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Subject: Comments for the New Staff Report on LU-24-027
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Attachments: [Exhibit 85 \(revised\) ARB Fall Jan 2025.pdf](#)
[BCL ARBQ 09112025.pdf](#); [BCL PC Decision on comments of evidence SUBMISSION.pdf](#)
[BCL ARBQ 09112025.pdf](#); [BCL PC Decision on comments of evidence SUBMISSION.pdf](#)

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Good day to you, Commissioners Malone, Shepherd and Wyse,

I'm writing to advise you on what to look for in the new Staff Report, prepared for your *de novo* Hearing on the appeal of the Planning Commission's Decision to Deny LU-24-027, the application to expand Coffin Butte Landfill. By including your Staff on this mailing I'm also advising them on what to consider and include in that Staff Report, which they have committed to releasing eight days from now.

In the County's SFTP portal I have entered all the videos (and their transcripts) of the Planning Commission's Public Hearings on LU-24-027, which led up to their unanimous Decision to Deny, and I will cite the content of those videos often in this letter.

Rebutting the Applicant's Response

On September 12 the Applicant submitted a document, [E67.PC Decision on responses and evidence SUBMISSION.pdf](#) ("the Response"), which can be found in the Applicant's Materials, and is also attached. In this Response the applicant has failed to take sufficient action and to deliver sufficient proof to warrant anything but a Recommendation to Deny from the Staff Report. I'll do my best to lay out why that is in the four critiques that follow.

- 1. The Response Fails its Burden of Proof: Omissions.** The Response's primary failing is easy to see and to understand. The Applicant is under the Burden of Proof, meaning that they must prove their expansion will meet the land use criteria laid out in BC 53.215 and elsewhere. If the Applicant's Response fails to overcome any substantial argument (or fails to even address it), then it has failed the Burden of Proof, because the Applicant will not have shown that the proposed land use does not seriously interfere with uses on adjacent property, with the character of the area, et cetera.

I can attest to how a Burden of Proof operates, since it is a basic teaching of a pre-Law course, several of which I took in school. I had a chance to see how a failure to meet one's burden of proof could lose (or win) a judgment many, many times.

It's evident the Response does not attempt to address all the substantial arguments raised by the Planning Commissioners and by the public. Even a cursory look at the Response shows that its author has cherry-picked certain statements by certain Planning Commissioners, taken them out of context, and subjected them to a targeted rebuttal where a consultant exerts all the professional gravitas they can muster. There was no attempt in the Response to cover all, or even many, of the substantial issues raised by the Planning Commissioners which led to their unanimous Decision to Deny, nor is there anything in the Response to cover the extensive and incisive counter-evidence presented by the public.

Commissioners, pay some attention to whether or not the Staff Report critiques the completeness of the Applicant's response.

- 2. The Response Fails its Burden of Proof: Unpersuasive Narratives.** The Response fails in another way, in that the Applicant's Burden of Proof contains obligations both for Evidence and for Persuasive Narrative. To quote the Legal Information Institute at Cornell Law School:

Generally, burden of proof describes the standard that a party seeking to prove a fact in court must satisfy to have that fact legally established... The burden of proof is often said to consist of two distinct but related concepts: the burden of production, and the burden of persuasion.

[LegalClarity.org](#) does indeed provide some legal clarity on a "burden of proof":

The term "burden of proof" is composed of two concepts: the burden of production and the burden of persuasion. The burden of production is the initial obligation to present enough evidence to the court to make a particular issue part of the case...

Once the burden of production is met, the burden of persuasion requires convincing the fact-finder that your factual claims are true. The burden of production gets your evidence in the door, while the burden of persuasion is the process of using that evidence to win the argument.

The *Justia Legal Dictionary* offers further clarity on the burden of persuasion:

The obligation to convince the individual or group deciding a case, such as a judge or jury, that a certain fact or element is more likely than not.

So, in the matter of LU-24-027, the Applicant must both generate applicable evidence and render that evidence persuasive. Any failure to do both is grounds for denial.

