From:	Ken Eklund
To:	Benton Public Comment
Subject:	Timeline – Explainer: EPA action against Coffin Butte Landfill (updated)
Date:	Tuesday, July 1, 2025 12:39:15 PM
Attachments:	CBL and EPA - timeline 2.pdf

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Hello Chair Fowler and Planning Commissioners:

You have questions I am sure about the origins and status of the EPA's Section 114 legal action (effectively, an audit or a subpoena for landfill environmental compliance records for enforcement reasons). I've updated the timeline supplied earlier with the latest version – double-click the link in small type to see the attachment. In short, to the best of my knowledge, Republic has not complied with the Section 114. The matter is still blacked out as an ongoing investigation. I've requested more information through FOIA, but the EPA hasn't responded yet.

Without a positive resolution of this matter, serious questions remain about Republic's commitment to environmental quality and safety. I enjoin the Planning Commission to deny LU-24-027. Thank you.

Ken Eklund

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and other storymaking games

COFFIN BUTTE LANDFILL and the EPA: a timeline (updated)

2021
Community Concerns

Republic Services submits an application to expand Coffin Butte Landfill. There is widespread public outcry, including letters to Oregon's national Representative and Senators stating concerns with the landfill's gas emissions. These congresspeople pass along these community concerns to the Environmental Protection Agency (EPA). In November the Planning Commission denies Republic's application, citing questions about Coffin Butte's landfill gas emissions as part of their decision. [1]

2022
Early June
Republic pre-inspection

The EPA schedules an inspection of Coffin Butte Landfill. Prior to this announced inspection, Republic performs its own inspection of the landfill, which covers almost all of the landfill's surface. This self-inspection finds 6 minor leaks, which they remediate ahead of the EPA visit.

2022
June 23
EPA inspection; multiple violations, indications of substantial plumes

The EPA inspects Coffin Butte Landfill. This inspection covers only a small percentage of the landfill's surface, but finds 61 violation-level gas leaks, many of them major; 21 were 20 times above the violation level or more. Many of these findings are landfill gas emerging from leak clusters or broad areas of the landfill surface. The inspector notes that several of the leaks showed high concentrations several feet away or above the leak itself, indicating substantial landfill gas plumes being created. [2]

The Republic employee observing this inspection does not dispute the findings; he notes that he would not have checked many of the leak locations, that he would have spent less time monitoring, and otherwise would have carried out the inspection using interpretations of the testing protocol that would have enabled him to not report the leaks. [3]

2023
July 13-22
Carbon Mapper overflights, plume detection

In 2023 the EPA teams up with the climate science non-profit Carbon Mapper to conduct a national survey of landfills. The project surveys four Oregon landfills over a 10-day period from an airplane equipped with an advanced methane detector. Coffin Butte Landfill stands out with the most number of plumes detected (16), the greatest number of plume origin points (4), the largest plumes, and a persistence rating of 100%. (This rating means that the landfill was observed to be leaking landfill gas above the EPA's super-emissions level every time it was surveyed.) [4]

2023
August 17
EPA prioritizes landfill emissions reductions for 2024-27

The EPA announces its National Enforcement and Compliance Initiatives for 2024-2027. One of the NECI goals is, through enforcement actions, to measurably reduce methane emissions in the landfill sector. Every four years the EPA selects these enforcement and compliance priorities so that, across administrations, "the agency and its state partners can prioritize resources to address the most serious and widespread environmental problems facing the United States." [5]

2024
May 1
EPA enforcement process underway

In EPA budget hearings, Senator from Oregon Jeff Merkley asks Michael Regan, head of the EPA, about what action the EPA is taking with Coffin Butte Landfill, given the severity of the problems found in the 2022 EPA inspection. Regan assures the Senator that legal action is underway: “it is an active enforcement situation.” [6]

2024
June 23
Second EPA inspection; multiple violations, strong odor

The EPA stages an unannounced inspection of Coffin Butte Landfill. Purpose: “to identify potential compliance concerns with Clean Air Act regulations, specifically the National Emission Standards for Hazardous Air Pollutants.” [7]

As in 2022, the EPA inspection covers only a small portion of the landfill’s surface. It finds 41 violation-level leaks, many of them major; 18 were 20 times above the violation level or more. One is a gas wellhead that is uncapped (open to the atmosphere), leaking landfill gas at approximately 230 times the violation level. The EPA inspectors note a strong landfill gas odor. Republic representatives do not dispute the findings. [8]

2024
August
Call for EPA action

All of Oregon’s national congresspeople representing the area – Representative Hoyle and Senators Merkley and Wyden – sign a letter urging the Environmental Protection Agency to thoroughly and expeditiously complete its investigation into the emissions problems at Coffin Butte Landfill. [9]

2024
August
High landfill gas emissions rates

Carbon Mapper continues to process the data acquired in its aerial surveys, and releases quantifications for the rate of landfill gas emissions observed at Coffin Butte Landfill. Those estimations include a very high immediate rate (landfill gas leaking at over 10 metric tons an hour, plus or minus 3.2 metric tons) and a high net rate (over 3 metric tons of landfill gas leaking per hour throughout the 10-day observation period, plus or minus 1.2 metric tons). This net rate of emissions for Coffin Butte Landfill is roughly twice the average level of other super-emitting landfills surveyed by Carbon Mapper nationally. [10]

2024
September
Carbon Mapper methane plume

Carbon Mapper surveys Coffin Butte Landfill again, this time using a Tanager satellite. The survey shows shows a super-emitting methane plume with an estimated emissions rate of almost 2 metric tons of landfill gas per hour. This plume has the same origin point as plumes seen in Carbon Mapper's 2023 aerial survey, suggesting that this origin point is a persistent or continuous source of landfill gas emissions. [11]

2024
September
Two EPA enforcement alerts for non-compliant landfill gas emissions monitoring

The EPA issues two enforcement alerts for municipal solid waste landfills, a group that includes Coffin Butte Landfill. These enforcement alerts target landfill operators who (1) through improper monitoring techniques and other methods, fail to maintain the integrity of the landfill cover and gas collection systems, and (2) through improper classification of waste and other accounting deviations, underreport their emissions of landfill gas. The EPA issues these enforcement alerts in response to its recent landfill inspections, where these infractions were observed. [12] [13]

2024
October
Resignation of landfill's Environmental Manager

Ian Macnab, the Environmental Manager at Coffin Butte Landfill, resigns.

2025
January 16
EPA files a Section 114 legal action for the landfill's environmental monitoring and accounting records

The EPA serves a legal action on Republic Services for comprehensive records of gas collection and monitoring operations at Coffin Butte Landfill. The legal action is represented as a subpoena, and connected to "U.S. EPA vs Republic Services" by Republic's registered agent, who received the legal action on Republic's behalf. The legal action is "pursuant to Section 114 of the Clean Air Act," which authorizes the EPA to require Republic to submit records "for the purpose of determining whether any violations of the Clean Air Act have occurred." The Clean Air Act regulates emissions from landfills to control air pollution, particularly methane and other harmful gases; the EPA enforces these regulations to reduce environmental and health impacts associated with landfill emissions. [14]

The records requested include wellhead monitoring data, surface emissions monitoring reports, gas collection system operating and compliance data, maps of areas exempted from monitoring, and other information sets relevant to the enforcement alerts issued in September. The Section 114 legal action requires a signed certification that the records provided are true, accurate and complete, with the possibility of fines or imprisonment for submitting false information. The legal action sets a March 22 deadline for receipt of the records.

2025
January 30
Landfill requests extension

Soon after receiving the legal action requiring documents, Republic requests a 30-day extension to the deadline for providing them, which the EPA grants. The new deadline for the records is April 21. [15]

2025
March 7
Another methane plume imaged

Carbon Mapper's Tanager-1 satellite surveys the landfill, and finds a significant plume of landfill gas. [16]

2025
April 18
Carbon Mapper announces alliance with California DEQ

Carbon Mapper and its partner Planet Labs PBC announce they will work with the State of California through the Satellite Data Purchase Program, helping the State leverage Carbon Mapper's remote sensing technology to reduce methane emissions. Carbon Mapper will use its Tanager satellites to deliver methane data to the California Air Resources Board (CARB) for compliance and enforcement. [17]

2025
April 18
Another methane plume imaged and quantified

Carbon Mapper's Tanager-1 satellite passes over the landfill again, and maps another significant plume of landfill gas. This one stretches east-southeast from the landfill's northern boundary all the way to the Adair Village town limit – it is almost two miles long and two-thirds of a mile wide. Carbon Mapper estimates the leak rate from this one origin point to be about 2.4 metric tons of landfill gas an hour. [18]

2025
April 21
Landfill requests a second extension

Before the April 21 deadline, Republic requests another 30-day extension; this one is also granted by the EPA. The new deadline for the records is May 21. [19]

2025
April 25
Carbon Mapper plots another methane plume

Carbon Mapper's Tanager-1 satellite finds another plume of landfill gas emanating from the landfill. This is the 20th plume image created by Carbon Mapper overflights, and the landfill continues to have a Persistence Rating of 100%; in almost two years of surveillance, Carbon Mapper has never had any overflight of Coffin Butte Landfill produce a "no plume detected" result. [20]

2025
April 30
Another methane plume mapped and quantified

Carbon Mapper's Tanager-1 satellite maps another significant plume of landfill gas during an overflight over the landfill. Again, Carbon Mapper estimates the leak rate from this one origin point to be about 2.4 metric tons of landfill gas an hour. [21]

2025
May 15
Landfill requests a second extension; ongoing FOIA

As of May 15, Republic Services had not fulfilled the EPA's CAA Section 114 legal action. At the time of this writing, the EPA has not released any further information relating to this action, citing the confidential nature of their ongoing investigation and possible enforcement against Coffin Butte Landfill. [22]

In summary:

- evidence shows the EPA has cause to investigate Coffin Butte Landfill for environmental violations;
- this evidence includes advanced remote monitoring performed by the climate science non-profit Carbon Mapper;
- the EPA's investigation has now moved into a legal action, requesting documents to evaluate for enforcement purposes;
- Republic Services has delayed the progress of that investigation and downplayed its history and significance in public statements;
- Republic Services has not met its burden to prove that ongoing active enforcement by the EPA, supported by sensing data from Carbon Mapper, does not seriously undermine Republic's assertion that it has exercised responsible environmental stewardship in landfill operations. If the management and operations of Coffin Butte Landfill has not been proved to be of responsible quality and character, then its application to significantly expand those operations must be denied.

prepared by
Ken Eklund
futureeverything@writerguy.com
408-623-8372

June 21, 2025

Accompanying documents (previously entered into the record; available from the ENRAC document depository, **here**). ENRAC's rationale for recommending denial is **here**, beginning on page 7.

ENRAC - Planning Commission Findings and Decision 2021.pdf
The Planning Commission's decision to deny LU-21-047, the application to expand Coffin Butte Landfill filed in 2021, and its findings regarding that application

ENRAC - EPA Jun 2022 CBL Inspection Report - Heinz.pdf
The 2022 EPA Field Inspection Report for Coffin Butte Landfill (text only, no images)
Lead: Daniel Heinz, Environmental Scientist, Air Toxics Enforcement Section, EPA

ENRAC - EPA Jun 2024 CBL Inspection Report - Conley.pdf
The 2024 EPA Field Inspection Report for Coffin Butte Landfill
Lead: Sara Conley, Air Enforcement Officer, Air Enforcement Section, Enforcement and Compliance Division, EPA

ENRAC - EPA Subpoena CBL January 2025.pdf
The 2025 EPA Region 10 Subpoena of Coffin Butte Landfill records
filed by Morgan Jencius, Manager, Air and Land Enforcement Branch,
Enforcement and Compliance Assurance Division, EPA

Endnotes

[1] "Bad air quality: People living in areas with poor air quality does pose serious interference with livability. Risk of health concerns is likely with the landfill expansion; enough so nearby residents speak out about it. Some residents point to increasing cancer clusters in their neighborhood and suggest that poor air quality may be responsible. One nearby resident pointed to studies in Europe that tied poor air quality in the proximity of landfills to bad health issues. The applicant noted they cannot control all of the releases of VOCs or hydrogen sulfide and these gases are understood to be potent carcinogens. The applicant did not address the long-term effects of those gases in varying concentrations in different weather situations but the Planning Commission certainly heard from people that they can smell these."
– Planning Commission Findings and Decision 2021

[2] See EPA Jun 2022 CBL Inspection Report.pdf

[3] An example: "When [EPA Inspector] Daniel Heins was monitoring at leachate cleanouts, [Republic Environmental Technician] Phil Caruso stated that he does not monitor at these and that they are not fully penetrating the cover. Daniel Heins responded that it was likely that many of these ultimately did penetrate the cover, especially in areas of thinner intermediate cover, and that regardless he recommended checking these as they were proving to be repeated sources of extremely elevated emissions, many over an order of magnitude above the surface methane standard. Phil Caruso stated that he was not required to monitor these."
– EPA Jun 2022 CBL Inspection Report, p. 4

