

From: [N Whitcombe](#)
To: [Coffin Butte Landfill Appeals](#)
Subject: Submission from VNEQS
Date: Tuesday, February 3, 2026 2:42:02 PM
Attachments: [VNEQS Odor PEN 02032026 FINAL.pdf](#)

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North Benton County
Oregon, 97330

Thank you.

--

N J Whitcombe



Valley Neighbors for Environmental Quality and Safety (VNEQS)

To: **Chair Malone**, Board of Commissioners members **Wyse** and **Shepherd**

From: Valley Neighbors for Environmental Quality and Safety (VNEQS)
<https://coffinbuttefacts.org>
North Benton County
Oregon, 97330

Date: February 3, 2026

Re: LU-24-027 Response: Maul Foster Alongi correspondence, dated January 27, 2026
Record ID. BOC4_BC0025 - Jan 27, 2026 - [EngineeringOdorDEQPEN_THIRDPARTYREVIEW](#)

Chair Malone, Commissioner **Wyse** and Commissioner **Shepherd**,

Summary: MFA updates conclusions in light of the DEQ PEN which calls into question some of Applicant's modeled assumptions (collection efficiency). However, other of Applicant's assumptions (emissions from "inert waste", design capacity, closure year) are similarly incorrect. MFA asserts that if violations are corrected, the model is correct. There are significant problems with reliance on this assertion:

1. MFA acknowledges that the model is not correct in conditions when odor complaints are frequently received (thermal inversions). In the previous month (January 2026), thermal inversions – when MFA acknowledges the model is not predictive -- have blanketed an area with a diameter of about five miles from landfill operations with oppressive landfill gas stench. This has occurred for protracted periods, 5-7 days at a time, multiple times.
2. There are still underlying input errors that MFA has not identified. For example, when DEQ releases updated emissions figures to include so-called "inert" waste intake and more accurate historical waste intakes for the upcoming Title V permit, it is anticipated that the emissions Applicant used in the model will no longer be valid.
3. Applicant exists in a complex regulatory environment; Applicant could fix compliance with *these* regulations, but in the meantime fail to comply with *other* regulations.
4. Applicant will surely assert both that it is possible to comply with DEQ's P.E.N. and that they will do so. But both of those assertions are speculative and must be viewed with skepticism. Applicant is unable to control nuisance odors at other landfills it operates so control may be impossible at Coffin Butte as well.

5. Applicant asserts that it will fill its expansion airspace in six years. But ensuring regulatory compliance is time consuming. Reliance on a protracted regulatory compliance process is insufficient assurance that a short-lived use will protect adjacent properties and the character of the area from significant adverse impacts during that short window of use.

Applicant repeatedly asserted, in the application, that they complied with *all regulatory requirements*. EPA Investigations, followed by the DEQ PEN, contradict this assertion. Now the County's consultants verify the DEQ PEN. Applicant's assertion turned out not to be true.

That alone is a reason to deny.

**APPLICANT'S MANY ODOR STUDIES, LIKE SNOWFLAKES:
EACH IS UNIQUE (UNIQUELY DEFECTIVE) IN ITS OWN WAY**

Since the first application in 2021, all Applicant's odor studies have suffered from crippling defects. These defects have been highlighted in ample testimony submittals – including real-time satellite photos of landfill gas plumes -- and *should have resulted in significant skepticism by County staff and consultants* about the accuracy of Applicant's data.

Please find below VNEQS comments on the January 27, 2026 Maul Foster Alongi letter responding to the DEQ Pre-Enforcement Notice. VNEQS notes that this most recent Maul Foster Alongi letter walks back their previous recommendation to approve (MFA letter of June 23, 2025) which walks back the recommendation they made before that to deny (MFA letter of April 17, 2025).

The various changing cast of Applicant's odor consultants and years-long back-and-forth should alone be sufficient to demonstrate that even now Benton County and Benton County consultants do not have the full picture of impacts at Applicant's existing facility, nor do they have any real grasp on the likely impacts of an expansion of that facility.

The most recent MFA letter concludes optimistically that should the most recent violations they have discovered be corrected, the "model" would be miraculously rendered accurate. Unfortunately, reality continues to insist that the model is wrong.