It's easy to see why the burden of persuasion must exist: if it did not, an Applicant could generate a small mountain of evidence, and then assert "the proof of my case is in there somewhere." The Burden of Persuasion obligates the Applicant to help the Planning Commissioners to parse the information that the Applicant has submitted so that the Planning Commissioners can evaluate its applicability and veracity. It obligates the Applicant's consultants to *narrativize* and *contextualize* their work.

The Applicant did not do this. Their various consultants presented their work without adequate explanation and their *credentials* as sufficient "persuasion" for the Planning Commissioners to trust the consultants' conclusions. In short, the Applicant generated a small mountain of evidence, and then asserted, "the proof of my case is in there somewhere." Which is to say, the Applicant failed the burden to persuade, which is half of their burden of proof, and the Planning Commission denied their application accordingly, for this and other substantive reasons.

Commissioners, if you look at pages 2-9 of the Response, you will notice a dismissive tone and prejudicial language ("ignores," "overlooks," etc.) used to belittle the Planning Commissioners' comments that Republic's writer picked for their Response. That tone and that language is not directed at the Planning Commissioners, who are now out of the picture. That tone and language is directed at you.

It is an attempt to discourage you from doing what the Planning Commissioners did:

- a) – Question why substantive information is not included in the Application. (You'll notice that the Response includes 39 pages of new data – substantive information that the Applicant had failed to disclose to the Planning Commissioners.)

- b) – Understand that the Applicant has an obligation to narrativize and contextualize the evidence itself, so that the deciding body – which is now you – may evaluate it. (In their deliberations, the Planning Commissioners were clear that in several cases they did not consider the Applicant's evidence to be sufficient at face value.)

Imagine an attorney in a jury trial who never explains their evidence, and is contemptuous of the jury for not following its arguments. That is what we're seeing here.

Commissioners, in its prior materials Staff did not show understanding that the Applicant had a Burden of Persuasion regarding the Planning Commissioners; Staff seemed to feel that if Staff and its consultants were satisfied, that was sufficient. It is not. You should look for evidence in the Staff Report that Staff has come to understand the Applicant's obligation to meet its entire Burden of Proof, including its Burden of Persuasion to you.

- 3. The Response Fails its Burden of Proof: Incompleteness.** Commissioners, you'll notice that 39 of the 49 pages in the Applicant's Response are new information, i.e., substantive information that the Planning Commissioners correctly identified as being missing from the original Application and its attachments. Staff did not notice these substantive gaps in the Application, or did not weight them appropriately when developing its Staff Report and its Recommendation for the Planning Commission. In fact, it did not note any gaps in Applicant information at all. When you read through the new Staff Report, you should note whether Staff has now corrected this blind spot.

- 4. The Response Fails its Burden of Proof: Case by Case.** I'm going to go through the first 10 Planning Commissioner comments that the Applicant has selected to rebut in its Response, in order from the top of page 2 of the Response.

My purpose in doing this: I find this exercise clarifies by direct example how the Applicant uses rhetoric to obfuscate and mislead rather than plain language and clear narrative to communicate proofs. As you know, plain language is required for equitable and effective land use proceedings.

#1 (Lee) – Commissioner Lee is noting the severity of the effect if the Applicant's assertions are incorrect – dewatering of someone's property. The issue here is not the factual basis of the Applicant's testimony, it is a question about likelihood of error. The Response does not address this; it notes that impacts are predicted to occur to the public's wells, but asserts they will be "minimal." The Response also asserts that monitoring will "allow mitigation," but in fact there is no guarantee of mitigation. OP-13 says "VLI [Republic] will conduct outreach to those [dewatered] neighbors to evaluate and implement mutually agreeable solutions at VLI's expense." The Planning Commissioners noted that OP-13's provision for "outreach" is no protection at all for the public.

#2 (Lee) – Here Commissioner Lee seems to be noting exactly what the Response has claimed in #1, that "the Applicant's [sic] used a porous media equivalent assumption in its groundwater model." To me, this Response is trying to belittle her statement and introduce some impressive-sounding but content-less technicalities.

#3 (Lee) – Commissioner Lee is referring to public testimony that described both evidence from CBL records and groundwater impacts that occur at landfills. It's worth taking a moment here to look at Commissioner Lee's comments in full:

An expanded landfill would increase its [CBL's] rainwater footprint by about 45%, and increase its leachate generation proportionally but the applicant has no long term plan for treatment of leachate.