[4] Publicly available data at carbonmapper.org. Search for "Monmouth OR" in the Data Portal to find the plume images and survey records for Coffin Butte Landfill

[5] "EPA Announces Federal Enforcement Priorities to Protect Communities from Pollution: New priorities tackle modern challenges including climate change, PFAS, coal ash, air toxics, drinking water contamination, and chemical accidents, all with a focus on achieving environmental justice" (link)

[6] Sen. Jeff Merkley to Michael Regan, EPA Administrator. May 1, 2024; timestamp 1:52:52 (link)

[7] See EPA Jun 2024 CBL Inspection Report.pdf

[8] "We traversed a section of the southwest side of the landfill moving from one penetration to another and monitoring surface emissions along the way. I noticed that when the wind was blowing from the west there was an odor that smelled like landfill gas. There were a number of exceedances, readings of 500 ppm methane or larger, coming from holes or tears in the cover material. I noted that there were a number of plants growing out of the cover material at the top of the western side of the landfill in the area along the edge of Cell 3 and Cell 5. Some of the plants were between 1.5 to 3 feet tall."
– EPA Jun 2024 CBL Inspection Report

[9] "Wyden, Merkley, Hoyle call for EPA investigation into Coffin Butte Landfill," Tracy Loew, *Salem Statesman Journal*, August 8, 2024 (link)

[10] See publicly available data at carbonmapper.org

[11] See publicly available data at carbonmapper.org

[12] "Enforcement Alert: EPA Finds MSW Landfills are Violating Monitoring and Maintenance Requirements. EPA investigations find municipal solid waste landfill operators are failing to properly conduct compliant monitoring and maintenance of gas collection and control systems" (link)

[13] "Enforcement Alert: EPA Finds MSW Landfills are Violating Landfill Gas Emission Rate Calculation Requirements. MSW landfill operators fail to include wastes from total degradable waste-in-place and properly sample landfill gas, resulting in underreported emissions" (link)

[14] See EPA Subpoena CBL January 2025.pdf. Highlighting mine. Some notes:

- The first two pages of the PDF, the "Wolters Kluwer" part, is a legal process notification sent by CT Corporation, Republic's registered agent in Oregon, to Republic Services in Phoenix. CT Corporation received the legal process on Republic's behalf. CT Corporation is notifying Republic that they are involved in a legal action ("EPA vs. Republic Services") brought by the EPA about Coffin Butte Landfill.
- CT Corporation has identified the EPA document that follows (the "EPA Region 10" part) as a subpoena, although the EPA titles it an "Information Request." As subpoenas do, the document is seeking action: namely, for Republic to supply the requested information, or else incur penalties. The subpoena states the EPA will use the information to determine whether any violations of the Clean Air Act have occurred.
- The EPA notes that it may use the supplied information in administrative, civil or criminal proceedings. It also notes failure to make a timely response, or to supply untruthful information, may incur civil or criminal penalties.

[15] "As stated in the letter, we have 10 days from receipt to request an extension for responding to the letter. We respectfully request an additional 30 calendar days to respond. The team assisting with the response are heavily involved with federal greenhouse gas reporting and other Title V submittals, which run from January through March 31st , 2025." Paul Koster, the landfill's new Environmental Manager, to EPA Air Enforcement

[16] See publicly available data at carbonmapper.org

[17] See https://carbonmapper.org/articles/cm-selected-california-satellite-data-purchase-program

[18] See publicly available data at carbonmapper.org

[19] "I wanted to let you know we are working away on preparing our response to your information request, but we would appreciate more time to respond because many of the resources devoted to this effort have been diverted to deal with the challenges associated with GHG reporting requirements, which as you may know have been more difficult than usual this year." Paul Koster, the landfill's new Environmental Manager, to EPA Air Enforcement

[20] See publicly available data at carbonmapper.org

[21] See publicly available data at carbonmapper.org

[22] This material can only be obtained through Freedom Of Information Act requests. A FOIA request for further information is still in the process of being fulfilled.

# # # # # # #

From:	Ken Eklund
To:	Benton Public Comment
Subject:	DEQ"s ordeal to obtain environmental compliance from Coffin Butte Landfill: timeline and explainer, with evidence
Date:	Tuesday, July 1, 2025 12:53:56 PM
Attachments:	cbl enclosed flare timeline w attachments.pdf

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Good day Chair Fowler and members of the Planning Commission:

A drama has played out behind the scenes over the last few years: essentially, new DEQ regulations required Republic Services to obtain a new, safer, more efficient, and cleaner-burning flare for landfill gas, and Republic Services didn't want to. Ironically, as you'll read, the landfill operators used the damage from a fire caused by the old, less safe flare to request yet another delay in installing the new safer one.

I've dug out this narrative through public records requests and am presenting it to you, and asking that you give it a read (double-click attachment to this email). Actions speak much louder than words regarding a company's commitment to environmental quality and safety, or to its attitude toward conditions placed upon it. I hope this submission will prove useful in your deliberations.

Thank you for your heroic service,

Please deny,

Ken Eklund

Ken Eklund, writerguy

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COFFIN BUTTE LANDFILL and Oregon DEQ

Performance-testing the landfill gas flare:
ODEQ's struggle to obtain compliance from Republic Services / Coffin Butte Landfill

A timeline and explainer

2021
October 4
New regulation is approved requiring performance-testing of landfill gas flares

On Oct. 4, 2021, the Environmental Quality Commission approved new Landfill Gas Emission rules as Oregon Administrative Rule 340 Division 239 (OAR 340-239). Division 239 includes new requirements to protect the climate by reducing methane emissions from Oregon landfills. OAR 340-239-0110(2)(f)(B) requires that emissions from existing gas control devices, including flares, be tested within 180 days of the date that the Division 239 requirement became applicable to them.

2022
October 1
Coffin Butte Landfill's methane generation report is due; 180-day clock begins

Coffin Butte Landfill (CBL, the dump) reaches the due date for its Methane Generation Report; in order to complete that report, its operators are now required to performance-test the landfill's flares by March 30, 2023. At this point, the dump has two "shrouded" flares (open, visible flame); it has no "enclosed" flares. A shrouded flare must be enclosed in order to be accurately tested per the new reporting requirements in Division 239.

2023
January through March
Discussions between CBL and ODEQ about how to get the flares to comply

Beginning in early 2023, the dump and ODEQ discuss by phone how to get the dump's flares to comply with the new regulations. Enclosing a shrouded flare to test it is a difficult process, so it's agreed that the dump will install a new enclosed flare and test it.

2023
March 30
Coffin Butte Landfill misses its deadline to performance-test its flares and complete its Methane Generation Report

The deadline for performance testing of the existing shrouded flares, or installation and testing of a new enclosed flare, passes by without action by the dump operators. The dump continues to use its two shrouded flares, which are less efficient at converting methane to carbon dioxide, and which pose a fire hazard.

2023
April through July
ODEQ alerts Coffin Butte Landfill about its non-compliant status

ODEQ and Coffin Butte Landfill go back and forth about taking action to install a new enclosed flare and test it per the Division 239 regulations. The dump begins work on a site plan for a new enclosed flare.

2023
August 1
Notice of Approval (NOA) filed for site plans of the new enclosed flare

Coffin Butte Landfill files a Notice of Approval (NOA) for its site plans for the new enclosed flare.

2023
August through October
ODEQ and Coffin Butte Landfill negotiate the NOA

ODEQ and Coffin Butte Landfill go back and forth about finalizing the site plan for the new enclosed flare.

2023
November 9
ODEQ approves CBL's site plans for the new enclosed flare

ODEQ approves the dump's site plans for the new enclosed flare.

At this point, it's been over two years since the regulations about flare testing went into effect and over seven months since the deadline to conduct those performance tests.

2024
February 8
CBL to ODEQ: "everything wrapped up by March"

Michael Eisele, Environmental Engineer at ODEQ, emails Ian Macnab, the dump's Environmental Manager at the time, inquiring about the status of the flares. Ian Macnab responds that they are waiting for concrete to cure but that "we should have everything wrapped up sometime in March."

2024
March 31
Enclosed flare has arrived but is lying in a field

A dump neighbor takes a photo of the cylindrical enclosed flare lying in a field some distance from the flare site.

2024
April 22
Enclosed flare has been put into position but is non-operational

The dump operators continue to move slowly toward installing the new enclosed flare. By April 22, it is in position but non-operational – the shrouded flares are still visibly being used. The enclosed flare will not become operational until late August.

2024
July 10
ODEQ issues CBL a Warning Letter for failing to performance-test its flares per Division 239 regulations

On July 10 Michael Eisele issues a Warning Letter with Opportunity to Correct to Ian Macnab. The Letter cites Coffin Butte Landfill as being in violation of Oregon environmental laws, specifically, failing to test its gas control devices (flares) as required. The Letter notes this is a Class I violation, which is the most serious. The Letter generates an "out of office" reply, so Michael Eisele forwards a copy to Bret Davis, the dump's General Manager.

The Letter gives an Opportunity to Comply: the dump can either install and operate an enclosed flare, with the necessary Construction and Operating approvals, by **July 31** or enclose its existing flares in such a way that they can be tested. Either way, the flares are to be performance-tested by **October 31, 2024**. Complying according to the Opportunity "will be taken into consideration in any civil penalty assessment" issued by ODEQ.

2024
July 24
The shrouded flares still in use start a grass fire at Coffin Butte Landfill, which is extinguished by Adair Rural firefighters

At around 8 pm on July 24, a grass fire starts in the area around the flares. It is after hours, so all Republic people have gone home. A passing motorist notices the fire, and calls it in locally. Adair Rural responds and the firefighters enter the flare area and extinguish the fire.

Ian Macnab notifies Michael Eisele of this fire event late the next day, "as a precaution."

2024
July 26
Consultant confirms the new enclosed flare is still non-operational

Melissa Green is a Senior Project Director for Weaver, one consultancy that will assist with the performance-testing on the new flare. On July 26 she emails Suzanne Blackburn, Environmental Engineer and Source Test Coordinator at ODEQ, to confirm a timeline for flare testing. She mentions that the flare has not yet been started up.

2024
July 31
Deadline for starting up the flare, per the Warning Letter; CBL cites fire damage, asks for extension

At 9 pm on the day the new flare is supposed to come on line, Ian Macnab emails Michael Eisele to inform him that the grass fire last week had damaged a transformer near the flare – damage which apparently had not been noticed until then. According to Ian, the transformer would have to be replaced. He asks for an extension until August 2. ODEQ grants Ian's extension request the next day.

2024
August 2
Extended deadline for starting up the flare; CBL cites more difficulties, asks for another extension

At 11 pm on the day of the deadline extension, Ian Macnab emails Michael Eisele to report that "the louvers on the new flare are not operating correctly" and as a result, he'd like to request a further extension, until August 6th.

2024
August 4
CBL tells OPB reporter that "robust fire alert system worked as designed"

OPB reporter Nathan Wilk, inquiring about the July 24 grass fire at the open flares, writes in his story:

"Republic said its operating manager arrived around 12 minutes after fire officials. 'We have robust monitoring and emergency management systems in place to protect employees, the community and the environment in the event of a fire,' Republic wrote in an email. 'That system worked as designed.'"

2024
August 6
CBL's General Manager tells Benton County Board of Commissioners "the new enclosed flare will start up by the end of today"

Republic Services presents its 2023 Annual Hauling Report and the 2023 Annual Coffin Butte / Pacific Region Compost Operational Report to the Board of Commissioners. In discussions about dump compliance, the dump's general manager, Bret Davis, informs the Commissioners that a new enclosed flare will begin operations by the end of that day, to comply with regulations. He does not mention the Warning Letter.

For multiple reasons the Commissioners do not accept the Reports from Republic.

2024

August 14

A story about the July 10 Warning Letter, "Oregon warns Coffin Butte Landfill over methane emissions," is published in the Salem Statesman-Journal

Reporter Tracy Loew breaks the story about the dump's Warning Letter in her August 14 article in the Salem Statesman-Journal. Quoting her article:

Oregon environmental regulators have issued a formal warning to Coffin Butte Landfill for not complying with new requirements to reduce methane emissions from the state's landfills.

"In early 2023 during multiple phone calls, DEQ informed you that you would need to install a new enclosed flare," the warning reads. DEQ approved the company's plans to install a new, enclosed flare on Nov. 9, 2023, but that had not happened by July 10, when DEQ issued its warning.

If the company doesn't perform the corrective actions, the matter is referred to DEQ's Office of Compliance and Enforcement for formal enforcement and civil penalty assessment, [DEQ spokesman Dylan] Darling said.