1. Defects that MFA **now recognizes**:

COLLECTION EFFICIENCY DEFECTS

Collection efficiency is unknown but is likely to be significantly less than the 75% used by SCS Engineers in their model. Is it half of 75%? One-third of 75%? Half would be a **200%**, a third would be **300%** of the value Applicant used. If Applicant knows actual collection efficiency, Applicant did not tell their odor consultant, MFA, or Benton County.

2. Defects that **MFA recognized** in prior communications, but **gave insufficient weight**:

THERMAL INVERSIONS – WHICH HAVE ALREADY CAUSED SEVERE ODOR IMPACTS IN JANUARY – CAUSE ODORS THAT THE SCS MODEL CANNOT PREDICT

It is **APPLICANT’S BURDEN OF PROOF**. Upon ascertaining that the model did not perform in thermal inversions, Applicant should have proven either that thermal inversions do not occur, or that during thermal inversions, there are no serious odor impacts. If the MODEL APPLICANT USES IS ACKNOWLEDGED TO NOT WORK IN SOME CONDITIONS, APPLICANT MUST DEMONSTRATE IN SOME OTHER WAY THAT THERE ARE NO ODORS DURING THOSE CONDITIONS. This is an impossible task, because it is not true, which may explain why Applicant found that only 1 (one) complaint in two years “likely” originated from the landfill.

The Willamette Valley can be expected to experience protracted, 2-to-7 day long thermal inversions 40 days out of 365 days in the year (11% of the year). Additional short-term inversions occur frequently in the morning in the summer months.

For some reason, Benton County apparently did not contradict Applicant’s only-one-“likely”-odor-complaint conclusion, even though Benton County itself had compiled hundreds of community odor complaints and forwarded those to DEQ.

2. Defects that **MFA has not yet recognized**:

INPUT ERRORS IN THE MODEL – THREE SIGNIFICANT ERRORS THAT WOULD EACH ACT TO COMPOUND THE COLLECTION EFFICIENCY ERRORS ACKNOWLEDGED NOW BY MFA

Error A – No exclusion of “inert” material from waste intake amounts. DEQ now recognizes that separating waste intake into “putrescible” and “inert” intake results in invalid air quality emissions modeling. DEQ no longer excludes non-degradable waste from their model for the ongoing Title V air quality permitting process. The EPA developed the model DEQ uses, the “LandGEM” model, to estimate quantities of **odorless** greenhouse gas. However, there are many substances in landfills that do not generate a great deal of greenhouse gas but that do nonetheless emit significant amounts of air toxins, many of which are odorous. Drywall, for example, is notorious for emitting hydrogen sulfide (“rotten egg”). The most recent DEQ-calculated emissions, as provided to Benton County, are a **160% increase** of the values used by Applicant in the SCS Engineers odor study.

Error B -- Design capacity (47,750,000 tons, not 41,100,000 tons) – Applicant’s consultants calculate design capacity that is not congruent with Applicant’s historic density or landfill life projections as reported in Coffin Butte Annual Report. Additional **115% increase**.

Error C -- Closure year (2042, not 2052) – Applicant’s consultants calculate closure year that is a decade off from the projected year of closure in the 2023 Coffin Butte Annual Report.

4) MFA's **mistaken conclusion** is based on a **mistaken assumption**:

MFA CONCLUDED THAT ODEQ DID NOT FIND THAT EXISTING OPERATIONS CAUSED NUISANCE ODORS.

DEQ *did*, in fact, acknowledge that the hundreds of community complaints are both valid and constitute a “nuisance” and the P.E.N. is, in part, a response that.

5) Unknown defects that are **still in the process of being corrected** by DEQ:

DEQ IS CONTINUING TO REVISE EMISSIONS ESTIMATES

Modeled emissions may be even greater when DEQ corrects historic intake data.

DID MFA HAVE ACCESS TO COMMUNITY TESTIMONY/SUBMITTALS?