If they do not find a treatment facility in a timely manner, a number of potential scenarios demonstrate risks that have not been dealt with by the applicant.

Leachate storage ponds could fill and remain filled for long periods. If that happened at a time when there was a significant rainfall event, leachate could enter the groundwater in very large amounts that could not be mediated by their system. Similarly, if there were a fire event on the steep flanks of the cell, with large amounts of water used to douse the fire, leachate would significantly increase and if storage ponds were already full, the increased leachate could spill and enter the groundwater. Evidence of toxic impacts to groundwater associated with CBL and landfills in general is already clear from testimony. Leachate leaks from torn liners or stormwater pose serious, long-term impacts on adjacent property and the character of the area. OP 13(B) proposes to mitigate these risks by monitoring Arsenic in sentinel wells but this COA is inadequate for the following reasons:

- The OP does not specify how changes in arsenic will be attributed to landfill operations versus other factors.
- **The presence or absence of arsenic has been a source of conflicting interpretations and other contaminants that more certainly come from the landfill should be used.**
- "The sampling program will begin before landfill construction." This activity should be moved to Preliminary COA.

The applicant does not specify how it will determine a baseline prior to excavation, Based on one sample? Based on several seasonal samples? What is the threshold of acceptable sampling error? Who will determine the baseline? The applicant? The county? etc. The OP is so vague it is unenforceable.

The burden of proof is not met.

It's immediately clear that Commissioner Lee was talking about the possibility of future groundwater impacts in her comments. She outlines several possible scenarios. The Response cuts out all of this context, and more, so that it can talk for several paragraphs about past groundwater records, which Republic is required to keep per DEQ regulations.

You'll notice that the Response first cuts out Commissioner Lee's criticism of using arsenic as an indicator for a leachate leak, as is specified in the Applicant's OP-13, so that the Response will not seem to agree with Commissioner Lee (or be self-contradictory) when the Applicant criticizes arsenic as an indicator for a leachate leak in its last paragraph.

The Response does not answer, but validates, what public testimony and Lee are questioning in "the elevated arsenic concentrations [observed] in samples from wells M-9S, M-26, and M-27" – namely, that they are evidence of a past large-scale leachate leak from Coffin Butte Landfill. Since, as the Response says, the arsenic moves more slowly than the other indicators, the other indicators are no longer present, and the arsenic left over from that incident is now moving slowly downhill from the landfill leak into the well area.

#4 (Lee) – Commissioner Lee was correct: the Applicant had not gathered the baseline data; the Applicant is now supplying it in Appendix C of its Response.

#5 (Lee) – Commissioner Lee is pointing out a simple fact, one that was established in public testimony: If you dig a big hole, then nearby groundwater will flow into it. This sentence in the Response is doing a lot of obfuscatory work: "The drawdown caused by excavation will stabilize at a steady-state condition when groundwater recharge equals discharge." Commissioner Lee is noting that when the pit is dug, nearby water will drain into it. The Response agrees with her – there will be a "drawdown" – but pretends to disagree by noting that sooner or later, this process will stop. The Response pretends to be finding fault with Commissioner Lee's statement by using a rhetorical "straw man" attack.

And again, the Response invokes OP-13, which as established above it has no actual commitment in that the Applicant will "ensure that the proposed expansion area will not negatively affect public well water supply" other than outreach.

#6 (Bisceo) – Commissioner Bisceo quotes Adair Rural Fire as saying there were 111 calls to fires near or on the landfill site. The Response quotes a different report from Adair Rural: 8 fires actually on the landfill site. So the Response is in error here, as it is blaming Commissioner Bisceo for Response's own mistake in conflating the two different reports. For the record, the two reports have different parameters. Notably, Commissioner Bisceo's report includes fires at Republic's Pacific Region Recycling Center (PRC). Fires are common there; I'll attach a picture I took of the fire there on August 31.

#7 (Planning Commission Findings) – Again, it's good to read the Planning Commission's Finding in full:

Odor: The planning commission finds that testimony from occupants of adjacent properties and from opponents that odor from current landfill operations limits them from opening their windows and going outside supports a conclusion that odor from the proposed landfill use will seriously interfere with uses on adjacent property and with the character of the area. The planning commission finds the applicant's experts' odor studies and the third party reviewers evidence to be less credible than testimony from adjacent property owners and opponents.