2024

August 15

ODEQ receives a Notice of Construction Completion of the enclosed flare

On August 15 the dump sends ODEQ a Notice of Construction Completion for the enclosed flare, for construction approved more than 9 months previously.

At this point, the relevant regulations have been in place for over three and a half years, and the performance tests of this enclosed flare are overdue by over 16 months.

2024

August 19

Another Republic consultant submits a Source Test Plan for the enclosed flare; test day is September 18

Anne Richardson of Blue Sky Environmental sends Suzanne Blackburn of ODEQ a proposed Source Test Plan for conducting the required environmental performance test on the enclosed flare. The proposal sets a test day of September 18.

2024

September 11

ODEQ approves the Source Test Plan, with modifications

Suzanne Blackburn of ODEQ approves the test plan with some modifications; she announces her intention to be present at the testing.

2024
September 11-16
Performance test preparation

By email Suzanne Blackburn asks Ian Macnab a series of technical questions in preparation for the test procedure on September 18.

2024
September 17
Ian Macnab requests an extension for the performance test the next day

The day before the test, the dump's Environmental Manager Ian Macnab emails Suzanne Blackburn: there are "unexpected programming issues" and the test will need to be rescheduled.

The next day, Ian reschedules the test for October 22, which is within the "Opportunity to Comply" window specified in the Warning Letter (that window closes on October 31).

2024
October 22
Republic tests the enclosed flare for environmental performance

Republic conducts the environmental performance test on the enclosed flare.

Suzanne Blackburn is not able to be present; by email the next day, she inquires how the test went. There is no immediate reply.

2024
October 28
Republic's Area Environmental Manager informs ODEQ that there were "challenges" with the environmental performance test

Republic's Area Environmental Manager, Brent Learch, responds to Suzanne Blackburn's email:

We encountered some challenges when performing the source test on the enclosed flare. The challenges centered around the control panel and wiring. Our team is working with the flare manufacturer to develop solutions. We do not have the source test results yet but believe that an additional source test may be required. We will keep you informed about our progress on developing solutions and whether we need to perform the test again.

Suzanne Blackburn immediately informs Michael Eisele, Permit Writer and author of the Warning Letter, of this development.

2024
October
Ian Macnab announces his resignation

The dump's Environmental Manager, Ian Macnab, announces his resignation in October and departs in December.

2024
October 30
Republic's test consultant informs ODEQ that a second test is necessary; she schedules it for November 7

On October 30 Melissa Green writes Suzanne Blackburn to let ODEQ know that a second environmental performance test is necessary, and has been scheduled for November 7, 2024.

2024
November 7
Republic and their consultants perform a second test on the dump's enclosed flare

Republic and its consultants conduct a second environmental performance test on the enclosed flare, with DEQ observing.

Republic's test data is sent to ODEQ on December 18.

2025
March 3
ODEQ reports completion of a successful performance test on CBL's enclosed flare

Republic will need to performance-test the flare again by December 22, 2025

Suzanne Blackburn emails Michael Eisele to inform him of her findings regarding the two tests:

Overall Evaluation
The test methods conducted, and the data provided for testing conducted on October 22, 2024 were not sufficient to evaluate the emissions from the enclosed flare. The test methods conducted, and the data provided for testing conducted on November 7, 2024 were sufficient to evaluate the emissions from the enclosed flare. A full test report review was performed with all emissions calculated from raw data…

The new enclosed flare emissions showed compliance with OAR 340-239-0110 (2)(b) by meeting the methane destruction efficiency of 99% by weight.

The new enclosed flare emissions showed compliance with the Non-Methane Organic Compound (NMOC) emissions from the flare to show compliance with NESHAP AAAA - reduce the outlet NMOC concentration to less than 20 ppmvd as hexane @ 3% O2.

The next source test is due no later than 45 days after the anniversary date of the initial performance test (12/22/2025).

Summary and conclusion: extraordinary effort required to compel compliance

The original deadline for the dump to test its flares for their environmental performance was March 30, 2023, as specified in regulations that took effect in October of 2021. It took ODEQ an undetermined number of calls and emails plus an official Warning Letter to compel the dump to comply with regulations designed to protect the environment and the surrounding area and its residents – many more calls and emails than are reflected here.

Ken Eklund
May 18 2025

From: Macnab, Ian
Sent: Thu, 8 Feb 2024 22:44:15 +0000
To: EISELE Michael * DEQ
Subject: RE: Enclosed flare

You don't often get email from imacnab@republicservices.com. Learn why this is important

Not yet. The concrete has to cure still. We should have everything wrapped up sometime in March.

Ian Macnab
Environmental Manager - Oregon

28972 Coffin Butte Rd
Corvallis, OR 97330
e imacnab@republicservices.com
o 541-230-5543
c 541-230-4022
w RepublicServices.com

Sustainability in Action

From: EISELE Michael * DEQ <Michael.EISELE@deq.oregon.gov>
Sent: Thursday, February 8, 2024 2:13 PM
To: Macnab, Ian <IMacnab@republicservices.com>
Subject: Enclosed flare

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This message came from outside your organization.

Hi Ian,

Is the new flare installed and operational? Have the two old flares been removed? If not, what is their status.

Thanks,
Mike

Mike Eisele, PE
Environmental Engineer
ODEQ-WR-Salem
503-378-5070

From: Green, Melissa
Sent: Wed, 26 Jun 2024 12:24:38 +0000
To: BLACKBURN Suzanne * DEQ
Cc: IMacnab@republicservices.com
Subject: RE: Valley Landfill Coffin Butte - new Enclosed Flare

Hi Suzanne,

The enclosed flare has not yet been started up. The site is working with Mike Eisele on this. For the source test the site is working with Montrose and will have a source test protocol submitted within 30 days of the scheduled test date.

Please let me know if you have any questions.

Melissa

Melissa Green
Senior Project Director

Weaver Consultants Group
7340 East Caley Avenue | Suite 110
Centennia , C 8011
l O 1
O: 720-529-0132 | F: 720-529-0137 | M: 541-760-0499
mgreen@wcgrp.com | www.wcgrp.com

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From: EISELE Michael * DEQ
Sent: Wed, 10 Jul 2024 22:26:16 +0000
To: Davis, Bret
Cc: LOBOY Zach * DEQ
Subject: FW: Warning Letter with Opportunity to Correct
Attachments: 02-9502 Coffin Butte WLOC for not testing their shrouded flares.pdf

Hi Bret,

I received an out of office reply from Ian so I thought I would forward this on to you since there are some dates associated with corrective actions included in this Warning Letter with Opportunity to Correct. Please let me know if you have any questions.

Thanks,
Mike

From: EISELE Michael * DEQ
Sent: Wednesday, July 10, 2024 2:59 PM
To: Macnab, Ian <IMacnab@republicservices.com>
Cc: LOBOY Zach * DEQ <Zach.LOBOY@deq.oregon.gov>
Subject: Warning Letter with Opportunity to Correct

Hi Ian,

Please find the attached Warning Letter with Opportunity to Correct. Let me know if you have any questions.

Thanks,
Mike

Oregon
Tina Kotek, Governor

Department of Environmental Quality
Western Region Salem Office
4026 Fairview Industrial Dr SE
Salem, OR 97302
(503) 378-8240
FAX (503) 373-7944
TTY 711

July 10, 2024

Ian MacNab
Valley Landfills, Inc.
Coffin Butted Road
Corvallis, OR 97330

Sent via email only (imacnab@republicservices.com)

RE: Pre-Enforcement Notice
Valley Landfill
2024-WLOTC-9427
02-9502-TV-01
Benton County

Dear Ian MacNab:

Valley Landfills, Inc. operates a gas collection and control system at the Coffin Butte landfill that includes shrouded flares.

On October 4, 2021, Division 239 was added to Chapter 340 of the Oregon Administrative Rules. Division 239 includes new requirements to reduce methane emissions from Oregon landfills. OAR 340-239-0110(2)(f)(B) requires that emissions from existing gas control devices, including flares, be tested within 180 days of the date that the Division 239 requirement became applicable to you, which was when the methane generation report was due on October 1, 2022. Therefore, testing of your shrouded flares should have been completed by March 30, 2023.

The design of your current shrouded flare does not easily lend itself to be tested, and testing of the current flare was not completed or attempted. In order to meet the testing requirement described above, the shrouded flare should have been fully enclosed to allow testing or replaced with a new enclosed flare.

In early 2023 during multiple phone calls, DEQ informed you that you would need to install a new enclosed flare. You submitted a Notice of Approval (NOA) and a minor permit modification application to DEQ for the new enclosed flare on August 1, 2023. After some back and forth, DEQ approved the NOA on November 9, 2023. This new flare will be able to accommodate testing but has yet to be installed and operated. Upon startup of the enclosed flare, the existing shrouded flares will be removed.

The Department has concluded that Valley Landfill is responsible for the following violations of Oregon environmental law:

VIOLATIONS:

(1) Failing to conduct performance tests on gas control devices, Flare 1 and Flare 2, according to OAR 240-239-0110(2)(f)(B). This is a Class I violation according to OAR 340-012-0054(1)(qq).

Class I violations are the most serious violations; Class III violations are the least serious.

In order to correct the violation or minimize the impacts of the violation cited above, DEQ requests that you take the following corrective actions:

Corrective Actions Requested

1) Install and operate the enclosed flare that you have construction and operating approval for by 7/31/2024 and test this flare by 10/31/2024; or
2) Enclose the existing flares in such a way that they can be tested and test them by 10/31/2024.

Your timely and responsive action on these items will be taken into consideration in any civil penalty assessment issued by the Department.

If you believe any of the facts in this Warning Letter are in error, you may provide written information to me at the address shown at the top of the letter. The Department will consider new information you submit and take appropriate action.

The Department endeavors to assist you in your compliance efforts. Should you have any questions about the content of this letter, feel free to contact me in writing or by phone at 503-378-5070.

Sincerely,

Michael Eisele

Michael Eisele, PE
Environmental Engineer 3
DEQ Western Region, Salem

From: Macnab, Ian
Sent: Wed, 31 Jul 2024 21:09:17 +0000
To: EISELE Michael * DEQ
Subject: RE: Coffin Butte
Importance: High

Mike,

During startup of the new enclosed flare today we discovered that the grass fire last week had damaged a transformer near the flare. The electrician is currently trying to find a replacement. We'll get it installed as soon we receive it, but I would like to request an extension on the deadline for starting the flare to Friday August 2. Please let me know if this is approved.

Thank you,

Ian Macnab
Environmental Manager - Oregon

28972 Coffin Butte Road
Corvallis, OR 97330
e imacnab@republicservices.com
o 541-230-5543
c 541-230-4022
w RepublicServices.com

Sustainability in Action

From: EISELE Michael * DEQ <Michael.EISELE@deq.oregon.gov>
Sent: Monday, July 29, 2024 6:48 AM
To: Macnab, Ian <IMacnab@republicservices.com>
Subject: RE: Coffin Butte

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Ok thanks

Mike

From: Macnab, Ian <IMacnab@republicservices.com>
Sent: Thursday, July 25, 2024 12:57 PM

To: EISELE Michael * DEQ <Michael.EISELE@deq.oregon.gov>
Subject: Coffin Butte

Mike,

Last night around 8 pm we had a small grass fire near our flares and the power plant. Adair Fire quickly extinguished it. We don't know the cause currently. I don't believe AQ requires a notification for this, as a precaution am sending you the information. Let me know if you have any questions.

Ian Macnab
Oregon Environmental Manager

From: Macnab, Ian
Sent: Fri, 2 Aug 2024 23:24:56 +0000
To: HAULMAN Alex * DEQ
Cc: EISELE Michael * DEQ; MCWHORTER Laura * DEQ
Subject: Re: Extension Approval

All,

We're running into issues with the louvers on the new flare not operating correctly. We will continue to try to troubleshoot, but if we're unable to get things fixed, I'd like to request an extension until Tuesday. I believe this is a better alternative than shutting down the old flares. Let me know if you have any questions.

Ian Macnab
Oregon Environmental Manager
From: HAULMAN Alex * DEQ <Alex.HAULMAN@deq.oregon.gov>
Sent: Wednesday, July 31, 2024 5:26:08 PM
To: Macnab, Ian <IMacnab@republicservices.com>
Cc: EISELE Michael * DEQ <Michael.EISELE@deq.oregon.gov>; MCWHORTER Laura * DEQ <Laura.McWhorter@deq.oregon.gov>
Subject: Extension Approval

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Ian,

I spoke with Mike Eisele and he has approved your extension request until Friday, August 2, 2024 in relation to the most recent Warning Letter received by Valley Landfills.