If MFA were expected to be able to “step into the shoes” of CDD but were not given the opportunity to review testimony that contradicted Applicant’s assertions, MFA has been placed in an untenable position. The carbon mapper data, submittals by Beyond Toxics, prior submittals by VNEQS, community testimony about odors all should have led MFA to be more skeptical about Applicant’s odor study. **If MFA was not provided with the opportunity to review the full public record, that has been a grave error.**

GENERAL NOTE & CONCLUSION

Errors compound. There are **more emissions** than Applicant modeled, from **more waste emplaced** than Applicant has used as model inputs, that waste will be emplaced in a **shorter period** than Applicant modeled, and, after emplacement, more emissions will **escape** than Applicant asserts. Of these four issues with the model, only the last is addressed by MFA.

Here is the definition of “blinded by science”: “...to confuse someone by using difficult or technical words to describe something.” (Cambridge Advanced Dictionary)

Applicant’s clear goal is to blind Benton County with science – to “prove” scientifically that something that is not true, is true. The scientific reality is this: the landfill stinks. If an expansion is approved, and in 2042 there is twice as much waste as there is now, it will stink more. Applicant either does not know how to comply with regulations or is knowingly flouting regulatory compliance.

Are so many errors in Applicant’s odor study a result of data manipulation (finding that only one odor complaint “likely” originated from landfill operations, collection efficiency, excluding odor-producing materials from waste intakes, design capacity, year of closure, and so on)? Or are they because Applicant really has no idea what is going on at the landfill? **Either way, Applicant is unreliable; Applicant’s request must be denied.**

DETAILS, LINKS TO FOOTNOTES AND EXHIBITS

1. **MFA ERRED BY FAILURE TO ANALYZE ODOR IMPACTS WHEN THE MODEL IS “LIMITED” (I.E. DOES NOT WORK)**

MFA’s initial analysis should have analyzed odor impacts when the model was “limited” – i.e. during thermal inversions, etc. Applicants, by finding only 1 (one) complaint of odor to be “likely”, constrained MFA’s analysis of Applicant’s odor study¹:

- “Comment 2...the model is unable to accurately predict impacts during low wind speeds, inversions, and very short term meteorological conditions”
- “Comment 13...dispersion modeling has many limitations that may potentially result in predicted offsite concentrations not aligning with actual real-life concentrations. Known model limitations include low wind speeds, inversions and short duration meteorological events, and their potential impacts should be discussed further.”²

2. **MFA ERRED BY ACCEPTING APPLICANT’S COLLECTION EFFICIENCY ESTIMATES**

The most recent MFA letter disowning its prior conclusions speaks for itself.

3. **MFA ERRED BY ACCEPTING APPLICANT’S DATA EACH ERROR COMPOUNDS THE PREVIOUS INPUT ERRORS IN THE MODEL**

MFA did not check the following SCS underlying model assumptions:

Year of closure: “...Scenario #2 represents future operation during the estimated closure year in 2052”³

- THE MODELED CLOSURE YEAR IS OFF BY A DECADE.⁴

Yearly waste intake: “...Scenario #2 is based on the assumption that the landfill will accept 930,373 tons of organic waste annually”⁵

- DEQ IS NOW INCLUDING “INERT” WASTE IN EMISSIONS MODELS⁶
- THE CONDITION OF APPROVAL LIMITING “MSW” (UNDEFINED) TO 1,000,000 TONS/YR ⁷ NO LONGER ALIGNS WITH DEQ EMISSIONS INPUTS

Design capacity: “[Scenario #2 is based on the assumption]... that the design capacity for the landfill is limited to 41,110,068 tons”⁸

- ACTUAL DESIGN CAPACITY OF THE LANDFILL IS 47,752,041 TONS, NOT 41,110,068 TONS.⁹

¹ MFA Letter to Petra Schuetz, April 17, 2025, BC Document BC010_042225, Exhibit 33, pp 8-13

² See ATTACHMENT #1, “THERMAL INVERSION” picture of thermal inversion in the Willamette Valley

³ MFA Letter to Petra Schuetz, June 23, 2025, BC Document BC015_06262025, Exhibit 36, page 1

⁴ See prior VNEQS memo BOC4_T0767 (incorrectly tagged “Whitcombe, Nancy”), January 27, 2026 referencing Applicant materials