LU-24-027 Coffin Butte Landfill CUP Planning Commission Decision 4 because the locations of odor-sensitive adjacent uses were not clearly defined in the applicant's odor analysis or mapping, and the potential impact on these adjacent uses was not specifically evaluated.

The Planning Commission saw that the Applicant's odor studies were based on theoretical models based on Frankensteinian assemblages of problematic data such as using industry-average landfill gas emission levels and weather data from over 20 years ago. They saw landfill gas plumes mapped by independent climate science initiatives that stretched far beyond the landfill's property line. They listened and read scores of testimonies about long-term odor impacts, many of them experienced miles from the landfill.

The Response validates those testimonies when it says "Coffin Butte [sic] Landfill acknowledges sporadic odor events in the past" and then faults the Planning Commission for not overturning those established data points for speculative improvements that it has made or claims it will make. It asserts that these speculative improvements are proof "the Applicant is aggressively addressing these issues."

However, those improvements are in fact a continuation of the status quo. Adding new gas wells is an ongoing activity at the landfill, because wells get fouled or otherwise become unusable and must be replaced. Also, if an inspection uncovers a methane leak, and Republic fails to remediate that leak in a specified time, then DEQ requires Republic to construct a new well at that location, as a last-ditch attempt to draw gas away from what has become a permanent leak. This is what the Response is talking about when it states "we will continue to enhance the existing gas collection system by installing new gas wells in areas with elevated emissions" – it is merely saying that it will follow the law.

The enclosed flare for methane that the Response cites as an "improvement" was called for in environmental performance testing rules implemented in September 2021. Republic finally installed that flare in August 2024 and tested it in November that year, over three years after the law took effect. It took two years of hounding by Oregon DEQ and a Class 1 Notice of Violation from DEQ to get Republic to comply with the regulations to install this flare.

The Response does not indicate why, if it can make "immediate operational adjustments" to mitigate offsite odors and "demonstrate our commitment to protecting neighboring properties," it has not implemented this measure in the past nor is implementing it now.

#8 (Bisceo) – Commissioner Bisceo is referring to public testimony that showed that Republic's traffic modeling did not include the traffic impacts from the construction of the expansion footprint, i.e., all the vehicle trips associated with clear-cutting about 70 acres of forest, then excavating up to 2.1 million cubic yards of rock and transporting to another location on site, then transporting it again to another location offsite, bringing in construction material, relocating infrastructure, etc. The Response attempts to assert that its model did account for this because the quarry was being actively "constructed" during part of the period when modeling data was being collected. This is specious; the two "constructions" are in no way comparable.

#9 (Bisceo) – I have no issues with the Response.

#10 (Fowler) – The Response ignores Chair Fowler's actual comment. Chair Fowler states concern about blasting and the Response cites median existing sound levels, which are irrelevant in that context. Elsewhere in the Response (page 47), it's admitted that landfill neighbors will experience sudden noises up to 88 dB, which is exactly Chair Fowler's concern, but the Response to him does not mention this.

Chair Fowler also cites the hazard to livestock posed by airborne trash. The Response quotes this concern but has no answer for it. Which is unsurprising, as Findings in the Riverbend Landfill case determined that "if you have trash outside, you will have airborne trash" and this is not mitigable by any known fencing or other measure; no study has been found that shows otherwise. The Riverbend Landfill case is the people's case that successfully prevented expansion of Riverbend Landfill in Yamhill County.

Upgrading the previous Staff Report and Revised Staff Report

The Staff Report should be responsive (and claims to be responsive) to substantive new developments and testimony as they come forward. Six months have passed since the Revised Staff Report was issued. Below is a partial list of substantive new considerations for the Appeal of LU-24-027; Commissioners, you should verify that these are covered in the New Staff Report when you receive it.

Concerns about Local Enforcement.

There are many public testimonies about this, and I would judge this to be the top concern of the Planning Commissioners regarding this application. The idea that Benton County could begin to monitor and enforce Conditions of Approval – any Conditions of Approval – is a non-starter. There has been no credible scenario put forward in which the proposed Conditions of Approval are anything more than words written on the wind.