Alex Haulman
Natural Resource Specialist

Oregon DEQ – Salem Office
4026 Fairview Industrial Drive SE, Salem, OR 97302

DEQ Cell (971) 678-0471

Work Schedule – Monday to Thursday Off on Friday

Alex.Haulman@deq.oregon.gov

From: Macnab, Ian
Sent: Thu, 15 Aug 2024 20:21:08 +0000
To: EISELE Michael * DEQ; DEQ WRAQPermits
Cc: Green, Melissa
Subject: Coffin Butte Notice of Construction Completion
Attachments: Coffin Butte Notice of Completion.pdf

Good afternoon,

Please find attached the notice of construction completion for the flare at Coffin Butte. A hard copy will follow to the address on the form.

Ian Macnab
Environmental Manager - Oregon

28972 Coffin Butte Road
Corvallis, OR 97330
e imacnab@republicservices.com
o 541-230-5543
c 541-230-4022
w RepublicServices.com

Sustainability in Action

State of Oregon
DEQ Department of Environmental Quality

Notice of Construction Completion

Form R1004

NC Application Number: 34938	Permit Number: 02-9502
Facility Name: Valley Landfills, Inc. - Coffin Butte Landfill	
Application submittal date or construction approval date: 11/9/2023	
Construction commencement date: 3/11/2024	
Construction completion date: 8/6/2024	Initial operation date: 8/6/2024
Description and identification numbers or labels of the device(s)/process(s): Installation of an enclosed flare	
Location of the constructed facility/equipment: 28972 Coffin Butte Road, Corvallis, Oregon 97330	
Make, model, and identification name or number of the constructed facility/equipment: John Zink, ZTOF Enclosed Flare, Serial No: P00009636/K00212504, Tag No: BGBF-001-7001-1	
Exhaust parameters (e.g., stack height, diameter, temperature, flowrate, volume or area source dimensions): Stack Height 40'-1 1/4", Stack Diameter 11' -8", Operating Tempeature 1,400 to 1,800 deg F, Max. Flowrate 3,390 scfm.	

Was the construction/installation built in accordance with the application or approved plans and specifications? Yes ☑ No ☐
If no, the owner or operator must submit any changes in construction or modification plans that affect emissions with this form.

Statement of Certification:

Based on information and belief formed after reasonable inquiry, the statements and information in this document and any attachments are true, accurate and complete.

Bret Davis
Name of Responsible Official

General Manager
Title of Responsible Official


Signature of Responsible Official

8/9/2024
Date

Submit completed form within 30 days of completion of construction to the appropriate Regional Office by selecting the County where the facility is located and email a convenience copy to: WRAQPermits@deq.oregon.gov

Select County: Benton

Oregon Department of Environmental Quality
Western Region, Air Quality,
4026 Fairview Industrial Dr. SE
Salem, OR 97302-1142

From: BLACKBURN Suzanne * DEQ
Sent: Mon, 26 Aug 2024 16:02:09 +0000
To: EISELE Michael * DEQ; TACCONI Janice * DEQ
Subject: FW: Coffin Butte Landfill STP
Attachments: Weaver Companies RS-Coffin-Butte Landfill-stp1.pdf

Test Plan for the new Flare at Coffin Butte – test day Sept. 18

Suzanne Blackburn
Source Test Coordinator – Environmental Engineer

Oregon DEQ – Salem Office
4026 Fairview Industrial Drive SE, Salem, OR 97302

DEQ Cell (503) 816-0793

Work Schedule – Monday to Thursday Off on Friday
Suzanne.Blackburn@deq.oregon.gov

From: Anne Richardson <arichardson@blueskyenvironmental.com>
Sent: Monday, August 19, 2024 4:07 PM
To: BLACKBURN Suzanne * DEQ <Suzanne.Blackburn@deq.oregon.gov>
Cc: Lisa Mann <lmann@blueskyenvironmental.com>; LI Weston * DEQ <Weston.LI@deq.oregon.gov>; Blue Sky <bluesky@blueskyenvironmental.com>; Green, Melissa <mgreen@wcgrp.com>; IMacnab@republicservices.com; MUSWIECK Joshua * DEQ <Joshua.MUSWIECK@deq.oregon.gov>
Subject: Coffin Butte Landfill STP

Hello Suzanne,

Attached please find the Coffin Butte Landfill Source Test Plan, scheduled for September 18, for your review and approval. Should you have any questions or comments please let us know.

Sincerely,

Anne Richardson

Head of Administration

We appreciate you choosing Blue Sky Environmental, Inc.

BLUE SKY ENVIRONMENTAL, INC

2273 Lobert St.

Castro Valley, CA 94546

Direct: (810) 923-1198

Office: (510) 525-1261

arichardson@blueskyenvironmental.com

Visit our website at www.blueskyenvironmental.com

Source Test Protocol

August 19, 2024

Prepared for:

Valley Landfill, Inc.
28972 Coffin Butte Road
Corvallis, OR 97330

Located at:

Coffin Butte Landfill
Highway 99 & Coffin Butte Road
Corvallis, OR 97330

PERMIT # 02-9502-TV-01

Submitted to:

Department of Environmental Quality-Western Region
750 Front Street NE, Suite 120
Salem, Oregon, 97301

&
USEPA, Region 10
1200 Sixth Avenue
Suite 900, AWT-107
Seattle, WA 98101

Prepared by:

Jeramie Richardson
Blue Sky Environmental, Inc
2273 Lobert Street
Castro Valley, CA 94546
Office (510) 525-1261
Mobile (810) 923-3181
bluesky@blueskyenvironmental.com

GENERAL INFORMATION

Source Owner:	Valley Landfills, Inc. 28972 Coffin Butte Road Corvallis, OR 97330
Source Location:	Coffin Butte Landfill Highway 99 & Coffin Butte Road Corvallis, OR 97330
Contact:	Melissa Green Weaver Consultants Group (541) 760-0499 Ian Macnab Valley Landfill, Inc. (541) 230-5534
Source Description:	Enclosed Landfill Gas Flare
Permit.	Title V Permit #02-9502-TV-01
Source Testing Company:	Blue Sky Environmental, Inc 2273 Lobert Street Castro Valley, CA 94546
Contact:	Jeramie Richardson 510-525-1261 or 810-923-3181
Scheduled Test Date(s):	September 18, 2024

1.0 Introduction

This testing is planned to comply with OAR Chapter 340, Division 239 Limit and NESHAP AAAA requirements.

OAR Chapter 340, Division 239 Limit
CH_4 DE >99%
40 CFR § 63.1959(b)(2)(iii)(B)
NMOC <20 ppmvd as Hexane @ 3% O_2

2.0 Emission Source Information

Enclosed Landfill Gas Flare.

3.0 Source Testing Program Description

Parameters	Method	Runs	Run Time (mins)	Permit Limits/ Emission Factors
CH_4 ppmvd	EPA 25A/18 or ALT 097	3	60	CH_4 DE >99%
VOC ppmvd	EPA 25A/18 or ALT 097	3	60	NMOC <20 ppmvd as Hexane @ 3% O_2
CO_2 & O_2 %	EPA 3A	3	60	--
Fuels Analysis	ASTM 1945	3	60	--
Flare DSCFM	EPA 19	3	60	--
Flare Stack °F	Process	3	60	--
Moisture	EPA 4	3	60	--
LFG SCFM	Process	3	60	--

Sampling Methods: The following Source Test Methods of the U.S. Environmental Protection Agency (EPA) are used:

EPA Method 3A (ref 7E)	CO_2 & O_2 Continuous Monitoring
EPA Method 4	Stack Moisture Content
EPA Method 25A/18 or Alt 097	THC/NMHC/CH_4 Continuous Monitoring
EPA Method 19	Calculated Flow Rate
EPA 25C	Analysis of landfill gas for TNMHC (NMOC)
ASTM 1945	Fuel analysis for BTU, Methane, CO_2, N_2, O_2, CO

EPA Method 1 – Sample and Velocity Traverses for Stationary Sources
This method is used to determine the duct or stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements.

EPA Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
This method is used to determine the average velocity and the volumetric flow rate of stack gas using a standard S-type pitot tube and inclined manometer. Temperature is monitored using a K-type thermocouple and calibrated Omega temperature meter. The entire sampling system is leak checked prior to and at the end of the sampling program. Thermometer calibrations are performed using an Omega Model CL-300 calibrator. Geometric calibrations of S-type pitot tubes are performed every 6 months or according to EPA guidelines.

EPA Method 3A – Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)

This method is used to measure oxygen and carbon dioxide in stationary source emissions using a continuous instrumental analyzer to determine the molecular weight of the stack gas.

Calibrations are performed through the probe and entire sample system. The system linearity check is performed prior to testing. During testing calibration drift checks are performed after every run.

At the beginning of the daily test program, instrument linearity checks are performed according to EPA Method 7E. The sampling system is checked for zero and span bias at the beginning and end of the test program. The monitoring system is zeroed and calibrated externally before and after each of the runs, and the calibration and zero drift are determined. The sampling/analyzer response times are also recorded.

Reference Method System Performance Criteria

Instrument Linearity	≤± 2% Span (high Cal Gas value)
Instrument Bias	≤± 5% Span
System Response Time	≤± 2 minutes
Instrument Zero Drift (EPA 7E)	≤± 3% Span
Instrument Span Drift (EPA 7E)	≤± 3% Span
NO_X Analyzer Converter Efficiency	≥90%

The stack is traversed with the monitoring probe at 3 points per diameter, per EPA Method 1A to measure stratification. Points will be at 16.7%, 50% and 83.3% of diameter.

EPA Method 4 – Determination of Moisture Content in Stack Gas

This method is used to determine the moisture content of stack gas. The sample is extracted and condensed in Greenburg-Smith impingers immersed in an ice bath and in a final impinger silica gel trap. The moisture is condensed in a solution of de-ionized water, or solutions of another type of sampling train if the moisture is being determined as part of another sampling method, such as EPA Method 5 or EPA 12. The moisture gain in the impinger solutions and silica gel is determined volumetrically and gravimetrically respectively. QA/QC procedures require that a minimum of 21 cubic feet of sample is pulled using a leak tight pump. The sample volume is measured with a calibrated dry gas meter. The impingers are immersed in an ice bath to maintain a gas outlet temperature of less than 68°F. Pre-test leak checks are performed for each run using a minimum of 15 inches of mercury vacuum. Post-test leak checks are performed at the highest sample vacuum or greater. The leak test is acceptable if the leak rate is less than 0.02 cubic feet per minute or 4% of the average sampling rate, whichever is less. If the final leak check exceeds the criteria, either the volume is corrected based on the leak rate or the run is voided and repeated.

EPA Method 25A or ALT-097 – Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer

This method is used to measure total hydrocarbons, methane, and non-methane hydrocarbons in stationary source emissions using a gas chromatograph with a flame ionization detector (GC/FID). Heated Teflon sample gas transfer lines are used to provide a continuous sample to the heated GC/FID hydrocarbon analyzer. Heated lines are used to avoid moisture or hydrocarbon condensation.

The sampling and analytical system is checked for linearity with zero, low (25-35%), mid (45-55%), and high (80-90%) span calibrations. All calibrations during testing are performed externally to incorporate any system bias that may exist. Sampling system bias, zero and calibration drift values are determined for each test.

EPA Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography
This method is used to determine emissions of volatile organics by gas chromatograph/mass spectroscopy (GC/MS). Gaseous emissions are drawn through a Teflon sample transfer line to a Tedlar bag held in a rigid leak proof bag container. The sample is drawn into the bag by evacuating the container to stack gas pressure to allow sample flow without using a pump to avoid contamination. Negative pressure is adjusted to maintain an integrated sample flow for the collection time. The bag samples are taken to a laboratory and analyzed for non-methane organic compounds (NMOC) within 72 hours.

The following procedures may be used to prevent moisture condensation in the bag:

- a condenser may be inserted into the sampling train before the Tedlar bag and, the condensate analyzed separately,
- the Tedlar bag can be partially pre-filled with a known quantity of zero air or nitrogen prior to collecting the gas sample, or
- the system can be heated and kept heated above the condensation point until analysis.

EPA Method 19 – Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxide Emission Rates
This method is used to determine stack gas volumetric flow rates using oxygen-based F-factors. F-factors are ratios of combustion gas volumes to heat inputs. The heating value of the fuel in Btu per cubic foot is determined from analysis of fuel gas samples using ASTM D-1946/1945 gas chromatography analytical procedures. The total cubic feet per hour of fuel multiplied times the Btu/cf provides million Btu per hour (MMBtu) heat input. The heat input in MMBtu/hr is multiplied by the F-factor (DSCF/MMBtu) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. The flow rates are used to determine emission rates.

