reporting period, including but not limited to, the progress

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on well installation, LFG analytical results, and evaluations of the control and treatment systems.

3. This approval will be valid for one year after the date of issuance of this letter. Bristol Landfill should prepare a comprehensive report with a detailed permanent treatment option for the SSR area, with the submission due date for the report being 60 days prior to the end date of this approval. Please submit that report to both EPA RIII and VADEQ for review and approval of the final option.

While EPA has formulated this approval in order to alleviate some of the temperature issues at the facility, the Agency strongly cautions Bristol Landfill to use care when addressing the elevated temperature in the wells. It is important for Bristol Landfill and their contractors to ensure that air intrusion into the SSR areas is tightly controlled to prevent a fire. A landfill fire would be a poor outcome at this type of facility and is extremely difficult to control. Further, nothing in this approval relieves Bristol Landfill, the City of Bristol, or Ingenco of compliance with the Title V Permit, the Landfill Rules, or any other applicable rule enforceable by EPA and VADEQ.

Sincerely,

Melvin,
Karen

Digitally signed by Melvin,
Karen
Date: 2021.08.23
11:40:50 -04'00'

Karen Melvin, Director
Enforcement and Compliance Assurance Division

cc: Crystal Bazyk, VADEQ (crystal.bazyk@deq.virginia.gov)
Kerri Nicholas, VADEQ (kerri.nicholas@deq.virginia.gov)



Blalock, Susan <susan.blalock@deq.virginia.gov>

Fwd: Bristol Landfill signed AMP

1 message

Bazyk, Crystal <crystal.bazyk@deq.virginia.gov>

Mon, Aug 23, 2021 at 9:50 PM

To: Jeffrey Hurst <jeffrey.hurst@deq.virginia.gov>, Stacy Bowers <stacy.bowers@deq.virginia.gov>, Susan Blalock <susan.blalock@deq.virginia.gov>, Stanley James xjm41081 <james.stanley@deq.virginia.gov>, Rob Feagins <Rob.Feagins@deq.virginia.gov>

----- Forwarded message -----

From: **Willard, Erin** <Willard.ErinM@epa.gov>

Date: Mon, Aug 23, 2021 at 12:35 PM

Subject: Bristol Landfill signed AMP

To: Randall Eads <CityManager@bristolva.org>, Ernie Hoch <ehoch@daa.com>, kerri.nicholas@deq.virginia.gov <kerri.nicholas@deq.virginia.gov>, Crystal Bazyk <crystal.bazyk@deq.virginia.gov>

Cc: Hall, Kristen <hall.kristen@epa.gov>

Hi,

I've attached here the signed AMP you requested. Please pay careful attention to the reporting section on page 2 and 3 of the letter. If you have any questions, please feel free to email me.

Thank you...

Erin Willard

Environmental Scientist

US EPA Region III

Air Section

Enforcement & Compliance Assurance Division

US EPA Region 3

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