As the Planning Commissioners note, the Applicant's Burden of Proof requires them to show how the very real impacts of the proposed land use change will not be significant in *real life*, not theoretically so on paper. The New Staff Report should make a clear representation to you, Commissioners, about the implications on County operations if you Commissioners decide that Benton County should get into the monitoring and enforcement business.

Republic Misrepresentations.
As shown above in the Response, it is common for Republic to misrepresent the truth of any matter concerning its operations at Coffin Butte Landfill. This makes establishing even simple facts fraught.

In my time as Past Chair of the Disposal Site Advisory Committee, I heard many times from the various Republic representatives on that committee (Ian Macnab, Bret Davis and now Paul Koster), that one significant factor in lessening landfill gas emissions was Republic's limit on the size of the working face. By having a small working face (one-half acre), I was told, gas emissions were better controlled, there was less fire risk, and other advantages as well.

This story was repeated in the Application and materials. Here's one instance, on page 35 of the initial Application:

b. **Odor.** Weaver Consultants Group ("Weaver") assessed the odor impacts from the proposed expansion (Exhibit 12) and the comprehensive set of infrastructure and practices already in place to control and manage odors is outlined in Exhibit 13. As explained below and in Exhibit 12, Weaver determined that "there has not been a significant impact to human health and environment related to [landfill gas] or odors."

The Adjacent and Nearby Properties have been in proximity to an active landfill for over 50 years. And, although the Project is a proposed "expansion," the nature of landfill operations means the Project will not result in a material expansion of odor-producing uses.

As explained in Exhibit 12, the two primary sources of odor from a landfill are the solid waste in the active landfill area (with odors similar to household waste) and the biogas produced as the solid waste begins to decompose ("landfill gas" or "LFG"). Also, as explained in Exhibit 12, the working face of a landfill is much smaller than its overall size. At Coffin Butte Landfill, the day-to-day active area is less than one-half acre under current conditions and will continue to be a similar size when the Development Site is opened and prior active landfill area north of Coffin

However this retraction appeared on page 7 in the Applicant's "Additional evidence and testimony - June 2025.pdf":

Working Face Size. The Applicant reviewed the testimony that the working face in recent history has been larger than the one-half acre previously estimated, and corrects the record to reflect that the current working face size is between approximately 1.5 and 2 acres. There is no regulation or requirement that limits the working face to a particular size.

The testimony that the Applicant is referring to? I've attached it to this email. The environmental non-profit Beyond Toxics used satellite photos to do their own survey of the landfill's working face, and determined that the dump's working face is never less than an acre, and up to 2.5 acres in size, and has been for years.

Republic's misrepresentations have a wider corrosive effect. In the case above, the consultant Weaver was told this story, and used it as a basis for their Exhibit 12. Did they correct Exhibit 12 when the story fell apart? Did all the consultants who Republic employed correct their exhibits that relied on this parameter? As I said, misrepresentations like this are common, and they make it difficult both to say anything with surety about the landfill or to have faith in any representations that Republic or its consultants make, and this should be addressed in the New Staff Report.

Leachate Disposal.
Disposing of the leachate generated by the landfill is a growing concern. The reality is that the landfill generates a huge amount of leachate (40 million gallons in 2024) which must be dealt with appropriately, and the system to do that is actually very fragile, with multiple dependencies such as a steady power supply for pumping, available trucks and a truck corridor, available water treatment plants, and so on. Leachate is toxic and any impromptu to its system can precipitate a health or environmental crisis.

The landfill expansion would increase the amount of leachate, because it would increase the landfill precipitation footprint by about 60 acres, which is about 50% more than its current footprint. It also increases system complexity, as for all intents and purposes the expansion would be a completely new landfill, with its own leachate system.