ASTM D-1945 – Analysis of Natural Gas by Gas Chromatography
This method is used to measure fixed gases (such as oxygen, nitrogen, carbon monoxide, and carbon dioxide) and methane using a gas chromatograph with a thermal conductivity detector (GC/TCD). Light hydrocarbons, including C_1-C_7, are analyzed using a gas chromatograph with a flame ionization detector (GC/FID). Samples may be collected in Tedlar bags and analyzed within 24 hours or in Silco SUMMA canisters and analyzed within 7 days.

ASTM D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels
This method uses the molar composition of gaseous fuel determined from Method ASTM D-1945 to calculate the heating value and F-factor.

Instrumentation: The following continuous emission monitors (or equivalents) are used:

Instrument	Analyte	Principle
TEI 55C or VIG 20	VOC & CH_4	FID
Servomex 1440	O_2	Paramagnetic
CAI Fuji ZRH	CO_2	NDIR

The following calibration ranges and EPA Protocol gases are proposed. Gases may be substituted depending on availability at the time of testing.

Analyte	Expected Concentration	Analyzer Range	High Calibration Span	Mid Calibration 40-60% of Span	Low Calibration Zero or <20% Span
O_2	13.0 %	25	20.9	14	ZERO
CO_2	7.0 %	15	12	8	ZERO
	Expected Concentration as CH_4	**Analyzer Range**	**High Calibration 80-90%**	**Mid Calibration 45-55%**	**Low Calibration 25-35%**
CH_4 (25A)	6 ppmvd	500	450	250	150
NMOC (25A)	<6 ppmvd	50	45	25	15

Process Data: The following information will be collected during every test run, at 2-minute intervals or less.

The facility monitors the Total Landfill Gas Flowrate (SCFM), and the operating temperature at controlling Thermocouple, determined by the LFG flow rate.

4.0 Reporting, QA & QC Procedures

Emissions shall be reported in ppmvd, ppmvd @ 3% O_2, and %.

The referenced sampling methods describe the QA/QC procedures and documentation that will be followed in implementing and executing this Source Test Program.

Responsibility for all QA/QC is that of the onsite Project Manager. The Project Manager will be Jeramie Richardson, he has been testing since 2000.

Data collection, reduction and reporting are performed using Word and Excel software, and HP basic programmable calculators. The report will contain all raw data and calculations, with equations shown. The final report is normally submitted within 3 weeks of the test completion, or 2 weeks following the completion of any laboratory analysis. Three copies of the report are submitted to the client, and it is their responsibility to forward a copy to the appropriate agency.

5.0 Plant Entry and Safety

All visitors to site must sign in at the office trailer and complete a safety orientation be trained on basic procedures for the facility. While on site all personnel must wear appropriate safety gear as needed including hard-hat, safety glasses, safety shoes and appropriate clothing. All work performed on site must be approved by the site manager and documented in a work permit.

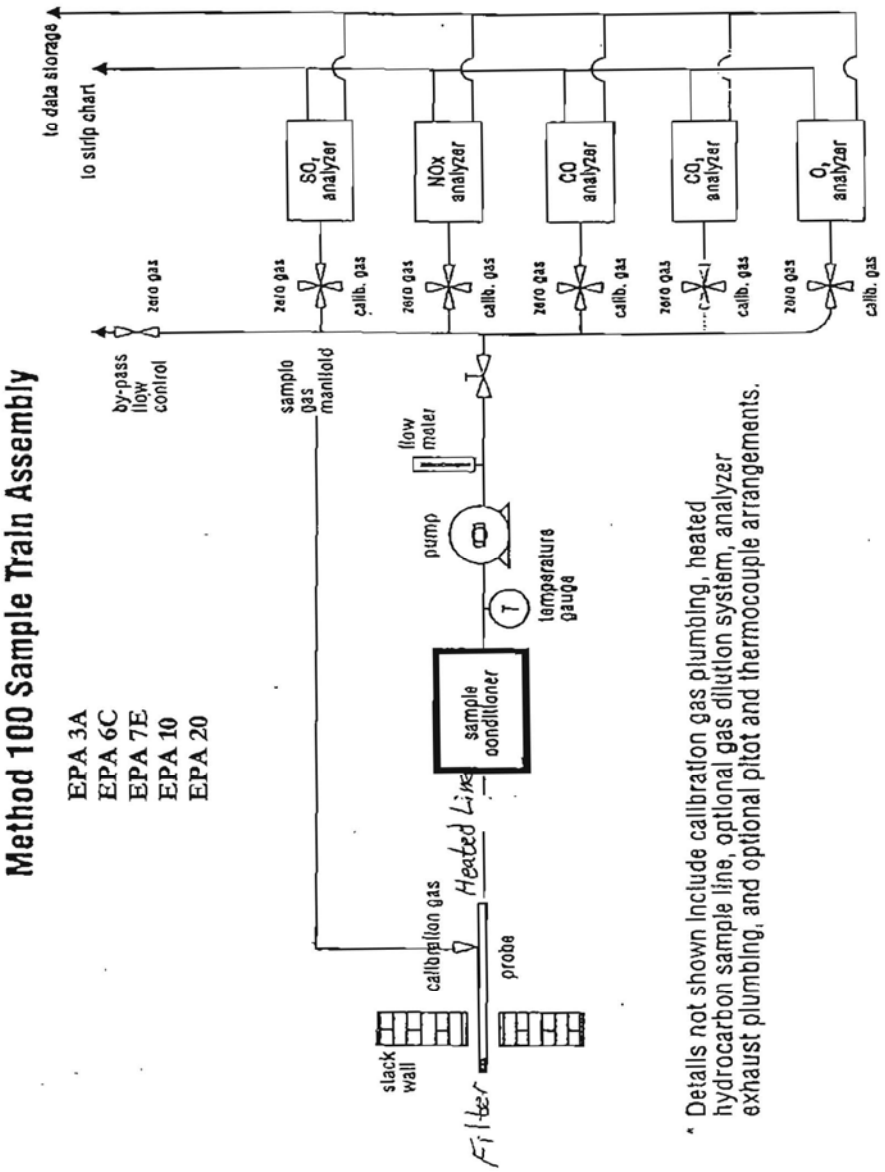
If there are any questions concerning this Source Test Plan, please contact Jeramie Richardson at 510-525-1261 or 810-923-3181.

Submitted by,

Anne Richardson
Office Manager

Appendix A Sample System Diagram
Appendix B Flare #4 Spec Sheet and Stack Diagram

APPENDIX A
Sample System Diagram(s)


Method 100 Sample Train Assembly
EPA 3A
EPA 6C
EPA 7E
EPA 10
EPA 20
to data storage
to strip chart
SO2 analyzer
NOx analyzer
CO analyzer
CO2 analyzer
O2 analyzer
zero gas
calib. gas
by-pass flow control
sample gas manifold
flow meter
pump
temperature gauge
sample conditioner
Heated Line
calibration gas
probe
stack wall
Filter
* Details not shown include calibration gas plumbing, heated hydrocarbon sample line, optional gas dilution system, analyzer exhaust plumbing, and optional pitot and thermocouple arrangements.

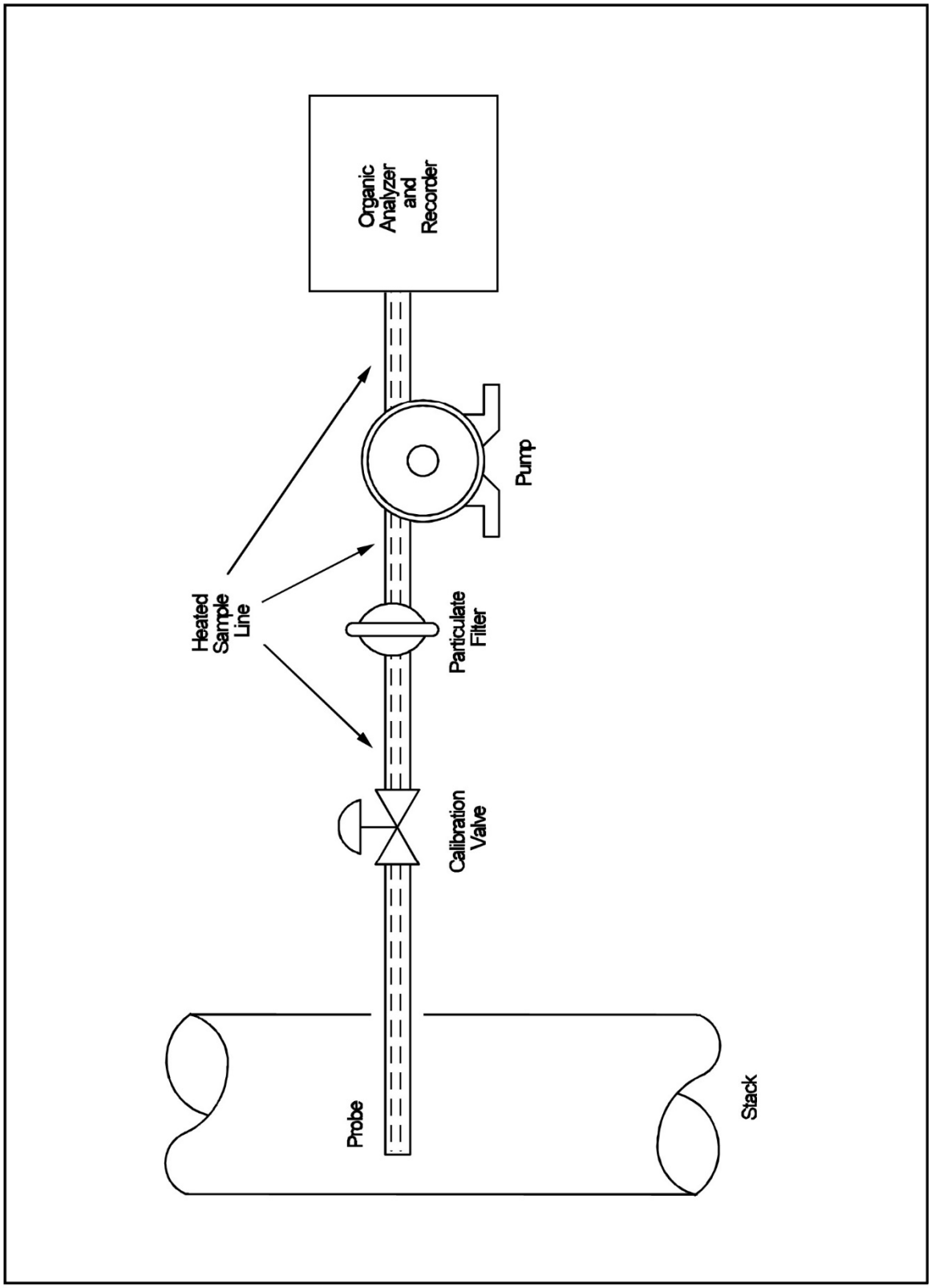


Figure 25A-1. Organic Concentration Measurement System.

APPENDIX B
Flare Spec Sheet and Stack Diagram

From: BLACKBURN Suzanne * DEQ
Sent: Wed, 11 Sep 2024 15:56:18 +0000
To: Anne Richardson
Cc: Lisa Mann; Blue Sky; Green, Melissa; IMacnab@republicservices.com; EISELE Michael * DEQ
Subject: Coffin Butte Landfill STP
Attachments: Coffin Butte Flare Test Plan Approval 2024.pdf

Hi all – the source test plan approval letter is attached.

A couple of comments – the test plan did not specify that Methane emissions at the inlet and outlet would be reported in lb/hr, which is needed for the DRE calculation.
There is a section on Method 2 with pitot tube measurements. I believe that you will use Method 19 to calculate flow rate.

I plan to observe this test. Please keep me informed of start times and any changes.

Let me know if you have any questions.

Suzanne Blackburn
Source Test Coordinator – Environmental Engineer

Oregon DEQ – Salem Office
4026 Fairview Industrial Drive SE, Salem, OR 97302

DEQ Cell (503) 816-0793

Work Schedule – Monday to Thursday Off on Friday
Suzanne.Blackburn@deq.oregon.gov

From: Anne Richardson <arichardson@blueskyenvironmental.com>
Sent: Monday, August 19, 2024 4:07 PM
To: BLACKBURN Suzanne * DEQ <Suzanne.Blackburn@deq.oregon.gov>
Cc: Lisa Mann <lmann@blueskyenvironmental.com>; LI Weston * DEQ <Weston.LI@deq.oregon.gov>; Blue Sky <bluesky@blueskyenvironmental.com>; Green, Melissa <mgreen@wcgrp.com>; IMacnab@republicservices.com; MUSWIECK Joshua * DEQ <Joshua.MUSWIECK@deq.oregon.gov>
Subject: Coffin Butte Landfill STP

Hello Suzanne,

Attached please find the Coffin Butte Landfill Source Test Plan, scheduled for September 19, for your review and approval. Should you have any questions or comments please let us know.

Sincerely,

Anne Richardson

Head of Administration

We appreciate you choosing Blue Sky Environmental, Inc.