⁵ MFA Letter to Petra Schuetz, June 23, 2025, BC Document BC015_06262025, Exhibit 36, page 1

⁶ See ATTACHMENT #2, “Email 1” Dylan Darling to Nancy Whitcombe about revisions to DEQ emissions modeling

⁷ Condition of Approval P1-10

⁸ MFA Letter to Petra Schuetz, June 23, 2025, BC Document BC015_06262025, Exhibit 36, page 1

⁹ See ATTACHMENT #3, “SOME MATH”

4. **MFA ERRED BY CONCLUDING -- WITHOUT ASKING DEQ -- THAT ODEQ HAD NOT VALIDATED “NUISANCE” ODORS COMPLAINTS¹⁰ ; THE P.E.N. IS, IN PART, A RESPONSE TO THOSE COMMUNITY ODOR COMPLAINTS.**

MFA concluded that because DEQ had not enforced nuisance odor regulations, DEQ had not validated nuisance complaints. The P.E.N. is intended to address nuisance odors.

MFA is not aware of the ODEQ determining that odors from the landfill are currently causing a nuisance to the surrounding community...

- *The ODEQ has not established that a nuisance condition exists at the landfill or taken steps to mitigate the issue.¹¹*

AS A RESULT OF ISSUES RAISED IN THE P.E.N., **DEQ HAS REVISED ITS ESTIMATE OF EMISSIONS, INCREASING THEM BY 160% OVER THE FIGURE USED BY THE APPLICANT IN THE SCS REPORT.¹²** DEQ IS CONTINUING TO REFINE ITS MODEL; **FINAL MODELED EMISSIONS ARE LIKELY TO INCREASE EVEN ABOVE RATES CURRENTLY SHOWN IN ATTACHMENT #5.**

BELOW, PLEASE FIND AN EXAMPLE OF HOW NUMEROUS ERRORS CAN COMPOUND WHEN EACH ERROR ACTS TO SUBSTANTIATE A CONCLUSION, THE FINDING OF WHICH IS THE GOAL OF THE MODEL. THESE ARE ALL ERRORS MFA SHOULD HAVE CORRECTED:

ERROR ACCUMULATION -- HOW APPLICANT’S DATA MANIPULATION OR, GENEROUSLY, “ERRORS” COMPOUND¹³ TO “PROVE” THAT A STINKY LANDFILL DOES NOT STINK

200% (efficiency error) x **160%** (DEQ LFG correction error) x **115%** (waste-in-place error) = **360%**

Correcting Applicant’s output for each error would result in a “Max D/T” for, take a random example, “Dimethyl sulfide” that would result in DOUBLE the odor threshold in Applicant’s model – not HALF, as the Applicant’s “model” “predicts”¹⁴.

Table 7. Scenario #2: 2052 Model Results

Odor Pollutant	Max Impact (ug/m3)	Odor Threshold (ug/m3)	Max D/T	Driving Source	Max Imp Easting Zone 10
Dimethyl sulfide (methyl sulfide)	3.41	2.54	1.34	FUG	480.6
...

¹⁰ See ATTACHMENT #4, “EMAIL 2” Dylan Darling to Nancy Whitcombe in response to DEQ “Nuisance Odor” definition and DEQ response

¹¹ MFA Letter to Petra Schuetz, June 23, 2025, BC Document BC015_06262025, Exhibit 36, page 3

¹² See ATTACHMENT #5 “MOST RECENT DEQ EMISSIONS FIGURES ARE 160%” October 2025 LANDGEM run, provided to Benton County by DEQ for the Title V Air Quality Permit

¹³ Error accumulation refers to the phenomenon where errors made in individual predictions accumulate and can have a significant impact on the overall accuracy of cumulative predictions

¹⁴ it would be 360% of “1.34”, or a “D/T” of “4.82” – which is double the “2.54” “Odor Threshold” cited by Applicant