BLUE SKY ENVIRONMENTAL, INC

2273 Lobert St.

Castro Valley, CA 94546

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Oregon
Tina Kotek, Governor

Department of Environmental Quality
Western Region Salem Office
4026 Fairview Industrial Dr SE
Salem, OR 97302
(503) 378-8240
FAX (503) 373-7944
TTY 711

September 11, 2024

Ian Macnab
Valley Landfill
28972 Coffin Butte Rd
Corvallis, OR 97330

Jeramie Richardson
Blue Sky Environmental
2273 Lobert St
Castro Valley, CA 94546

Valley Landfill
Permit Number 02-9502-TV-01
Landfill Gas Flare Source Test Plan

Mr. Macnab and Mr. Richardson:

The source test plan received on August 19, 2024, for source testing at the Valley Landfill in Corvallis has been reviewed. The test plan states source testing will be for Methane at the inlet and outlet of the new enclosed landfill gas flare, to show compliance with OAR 340-239-0110(2)(b)(A) methane destruction efficiency of at least 99% by weight) and NESHAP AAAA 40 CFR 63.1959(b)(2)(iii)(B) NMOC < 20 ppmvd as Hexane @ 3% O2.

The source test plan is approved with the following conditions:

GENERAL CONDITIONS

1. Only regular operating staff may adjust the production process and emission control parameters during the source tests and within two (2) hours prior to the tests. Any operating adjustments made during the source tests, which are a result of consultation during the tests with source testing personnel, equipment vendors or consultants, may render the source test invalid.

2. In general, source testing must be performed as follows:
   - At least 90% of the design capacity for new or modified equipment.
   - At least 90% of the maximum operating rate for existing equipment; or
   - At least 90% of the normal maximum operating rate for existing equipment. The normal maximum operating rate is defined as the 90th percentile of the average hourly operating rates during the previous 12 month period.

3. During source testing the following process parameters are to be monitored and recorded. All process parameters are to be reported for each individual test run.
   - LFG flow to the flare, DSCFM
   - Flare operating temperature, F
   - Flare set point temperature, F
   - LFG composition, HHV and Fd

4. Include a copy of the latest flare fuel meter calibration sheet in the test report.

5. Landfill gas meter readings must be made as close to the start and end of each run as possible.

6. Include a copy of the running annotated 1-minute DAS log that starts with initial calibrations and ends at the end of the test day. It should include all calibrations, stratification checks, and test runs.

7. A full lab data package is required for all lab analyses.

8. Sampling replicate(s) will not be accepted if separated by duration of twenty-four (24) hours or more, unless prior authorization is granted by DEQ.

9. The DEQ must be notified of any changes in the source test plan and/or the specified methods prior to testing. Significant changes not acknowledged by the DEQ could be the basis for invalidating a test run and potentially the entire testing program. Documentation of any deviations must include an evaluation of the impact of the deviation on the test data.

10. Method-specific quality assurance/quality control (QA/QC) procedures must be performed to ensure that the data is valid for determining source compliance. This must be done whether or not DEQ representatives are on-site to observe the testing and whether or not a QA/QC requirement has been specifically acknowledged and approved by DEQ. Only method-specific requirements explicitly exempted by the EPA and/or DEQ need not be performed. Documentation of the procedures and results shall be presented in the source test report for review. Omission of this critical information will result in rejection of the data, requiring a retest.

11. It is acceptable to postpone a scheduled test or suspend a test in progress if the discontinuation is due to equipment failure beyond the facility's control, construction delays beyond the facility's control, severe meteorological conditions, and situations that would jeopardize the safety of the testing contractors and/or operators. If the test is underway, the permittee should make every effort to complete the test run. All recoverable test information (process & sample data) must be available for DEQ review.

    It is unacceptable to postpone or suspend a test run in progress if it is discontinued because the source is not able to comply with an emission limit, verify an existing emission factor, or comply with a control equipment performance standard. The permittee must provide DEQ written documentation explaining the reasons for the postponement or stoppage, and any data collected prior to the stoppage. DEQ will review the documentation and all available stack test data to determine if a violation occurred.

EPA METHOD 1-3A-4 AND 19 CONDITIONS

12. The Method 3A sampling system must be leak-checked before and after the testing program (before the first run and after the last run). Results of the leak check are to be documented within the test report.

13. In general, all EPA Method 3A measurements should be conducted concurrently with each Method 25A / Alt-097 test run and averaged for the three test runs. Also, in general, all EPA Method 3A measurements should be conducted for the same length of time as the Method 25A / Alt-097 test runs.

14. Moisture content of the exhaust stack gas must be determined by EPA Method 4 for each test run. The Method 4 sampling system must be leak checked prior to each test run. Results of the leak checks are to be included in the test report.

15. Moisture content of the exhaust stack gas must be determined by EPA Method 4 for each test run, to correct the wet ppmv values from Method 25A / Alt-097.

16. EPA Method 19 can be used to calculate the exhaust flow rate. The composition of the landfill gas shall be sampled once during the test program and analyzed using ASTM Method D1945 and D3588. The Tedlar bag or canister should be filled over the hour long test run period.

EPA METHOD 25A / 18 / ALT-097 CONDITIONS

17. Each Method 25A / Alt-097 sampling system must be leak-checked before and after the testing program (before the first run and after the last run). Results of the leak check are to be documented within the test report.

18. The span of the analyzer used to perform EPA Method 25A / Alt-097 should be high enough so the range of the analyzer is not exceeded, but as low as possible so that the detection limit of the analyzer is low enough to determine accurate readings.

19. The TECO 55C analyzer Methane GC channel shall be calibrated with Methane calibration gases.

20. Results may <u>not</u> be drift or bias corrected.

21. If the calibration drift is more than 3% of the span value, the test must be repeated.

22. NMOC and THC and methane emissions must be reported as indicated below for each individual test run and averaged for all three test runs. Hand calculations must be provided for at least one test run.
    - ppmvd as methane
    - NMOC ppmvd as hexane
    - NMOC ppmvd as hexane @3% O2
    - lb/hr as methane
    - lb/MMCF of landfill gas
    - Methane DRE by weight

EPA METHOD 205 CONDITIONS

23. If a gas dilution system is used to provide calibration gases for other source test methods, then the system shall be evaluated once during the source test in accordance with the requirements of EPA Method 205.

GENERAL REPORTING CONDITIONS

24. The Certification Form (only) of the Source Test Audit Reports (STAR) shall be completed and submitted with the Source Test Report. The Certification Form can either be bound in the report or it can be submitted separately. Submittal of the method-specific STAR reports is no longer required. Copies of the STAR form is available electronically.

25. Please submit a searchable electronic PDF copy of the report, in addition to the hard copy. Email limits are 20 MB per attachment. If the report is larger than that, please send a copy on a thumb drive. We no longer have a CD Drive.

26. In an attempt to conserve natural resources and to minimize storage space requirements, the test report should be printed on both sides of each page within the document. DEQ recognizes this may not be feasible for some supporting documentation (i.e. figures, maps, etc.).

27. The source test report is due 60 days after the completion of source testing.

DEQ understands the source test has been scheduled for September 18, 2024.

If you have any questions or concerns, please contact me at (503) 508-1989.

Sincerely,

Suzanne Blackburn
Source Test Coordinator
Environmental Engineer
DEQ Salem Office

cc: Mike Eisele, DEQ

From: Macnab, Ian
Sent: Tue, 17 Sep 2024 15:17:23 +0000
To: BLACKBURN Suzanne * DEQ
Cc: Green, Melissa
Subject: Coffin Butte Source Test

Suzanne,

We need to reschedule the source test at Coffin Butte Landfill but intend on meeting the October 31, 2024 deadline. We are working with the flare manufacturer and program control technicians to identify unexpected programming issues. Additionally, we have contacted the testing firm, Blue Sky to reschedule the source test. Blue Sky is available and can perform the test to meet our regulatory obligations. We will notify you via email as soon as a new testing date is confirmed. We appreciate your patience as we ensure the enclosed flare is installed as intended to meet the new requirements. If you have any questions or concerns, please reach out to me or Melissa Green.

Thank you,

Ian Macnab
Environmental Manager - Oregon

28972 Coffin Butte Road
Corvallis, OR 97330
e imacnab@republicservices.com
o 541-230-5543
c 541-230-4022
w RepublicServices.com

REPUBLIC SERVICES

Sustainability in Action

Cc: Green, Melissa <mgreen@wcgrp.com>
Subject: Re: Coffin Butte Landfill STP

Bummer I was hoping to catch up with you on a couple of things. Perhaps we can talk soon.

I'll keep you posted.

Get Outlook for Android

From: BLACKBURN Suzanne * DEQ <Suzanne.BLACKBURN@deq.oregon.gov>
Sent: Monday, October 21, 2024 8:40:11 AM
To: Macnab, Ian <IMacnab@republicservices.com>
Cc: Green, Melissa <mgreen@wcgrp.com>; Blue Sky <bluesky@blueskyenvironmental.com>
Subject: RE: Coffin Butte Landfill STP

Hi all – I will not be able to see the testing on Tuesday. I have to be at another site.

Jeramie, can you keep me posted on the emissions and temperatures? Thanks

Suzanne Blackburn
Source Test Coordinator – Environmental Engineer

Oregon DEQ – Salem Office
4026 Fairview Industrial Drive SE, Salem, OR 97302

DEQ Cell (503) 816-0793

Work Schedule – Monday to Thursday Off on Friday
Suzanne.Blackburn@deq.oregon.gov

From: Macnab, Ian <IMacnab@republicservices.com>
Sent: Monday, September 30, 2024 10:05 AM
To: EISELE Michael * DEQ <Michael.EISELE@deq.oregon.gov>; BLACKBURN Suzanne * DEQ <Suzanne.BLACKBURN@deq.oregon.gov>
Cc: Green, Melissa <mgreen@wcgrp.com>; Blue Sky <bluesky@blueskyenvironmental.com>; TACCONI Janice * DEQ <Janice.TACCONI@deq.oregon.gov>
Subject: RE: Coffin Butte Landfill STP

Thank you for the clarificatiom. We understand the minimum temperature requirements and how you are determining the 3-hour average flare temperature.

To follow-up on the source test, the flare is designed to maintain a temperature setpoint. The flare will be able to achieve the same temperature at 90% flow and the lower flow when the PNGC engines are running. Please note, the site has operated the flare at both flows to ensure the flare is operational and able to maintain the same temperature at both flow ranges, therefore only one source test at 90% flow should be sufficient. We greatly appreciate ODEQ insight and helpfulness.

State of Oregon
Department of Environmental Quality

Date: March 3, 2025
To: Mike Eisele
From: Suzanne Blackburn

Subject: Source Test Review Report
Valley Landfills – Coffin Butte Landfill
Permit Number: 02-9502-TV-01

Test Date: Oct. 22, 2024 and Nov. 7, 2024
Report Received: 12/18/24
Revised Report Received: 2/18/25 and 2/20/25
Source Tester: Blue Sky Environmental
DEQ Observed: Yes (on 11/7/24)

Source Description

Valley Landfills operates the Coffin Butte municipal solid waste landfill. They have a landfill gas collection and extraction system that supplies landfill gas to the new Enclosed Flare ENCLFL.

Emissions Units Tested

New Enclosed Flare ENCLFL - John Zink ZTOF Enclosed Flare, 11' x 40'
Serial Number - F00009636/K00212504

Test Purpose

To determine the Methane emissions from the new enclosed flare to show compliance with OAR 340-239-0110 (2)(b) by meeting the methane destruction efficiency of 99% by weight.

To determine the Non-Methane Organic Compound (NMOC) emissions from the flare to show compliance with NESHAP AAAA. Reduce NMOC by 98% by weight or reduce the outlet NMOC concentration to less than 20 ppmvd as hexane @ 3% O2.

Testing Location

Flare Exhaust		Distance A (Method 1)	10' (0.9 Diam)
Stack Diameter	11'	Distance B (Method 1)	30' (2.7 Diam)

Testing Methodology

The following testing methods were utilized during the testing program:

O_2 CO_2 and Moisture and Flow Rate	EPA Methods 3A, 4 and Method 19
Methane, THC, NMOC	EPA Method 18 / 25A / ALT-0097
LFG composition, HHV	EPA Method 18 / 25C and ASTM D-1945 / 3588

Summary of Results

During the source test on October 22, 2024, several challenges were encountered, primarily related to the control panel and wiring. The site collaborated with the flare manufacturer, who conducted a site visit to rewire the control panel and reprogram the PLC to minimize the temperature fluctuations. This enabled the flare louvers/dampers to stabilize the temperature at the combustion setpoint.
During the October 22 source test many values were off scale and therefore unverifiable. See the data on page 6.

The testing parameters, test results, permit limits and operating parameters are summarized in the tables below.

Source Test after repairs - on 11/7/2024

Coffin Butte Landfill - New Flare Exhaust	Run 1	Run 2	Run 3	Average	LIMIT
Test Date	11/7/24	11/7/24	11/7/24		
Test Run Times	0800-0910	0930-1037	1100-1208		
Exhaust Gas Moisture (%)	7.9	8.0	8.1	8.0	
Exhaust O_2 (% dry vol)	12.55	12.87	12.99	12.80	
Exhaust CO_2 (% dry vol)	8.22	7.97	7.96	8.05	
Exhaust Gas Flow Rate (DSCFM) Method 19	35,861	37,465	37,672	36,999	
NMOC Emissions	--	--	--	--	
· ppmvd as Methane	< 3.98	< 2.40	< 1.09	< 2.49	
· ppmvd @ 3% O2 as Hexane	< 1.42	< 0.89	< 0.41	< 0.91	20
· lb/hr as Methane	< 0.36	< 0.22	< 0.10	< 0.23	
· lb/MMSCF as Methane	< 2.03	< 1.27	< 0.58	< 1.29	
Methane Emissions	--	--	--	--	
· ppmvd as Methane	< 27.71	< 21.42	< 10.88	< 20.01	
· lb/hr as Methane	< 2.48	< 2.00	< 1.02	< 1.83	
· lb/MMCF as Methane	< 14.15	< 11.29	< 5.85	< 10.43	
Parameters -	--	--	--	--	
· Flare Temperature (F)	1,596.4	1,598.4	1,595.7	1,597	
· Landfill Gas Flow (SCFM)	2,917.3	2,953.1	2,910.3	2,926.9	
· Landfill Gas Flow (SCFH)	175,038	177,186	174,618	175,614	
· Landfill Gas HHV (Btu/SCF) @ 60 F	522.6	518.3	521.3	520.7	
· Landfill Gas HHV (Btu/SCF) @ 68 F	514.7	510.4	513.4	512.8	
· Landfill Gas HHV (Btu/lb) @ 60 F	7,074	7,013	7,055	7,047	
· Landfill Gas Fd (dscf/MMBtu) @ 60 F	9,402	9,403	9,393	9,399	
· Landfill Gas Fd (dscf/MMBtu) @ 68 F	9,547	9,548	9,538	9,544	
· Landfill Gas Flow (MMSCF/hr)	0.175	0.177	0.175	0.176	
· Landfill Gas Heat Content (MMBtu/hr)	90.09	90.44	89.65	90.06	

Coffin Butte Landfill - New Flare Destruction Efficiency	Run 1	Run 2	Run 3	Average	LIMIT
Test Date	11/7/24	11/7/24	11/7/24		
Test Run Times	0800-0910	0930-1037	1100-1208		
NMOC Destruction Efficiency	--	--	--	--	
· NMOC Inlet lb/hr as Methane	5.57	6.17	6.37	6.04	
· NMOC Outlet lb/hr as Methane	< 0.36	< 0.22	< 0.10	< 0.23	
· NMOC Destruction Efficiency %	> 93.61%	> 96.36%	> 98.40%	> 96.12%	
Methane Destruction Efficiency	--	--	--	--	
· Methane Inlet lb/hr as Methane	3,714	3,730	3,691	3,712	
· Methane Outlet lb/hr as Methane	< 2.48	< 2.00	< 1.02	< 1.83	
· Methane Destruction Efficiency %	> 99.93%	> 99.95%	> 99.97%	> 99.95%	> 99%

Coffin Butte Landfill - New Flare Inlet	Run 1	Run 2	Run 3	Average
Test Date	**11/7/24**	**11/7/24**	**11/7/24**	
Test Run Times	0800-0910	0930-1037	1100-1208	
Inlet Gas Flow Rate (DSCFM) Fuel Meter	2,917	2,953	2,910	**2,927**
NMOC Emissions	--	--	--	--
· **ppmvd** as Methane	766	838	879	**828**
· **lb/hr** as Methane	5.57	6.17	6.37	**6.036**
· **lb/MMSCF** as Methane	31.81	34.80	36.50	**34.37**
Methane Emissions	--	--	--	--
· **ppmvd** as Methane	511,000	507,000	509,000	**509,000**
· **lb/hr** as Methane	3,714	3,730	3,691	**3,712**
· **lb/MMCF** as Methane	21,219	21,053	21,136	**21,136**
Parameters -	--	--	--	--
· **Landfill Gas Flow (SCFM)**	2,917	2,953	2,910	**2,927**
· **Landfill Gas Flow (SCFH)**	175,038	177,186	174,618	**175,614**
· **Landfill Gas HHV (Btu/SCF) @ 60 F**	522.6	518.3	521.3	**520.7**
· **Landfill Gas HHV (Btu/SCF) @ 68 F**	514.7	510.4	513.4	**512.8**
· **Landfill Gas HHV (Btu/lb) @ 60 F**	7,074.0	7,013.0	7,055.0	**7,047**
· **Landfill Gas Fd (dscf/MMBtu) @ 60 F**	9,402.0	9,403.0	9,393.0	**9,399**
· **Landfill Gas Fd (dscf/MMBtu) @ 68 F**	9,547	9,548	9,538	**9,544**
· **Landfill Gas Flow (MMSCF/hr)**	0.175	0.177	0.175	**0.176**
· **Landfill Gas Heat Content (MMBtu/hr)**	90.09	90.44	89.65	**90.06**

Initial Source Test Attempt on 10/22/2024

Coffin Butte Landfill - New Flare Exhaust	Run 1	Run 2	Run 3	Average	LIMIT
Test Date	10/22/24	10/22/24	10/22/24		
Test Run Times	1808-1919	1936-2045	2100-2208		
Exhaust Gas Moisture (%)	8.1	8.5	8.3	8.3	
Exhaust O_2 (% dry vol)	12.78	13.22	12.65	12.88	
Exhaust CO_2 (% dry vol)	6.64	6.52	7.17	6.78	
Exhaust Gas Flow Rate (DSCFM) Method 19	31,542	32,879	30,480	31,634	
NMOC Emissions	--	--	--	--	
· ppmvd as Methane	> 17.67	> 30.00	> 7.04	> 18.24	
· ppmvd @ 3% O2 as Hexane	> 6.49	> 11.65	> 2.55	> 6.90	20
· lb/hr as Methane	> 1.39	> 2.46	> 0.53	> 1.46	
· lb/MMSCF as Methane	> 9.53	> 17.23	> 3.75	> 10.17	
Methane Emissions	--	--	--	--	
· ppmvd as Methane	> 165.8	> 312.1	65.6	> 181.2	
· lb/hr as Methane	> 13.03	> 25.57	4.98	> 14.53	
· lb/MMCF as Methane	> 89.43	> 179.24	34.87	> 101.18	
Parameters -	--	--	--	--	
· Flare Temperature (F)	1,615.4	1,556.3	1,574.8	1,582	
· Landfill Gas Flow (SCFM)	2,428.1	2,377.4	2,379.9	2,395.2	
· Landfill Gas Flow (SCFH)	145,686	142,647	142,797	143,710	
· Landfill Gas HHV (Btu/SCF) @ 60 F	542.5	544.6	543.9	543.7	
· Landfill Gas HHV (Btu/SCF) @ 68 F	534.3	536.4	535.6	535.4	
· Landfill Gas HHV (Btu/lb) @ 60 F	7,439	7,467	7,452	7,453	
· Landfill Gas Fd (dscf/MMBtu) @ 60 F	9,298	9,333	9,299	9,310	
· Landfill Gas Fd (dscf/MMBtu) @ 68 F	9,441	9,476	9,442	9,453	
· Landfill Gas Flow (MMSCF/hr)	0.146	0.143	0.143	0.144	
· Landfill Gas Heat Content (MMBtu/hr)	77.84	76.52	76.48	76.95	

Coffin Butte Landfill - New Flare Destruction Efficiency	Run 1	Run 2	Run 3	Average	LIMIT
Test Date	10/22/24	10/22/24	10/22/24		
Test Run Times	1808-1919	1936-2045	2100-2208		
NMOC Destruction Efficiency	--	--	--	--	
· NMOC Inlet lb/hr as Methane	8.49	8.65	8.49	8.54	
· NMOC Outlet lb/hr as Methane	> 1.39	> 2.46	> 0.53	> 1.46	
· NMOC Destruction Efficiency %	< 83.65%	< 71.59%	< 93.70%	< 82.98%	
Methane Destruction Efficiency	--	--	--	--	
· Methane Inlet lb/hr as Methane	3,206	3,157	3,149	3,171	
· Methane Outlet lb/hr as Methane	> 13.03	> 25.57	4.98	> 14.53	
· Methane Destruction Efficiency %	< 99.59%	< 99.19%	99.84%	< 99.54%	> 99%

Many of the one-minute values were off scale and could only be assigned a greater than value.

Coffin Butte Landfill - New Flare Inlet	Run 1	Run 2	Run 3	Average	LIMIT	EF
Test Date	**10/22/24**	**10/22/24**	**10/22/24**			
Test Run Times	1808-1919	1936-2045	2100-2208			
Inlet Gas Flow Rate (DSCFM) Fuel Meter	2,428	2,377	2,380	**2,395**		
NMOC Emissions	--	--	--	--		
· **ppmvd** as Methane	1,404	1,460	1,431	**1,432**		
· **lb/hr** as Methane	8.49	8.65	8.49	**8.54**		
· **lb/MMSCF** as Methane	58.30	60.63	59.42	**59.45**		
Methane Emissions	--	--	--	--		
· **ppmvd** as Methane	530,000	533,000	531,000	**531,333**		
· **lb/hr** as Methane	3,206	3,157	3,149	**3,171**		
· **lb/MMCF** as Methane	22,008	22,133	22,050	**22,064**		
Parameters -	--	--	--	--		
· **Landfill Gas Flow (SCFM)**	2,428	2,377	2,380	**2,395**		
· **Landfill Gas Flow (SCFH)**	145,686	142,647	142,797	**143,710**		
· **Landfill Gas HHV (Btu/SCF) @ 60 F**	542.5	544.6	543.9	**543.7**		
· **Landfill Gas HHV (Btu/SCF) @ 68 F**	534.3	536.4	535.6	**535.4**		
· **Landfill Gas HHV (Btu/lb) @ 60 F**	7,439	7,467	7,452	**7,453**		
· **Landfill Gas Fd (dscf/MMBtu) @ 60 F**	9,298	9,333	9,299	**9,310**		
· **Landfill Gas Fd (dscf/MMBtu) @ 68 F**	9,441	9,477	9,442	**9,453**		
· **Landfill Gas Flow (MMSCF/hr)**	0.146	0.143	0.143	**0.144**		
· **Landfill Gas Heat Content (MMBtu/hr)**	77.84	76.52	76.48	**76.95**		

BLUE SKY ENVIRONMENTAL, INC

Coffin Butte

Flare

		O_2	CO_2	CH_4	VOC	ZERO
DATE	TIME	%	%	PPM	PPM	SPAN
10/22/2024	17:35:03	0.01	0.14	-0.44	0.64	
10/22/2024	17:41:04	20.44	18.01	444.39	45.02	INTERNAL
10/22/2024	17:47:05	10.50	9.41	252.48	25.86	LINEARITY
10/22/2024	17:51:06			149.07	14.82	
10/22/2024	17:57:07	0.02	0.15			EXTERNAL
10/22/2024	18:02:08	20.52	18.12			BIAS