ATTACHMENT #1 -- THERMAL INVERSION

FEBRUARY 10, 2022

Curtain Toggle 2-Up

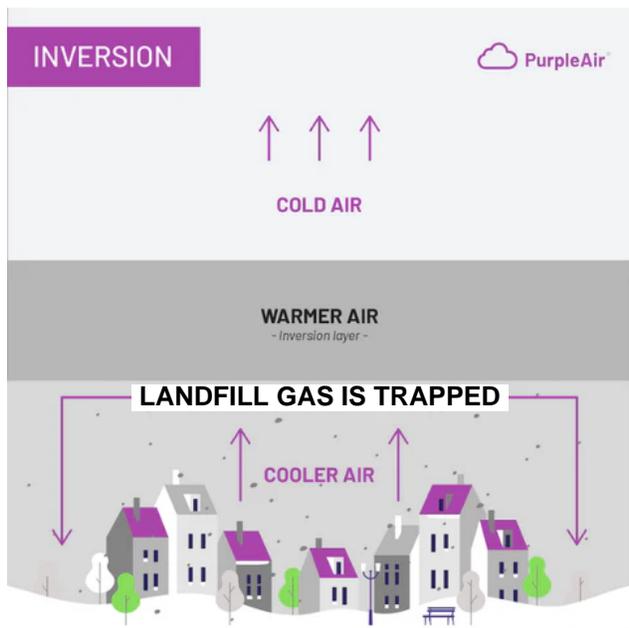
Fog Down in the Valley

IMAGE DETAILS

**THE LANDFILL
(APPROXIMATE
LOCATION)**



Such fog has been locked in the Willamette Valley for several long stretches in January and February 2022 due to temperature inversions, where warm air high in the atmosphere moved in over the cooler, denser air in the lowlands. Normally, temperatures are warmer at the land surface, cooling higher up in the sky. This allows for most of the rising air and pollutants to continue to disperse out into the atmosphere. But an inversion acts like an atmospheric “lid” that can trap moisture and air pollution in a valley for days.



SOURCE: NASA

ATTACHMENT 2 -- EMAIL #1



N Whitcombe <nwhitcombe@gmail.com>

DEQ response RE: LandGEM runs, Coffin Butte landfill

DARLING Dylan * DEQ <Dylan.DARLING@deq.oregon.gov>
To: Nancy Whitcombe <nwhitcombe@gmail.com>

Fri, Jan 16, 2026 at 9:01 AM

Nancy,

Thank you for your email.

The prior LandGEM runs did not include total waste, with non-degradable waste excluded from the model. DEQ is requiring total waste for inclusion in the LandGEM runs for the updated permit that will go out on public notice. The data has not yet been finalized and reviewed, so is not available for sharing at this time.

Dylan

Dylan Darling

he/him

Public Affairs Specialist

Oregon Department of Environmental Quality

Western Region – Eugene

Cell: 541-600-6119

dylan.darling@deq.oregon.gov

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ATTACHMENT #3 -- SOME MATH
DESIGN CAPACITY: 47,750,000 TONS, NOT 41,200,000 TONS

ALL FIGURES TAKEN FROM THE 2023 Coffin Butte Annual Report

<u>LANDFILL CAPACITY</u>	
Permitted airspace:	39,006,573 CUBIC YARDS
Expansion airspace:	9,720,000 CUBIC YARDS
TOTAL AIRSPACE	48,726,573 CUBIC YARDS



<u>OPERATIONAL DENSITY</u>	
OPERATIONAL DENSITY	0.98 TONS PER CUBIC YARD
3 the landfill accepted 1,032,214 tons of solid waste. Based on historical a	
e density of the in-place waste at the Coffin Butte Landfill is 0.98 tons/cy (
sitv). * Therefore, an estimated 1.051.134 cubic yards of airspace was use	

<u>DESIGN CAPACITY</u>	
AIRSPACE TIMES OPERATIONAL DENSITY = DESIGN CAPACITY	
Here is the math:	
TOTAL AIRSPACE	48,726,573 SEE ABOVE
OPERATIONAL DENSITY	x 0.98 SEE ABOVE
TOTAL OPERATIONAL DENSITY	47,752,042 TONS

Applicant's consultants use: 41,110,068 TONS

Note: In a response to VNEQS, Applicant justified a lower density number than the .98 historically achieved because the number they used (approximately .84) was more conservative than "industry standard" (BC Document A0091_062325)

year. A total of 24,013,893 cubic yards has been consumed as of December 31, 2023, leaving a remaining capacity of 14,992,680 cubic yards of permitted air space.