RUN 1		O_2	CO_2	CH_4	VOC
DATE	TIME	%	%	PPM	PPM
10/22/2024	18:08:09	14.76	5.23	228.59	<1.00
10/22/2024	18:09:09	13.78	5.86	500.00	44.42
10/22/2024	18:10:09	13.37	6.31	43.52	50.00
10/22/2024	18:11:10	13.23	6.46	<10.00	<1.00
10/22/2024	18:12:10	13.81	5.84	<10.00	<1.00
10/22/2024	18:13:10	12.30	7.25	41.91	<1.00
10/22/2024	18:14:10	11.92	7.65	17.39	6.21
10/22/2024	18:15:10	12.25	7.44	<10.00	<1.00
10/22/2024	18:16:10	13.11	6.55	<10.00	<1.00
10/22/2024	18:17:11	13.05	6.62	<10.00	<1.00
10/22/2024	18:18:11	13.40	6.34	<10.00	<1.00
10/22/2024	18:19:11	13.81	5.96	<10.00	<1.00
10/22/2024	18:20:11	14.56	5.29	127.01	<1.00
10/22/2024	18:21:11	14.54	5.28	500.00	49.13
10/22/2024	18:22:12	14.77	5.10	500.00	50.00
10/22/2024	18:23:12	14.67	5.18	500.00	50.00
10/22/2024	18:24:12	14.31	5.41	500.00	50.00
10/22/2024	18:25:12	13.58	6.09	500.00	50.00
10/22/2024	18:26:12	13.56	6.09	500.00	43.02
10/22/2024	18:27:12	12.50	7.01	496.19	50.00
10/22/2024	18:28:13	11.78	7.74	202.49	48.04
10/22/2024	18:29:13	11.77	7.74	<10.00	5.19
10/22/2024	18:30:13	11.49	7.93	<10.00	<1.00
10/22/2024	18:31:13	11.33	8.17	<10.00	<1.00
10/22/2024	18:32:13	10.83	8.47	<10.00	<1.00
10/22/2024	18:33:13	10.55	8.80	<10.00	<1.00
10/22/2024	18:34:14	10.55	8.83	<10.00	<1.00
10/22/2024	18:35:14	10.47	8.79	<10.00	<1.00
10/22/2024	18:36:14	10.38	8.91	<10.00	<1.00
10/22/2024	18:37:14	10.21	9.01	<10.00	<1.00
10/22/2024	18:38:14	10.37	8.87	<10.00	<1.00
Port Change					
10/22/2024	18:49:16	10.81	7.65	49.35	<1.00
10/22/2024	18:50:16	10.47	7.86	<10.00	3.49
10/22/2024	18:51:17	10.90	7.80	<10.00	<1.00
10/22/2024	18:52:17	11.57	7.72	<10.00	<1.00
10/22/2024	18:53:17	12.48	7.09	<10.00	<1.00
10/22/2024	18:54:17	12.68	6.85	<10.00	<1.00
10/22/2024	18:55:17	12.48	6.95	<10.00	<1.00
10/22/2024	18:56:17	13.13	6.57	<10.00	<1.00
10/22/2024	18:57:18	13.38	6.27	<10.00	<1.00
10/22/2024	18:58:18	13.51	6.20	<10.00	<1.00
10/22/2024	18:59:18	13.53	6.11	<10.00	<1.00
10/22/2024	19:00:18	13.10	6.50	<10.00	<1.00
10/22/2024	19:01:18	13.13	6.56	<10.00	<1.00
10/22/2024	19:02:18	13.56	6.15	<10.00	<1.00
10/22/2024	19:03:19	13.65	6.04	<10.00	<1.00
10/22/2024	19:04:19	13.38	6.24	<10.00	<1.00
10/22/2024	19:05:19	13.57	6.16	<10.00	<1.00
10/22/2024	19:06:19	14.44	5.49	221.57	<1.00
10/22/2024	19:07:19	14.08	5.76	484.26	50.00
10/22/2024	19:08:20	14.00	5.91	500.00	50.00
10/22/2024	19:09:20	13.55	6.11	363.43	50.00
10/22/2024	19:10:20	13.37	6.33	251.09	42.97
10/22/2024	19:11:20	14.11	5.76	434.99	37.60
10/22/2024	19:12:20	14.31	5.60	500.00	50.00
10/22/2024	19:13:20	13.71	6.10	500.00	50.00
10/22/2024	19:14:21	13.23	6.51	341.19	50.00
10/22/2024	19:15:21	13.49	6.24	222.27	25.65
10/22/2024	19:16:21	13.26	6.45	220.45	23.18
10/22/2024	19:17:21	13.31	6.60	136.26	20.64
10/22/2024	19:18:21	13.21	6.43	121.19	8.81
10/22/2024	19:19:21	12.91	6.71	113.11	12.37
AVERAGE		12.86	6.72	>152.36	>16.24
10/22/2024	19:23:22	0.15	0.15	1.45	-0.10
10/22/2024	19:26:23	20.62	18.08		
10/22/2024	19:32:24			445.53	44.79

RUN 2	O_2	CO_2	CH_4	VOC
TIME	%	%	PPM	PPM
19:36:24	12.54	7.43	22.76	<1.00
19:37:25	12.85	7.14	17.67	<1.00
19:38:25	12.99	7.03	50.71	<1.00
19:39:25	12.56	7.29	180.33	5.17
19:40:25	11.72	8.15	289.52	15.21
19:41:25	12.48	7.50	71.93	13.51
19:42:25	13.18	6.96	107.52	8.63
19:43:26	13.74	6.28	500.00	32.43
19:44:26	13.72	6.38	500.00	50.00
19:45:26	14.27	5.89	500.00	50.00
19:46:26	14.81	5.34	500.00	50.00
19:47:26	13.84	6.10	500.00	50.00
19:48:26	13.59	6.32	500.00	50.00
19:49:27	14.24	5.83	500.00	50.00
19:50:27	14.37	5.65	500.00	50.00
19:51:27	13.48	6.49	500.00	50.00
19:52:27	13.35	6.60	389.77	50.00
19:53:27	13.41	6.54	500.00	42.07
19:54:28	13.50	6.44	43.28	33.86
19:55:28	12.86	7.07	240.01	12.43
19:56:28	12.81	7.14	63.51	23.89
19:57:28	13.10	6.90	10.28	4.82
19:58:28	13.15	6.74	101.22	<1.00
19:59:28	12.69	7.26	95.66	16.63
20:00:29	12.59	7.35	45.57	7.93
20:01:29	12.40	7.50	15.26	1.53
20:02:29	12.50	7.43	<10.00	<1.00
20:03:29	12.89	7.12	18.43	<1.00
20:04:29	12.98	6.98	83.94	3.00
20:05:29	12.44	7.56	179.60	10.91
20:06:30	12.19	7.77	33.60	9.96
Port Change				
20:15:31	13.36	6.94	170.28	19.76
20:16:31	13.31	6.68	87.76	6.79
20:17:32	13.39	6.61	87.38	5.26
20:18:32	13.51	6.56	97.38	7.19
20:19:32	13.66	6.37	263.74	14.24
20:20:32	13.03	6.88	258.07	22.28
20:21:32	13.09	6.84	143.75	16.86
20:22:32	13.71	6.41	137.41	13.22
20:23:33	14.09	6.00	500.00	18.14
20:24:33	13.53	6.51	500.00	48.49
20:25:33	13.44	6.58	500.00	33.43
20:26:33	13.44	6.56	500.00	50.00
20:27:33	13.67	6.31	500.00	50.00
20:28:33	13.76	6.26	500.00	50.00
20:29:34	14.25	5.84	500.00	50.00
20:30:34	14.28	5.85	500.00	50.00
20:31:34	13.87	6.30	500.00	50.00
20:32:34	14.10	6.12	411.81	50.00
20:33:34	14.60	5.65	500.00	50.00
20:34:34	14.25	5.90	500.00	50.00
20:35:35	13.89	6.28	500.00	50.00
20:36:35	14.02	6.19	500.00	48.90
20:37:35	14.62	5.68	500.00	46.43
20:38:35	13.40	6.62	500.00	50.00
20:39:35	12.92	7.11	442.92	50.00
20:40:36	13.00	7.02	130.45	21.70
20:41:36	12.94	7.03	118.35	12.77
20:42:36	13.10	6.91	143.49	12.57
20:43:36	12.88	7.14	301.86	17.95
20:44:36	12.79	7.21	157.67	22.50
20:45:36	12.71	7.35	177.06	14.56
AVERAGE	13.35	6.68	>285.48	>27.44
20:49:37	0.16	0.22	1.35	0.42
20:52:38	20.63	18.35		
20:56:38			452.12	45.37

RUN 3	O_2	CO_2	CH_4	VOC
TIME	%	%	PPM	PPM
21:00:39	12.90	7.21	219.01	15.12
21:01:39	12.91	7.18	196.44	19.66
21:02:39	12.94	7.18	154.63	15.13
21:03:40	12.95	7.04	123.58	14.22
21:04:40	12.86	7.16	61.85	8.26
21:05:40	13.01	7.01	32.31	3.68
21:06:40	12.98	7.12	35.31	2.81
21:07:40	13.16	6.97	41.87	3.18
21:08:40	13.26	6.82	149.71	7.77
21:09:41	13.16	6.93	56.75	14.22
21:10:41	13.10	7.04	113.28	7.48
21:11:41	13.30	6.88	99.23	16.60
21:12:41	13.70	6.55	88.69	12.61
21:13:41	13.88	6.38	216.12	12.42
21:14:41	13.80	6.37	332.95	34.51
21:15:42	13.84	6.34	434.17	43.65
21:16:42	13.59	6.52	473.43	50.00
21:17:42	13.63	6.60	267.95	47.56
21:18:42	13.65	6.56	<10.00	17.80
21:19:42	13.61	6.61	<10.00	<1.00
21:20:43	13.84	6.49	<10.00	<1.00
21:21:43	13.13	7.09	<10.00	<1.00
21:22:43	13.10	7.17	<10.00	<1.00
21:23:43	12.36	7.81	<10.00	<1.00
21:24:43	12.43	7.76	<10.00	<1.00
21:25:43	12.55	7.70	<10.00	<1.00
21:26:44	12.37	7.83	<10.00	<1.00
21:27:44	11.92	8.17	<10.00	<1.00
21:28:44	11.86	8.29	<10.00	<1.00
21:29:44	12.48	7.64	24.41	<1.00
21:30:44	11.95	8.14	72.45	6.20
Port Change				
21:38:46	11.49	8.21	40.97	<1.00
21:39:46	11.54	8.24	39.54	4.71
21:40:46	11.64	8.28	<10.00	1.10
21:41:46	11.93	8.07	<10.00	<1.00
21:42:46	10.77	8.96	<10.00	<1.00
21:43:46	10.30	9.40	<10.00	<1.00
21:44:47	10.31	9.38	<10.00	<1.00
21:45:47	10.65	9.23	<10.00	<1.00
21:46:47	13.02	7.17	<10.00	<1.00
21:47:47	13.22	7.08	<10.00	<1.00
21:48:47	13.44	6.76	<10.00	<1.00
21:49:48	13.61	6.62	<10.00	<1.00
21:50:48	13.76	6.58	<10.00	<1.00
21:51:48	13.74	6.51	<10.00	<1.00
21:52:48	13.77	6.52	<10.00	<1.00
21:53:48	13.80	6.52	<10.00	<1.00
21:54:48	13.84	6.41	<10.00	<1.00
21:55:49	13.72	6.59	<10.00	<1.00
21:56:49	12.89	7.28	<10.00	<1.00
21:57:49	12.29	7.83	<10.00	<1.00
21:58:49	12.35	7.85	<10.00	<1.00
21:59:49	12.27	7.86	<10.00	<1.00
22:00:49	12.20	7.93	<10.00	<1.00
22:01:50	11.87	8.25	<10.00	<1.00
22:02:50	11.95	8.24	<10.00	<1.00
22:03:50	11.90	8.26	<10.00	<1.00
22:04:50	12.03	8.15	22.19	<1.00
22:05:50	11.91	8.21	25.31	2.65
22:06:51	12.24	7.97	<10.00	<1.00
22:07:51	12.46	7.72	17.55	<1.00
22:08:51	12.25	7.89	26.69	<1.00
AVERAGE	12.70	7.43	60.10	>6.46
22:13:52	-0.19	0.19	1.40	-0.11
22:16:52	20.56	18.57		
22:20:53			463.68	46.19

The highlighted data points are all offscale and unverifiable.

The one-minute values that are highlighted in yellow were off scale and could only be assigned Methane > 500 ppm or NMOC > 50 ppm. Accurate averages could not be determined.

Overall Evaluation

The test methods conducted, and the data provided for testing conducted on October 22, 2024 were not sufficient to evaluate the emissions from the enclosed flare. The test methods conducted, and the data provided for testing conducted on November 7, 2024 were sufficient to evaluate the emissions from the enclosed flare. A full test report review was performed with all emissions calculated from raw data.

During the source test on October 22, 2024, several challenges were encountered, primarily related to the control panel and wiring. The site collaborated with the flare manufacturer, who conducted a site visit to rewire the control panel and reprogram the PLC to minimize the temperature fluctuations. This enabled the flare louvers/dampers to stabilize the temperature at the combustion setpoint.
During the October 22 source test many values were off scale and therefore unverifiable. See the data on page 6.

During the source test on November 7, 2024, the enclosed flare and its controls were operating normally.

During the 11/7/204 source test, the average combustion temperature was 1,597 F.
The average landfill gas flow rate to the flare was 2,926.9 SCFM.

The new enclosed flare emissions showed compliance with OAR 340-239-0110 (2)(b) by meeting the methane destruction efficiency of 99% by weight.

The new enclosed flare emissions showed compliance with the Non-Methane Organic Compound (NMOC) emissions from the flare to show compliance with NESHAP AAAA - reduce the outlet NMOC concentration to less than 20 ppmvd as hexane @ 3% O2.

The next source test is due no later than 45 days after the anniversary date of the initial performance test (12/22/2025).