What does that mean in terms of remaining life a

13.4 years of life remaining. As of today (June 2024), we project about 12.9 years of life remaining – 95 percent of which is in the Quarry and is still being excavated.

$14.992.680 \text{ CUYD} \times .98 \text{ TON/CUYD} = 14,692,826 \text{ TON}$
 $14,692,826 \text{ TON} \div 1,100,000 \text{ TONS/YR} = 13.4 \text{ YEARS}$

LANDFILL YEAR OF CLOSURE: 2042, NOT 2052
YEAR 2023 + 13.4 YEARS + 6 YEARS = YEAR 2042

What does that mean in terms of remaining life at Coffin Butte? At the end of 2023, we projected the Landfill had 13.4 years of life remaining. As of today (June 2024), we project about 12.9 years of life remaining – 95 percent of which is in the Quarry and is still being excavated.

As noted in the executive summary of this report, we are proposing an expansion that would add six years of life to Coffin Butte. When the proposed expansion airspace is combined with the not-yet-accessible airspace in the Quarry, the total estimated life at Coffin Butte is anticipated to be about 18.5 years.



DEQ issues pre-enforcement notice to Coffin Butte Landfill for air quality violations

DARLING Dylan * DEQ <Dylan.DARLING@deq.oregon.gov>
To: N Whitcombe <nwhitcombe@gmail.com>

Fri, Nov 7, 2025 at 5:06 PM

Nancy,

Nice to hear from you.

In the pre-enforcement notice, DEQ is addressing violations that may be at the source of nuisance and odor concerns. These include requiring better surface emissions monitoring and control of landfill gas, and requiring the company to provide information about how it is monitoring and controlling fugitive emissions. Fugitive emissions are emissions that cannot reasonably pass through a stack, chimney, or vent.

The corrective actions we're asking for Valley Landfills (Coffin Butte Landfill) to make include:

- By Jan. 1, 2026, submit an application to modify the Title V permit so that the landfill can use drones to monitor for methane emissions.
- By Feb. 1, 2026, submit a new updated design for the landfill gas collection and control system that complies with state and federal requirements for sizing the system.
- By Feb. 1, 2026, have a third party:
 - inspect the landfill cover and recommend improvements to cover monitoring and maintenance practices.
 - review dust management practices and make recommendations.

Have a good weekend! Please note that I'll be off until Wednesday, Nov. 12.

Dylan

Dylan Darling

he/him

Public Affairs Specialist

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dylan.darling@deq.oregon.gov

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ATTACHMENT #5 -- MOST RECENT DEQ EMISSIONS FIGURES ARE 160%

VALUES USED BY APPLICANT, EXHIBIT 34, p. 107 (BC A0055_06062025)

Pollutants Added from 2023 LandGem Inventory

Pollutant	2023 LandGem Gas Generated (tons/yr)	2023 LandGem Gas Generated (lb/yr)	2023 LandGem Fugitives (lb/yr) *	2023 LandGem Open Flare 1 (lb/yr) **	2023 LandGem Open Flare 2 (lb/yr) **
Total landfill gas	8.10E+04	1.62E+08	4.05E+07	1.21E+06	1.21E+06
Methane	2.36E+04	4.72E+07	1.18E+07	3.54E+05	3.54E+05
Carbon dioxide	5.74E+04	1.15E+08	2.87E+07	8.60E+05	8.60E+05
Butane - VOC	8.06E-01	1.61E+03	4.03E+02	1.21E+01	1.21E+01
Dimethyl sulfide (methyl sulfide) - VOC	1.34E+00	2.69E+03	6.72E+02	2.02E+01	2.02E+01
Ethane	7.43E+01	1.49E+05	3.71E+04	1.11E+03	1.11E+03
Ethanol - VOC	3.45E+00	6.90E+03	1.73E+03	5.18E+01	5.18E+01
Ethyl mercaptan (ethanethiol) - VOC	3.97E-01	7.93E+02	1.98E+02	5.95E+00	5.95E+00
Methyl mercaptan - VOC	3.34E-01	6.67E+02	1.67E+02	5.01E+00	5.01E+00
Pentane - VOC	6.61E-01	1.32E+03	3.30E+02	9.91E+00	9.91E+00
Propane - VOC	1.35E+00	2.69E+03	6.73E+02	2.02E+01	2.02E+01

Notes:

* Fugitive emissions assumed 75% gas collection and 25% fugitive loss.

** Flare emissions assumed 98% destruction of the 75% gas collection, then Open Flare 2.

This number, 81,000 tons/year is now 127,865 tons/year (115,997 megagrams * 1.102 tons/megagram)

8.10E+04 INCREASES TO 12.79E+04, ALMOST 160%

EMISSIONS INCREASE 160% AND THEN CORRECTING COLLECTION EFFICIENCY MAKES THIS GO UP EVEN MORE

FLARE EMISSIONS GO UP ALSO

MOST RECENT DEQ CALCULATIONS, PROVIDED TO BENTON COUNTY BY DEQ

TOTAL LANDFILL GAS GENERATION SUMMARY COFFIN BUTTE LANDFILL - BENTON COUNTY, OREGON

Year	Total Landfill Gas Generation (Run 1)			Total Landfill Gas Generation (Run 2)			Total Landfill Gas Generation		
	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)	(Mg/year)	(m ³ /year)	(av ft ³ /min)
2015	43,858	35,113,627	2,359	26,293.10	21,050,789	1,414.40	70,151	56,164,417	3,774
2016	41,428	33,168,033	2,229	31,157.06	24,944,975	1,676.05	72,585	58,113,008	3,905
2017	39,133	31,330,361	2,105	36,047.23	28,860,146	1,939.11	75,180	60,190,507	4,044
2018	36,965	29,594,615	1,988	45,456.88	36,393,703	2,445.29	82,421	65,988,318	4,434
2019	34,916	27,954,800	1,878	55,117.41	44,128,114	2,964.96	90,034	72,082,914	4,843
2020	32,984	26,407,918	1,774	64,440.94	51,592,720	3,466.51	97,425	78,000,638	5,241
2021	31,157	24,944,975	1,676	70,989.87	56,835,931	3,818.80	102,147	81,780,906	5,495
2022	29,431	23,562,974	1,583	79,437.21	63,599,044	4,273.21	108,868	87,162,018	5,856
2023	27,798	22,255,918	1,495	88,199.08	70,613,975	4,744.54	115,997	92,869,894	6,240
2024	26,259	21,023,809	1,413	96,316.92	77,113,279	5,181.23	122,576	98,137,088	6,594
2025	24,803	19,857,651	1,334	104,262.51	83,474,683	5,608.65	129,065	103,332,334	6,943
2026	23,429	18,757,446	1,260	116,218.35	93,046,766	6,251.80	139,447	111,804,212	7,512
2027	22,129	17,717,198	1,190	127,399.09	101,998,298	6,853.25	149,528	119,715,496	8,044
2028	20,905	16,736,906	1,125	137,853.43	110,368,250	7,415.63	158,758	127,105,156	8,540
2029	19,748	15,810,576	1,062	147,630.03	118,195,594	7,941.55	167,378	134,006,169	9,004
2030	18,651	14,932,210	1,003	156,773.82	125,516,304	8,433.43	175,425	140,448,514	9,437
2031	17,617	14,104,808	948	165,326.01	132,363,356	8,893.48	182,943	146,468,164	9,841
2032	16,644	13,325,371	895	173,324.02	138,766,729	9,323.72	189,958	152,092,101	10,219
2033	15,719	12,584,906	846	180,805.31	144,756,401	9,726.16	196,524	157,341,308	10,572
2034	14,850	11,889,409	799	187,799.83	150,356,355	10,102.43	202,650	162,245,764	10,901
2035	14,026	11,229,885	755	194,337.53	155,590,573	10,454.11	208,364	166,820,458	11,209

Mass =

Megagram US ton

Formula for an approximate result, multiply the mass value by 1.102

127,865 TONS per YEAR, Applicant uses the old value of 81,000 TONS/ YEAR

More info

Feedback