In terms of the land use criteria, in their deliberations the Planning Commissioners talked at length about the significant impacts to property and human health if:

- leachate enters the groundwater,
- leachate overflows its containment ponds,
- leachate spills due to a fault in its dispersed collection and distribution system (a pipe bursts, a truck overturns),
- leachate spills due to human-caused failure (Riversend Landfill had an incident where a truck driver was dumping leachate by the side of the road)

The Planning Commissioners also talked at length about the systems burden of leachate. At Coffin Butte, Cells 1 and 1a, which were closed and given final cover in the early 1970s, are still generating over a million gallons of leachate every year, according to Republic Services. So the burden of maintaining the leachate extraction system may persist long after Republic Services' commitment to the site has ended, long after the expected lifetime of the system itself, and so on. That would be a large burden on public services.

A more immediate concern has emerged, concerning the burden on public municipal wastewater plants which right now can accept the leachate, but are not equipped to actually remediate much if any of the toxic load contained in the leachate. This could reach a crisis point quite quickly if the treatment plants are required to remediate the toxic load, of PFAS for example. That requirement would obligate the landfill operator to send Coffin Butte's leachate to a facility in Idaho which has remediation capability, at a cost of an estimated \$25 million more a year at current leachate levels, and well over \$30 million a year if an expansion has increased the dump's leachate load.

What's clear is that leachate disposal is not an issue that can be waved away, as the Response attempts to do on page 9, but one that should be assessed fully in the New Staff Report.

Leachate Contamination (PFAS) and Landfill Gas Contamination (PFAS).
See accompanying testimony about the implications of per- and poly-fluoro-alkyl substances (PFAS, the "forever chemicals") and their impacts on human health. On page 9 of their Response, the Applicant mentions PFAS (dismissively) but only in relationship with the past; in Planning Commission hearings, Republic representatives stated (dismissively), "they're everywhere". Honest evaluations of the PFAS situation, however, note how rapidly it is emerging as a major health and environmental issue, precisely because "they're everywhere" and they're the "forever chemicals" – they don't go away, they accumulate. Sites such as Coffin Butte, which serve to both aggregate and disperse PFAS, have become a focus of concern. Dear Commissioners, please make sure that the New Staff Report is forward-looking on the alarming nature of PFAS contamination in both leachate and landfill gas.

Odor Concerns and Air Quality.
The Applicant's various odor studies treat odors as benign except for their smell. But landfill odors have never been benign – unlike cow manure, for example, they contain (and smell like they contain) chemicals which are hazardous to human health. The emerging concern about PFAS highlight this flaw in the Applicant's odor studies – namely, that there is no "nuisance" level for malignant odors; a person is much more sensitive to, and will be impacted by, an odor that may be hazardous to their health. The New Staff Report should expand its section on Odor Concerns accordingly.

Landscape Contamination (PFAS).
Studies have shown that landfill gas contains PFAS – surprisingly, at levels comparable to leachate. PFAS are characterized by an extremely strong fluoro-carbon chemical bond, which give them the label "forever chemicals." They are not destroyed by passing through an internal combustion engine or a methane flare. This means the landfill gas system has been collecting PFAS and distributing it into the environment around the generating plant and the methane flares ever since they were created, over 20 years ago. Since they are "forever" and bio-accumulate, there may be a strong accumulation in that landscape and its flora and fauna. It's of concern, then, that an expansion would dig up and cut down a significant part of that landscape and possibly distribute it elsewhere. Currently we don't know the extent of the toxic load being carried in that landscape.

Community Concerns not included.
A surprising thing found in the last Staff Report, and continued in the revised Staff Report, is that it did not require Republic to consider in its Application the concerns voiced by Benton County residents to Benton County itself. Since 2020 these have been collected by Benton County's Disposal Site Advisory Committee and published in its Community Concerns Annual Report (CCAR), as required by state law. The CCAR document hundreds of community concerns a year about the landfill and its operations. Community members provided them as testimony to the Planning Commission, for use in their deliberations and decision. Commissioners, you should expect to see this oversight corrected in the New Staff Report, including an analysis of how the Applicant should incorporate these concerns into their Burden of Proof.

Emerging Health Concerns.
The Coffin Butte dump aggregates waste products from a large area – its watershed is about 30% of Oregon's total waste production – which means it is aggregating a large amount of modern waste products very quickly. Landfilling is an old technology, developed back when the waste itself was a lot simpler in composition, and is not equipped to deal with such hazards as lithium batteries and insecticides.

Coffin Butte is an outlier among landfills, because the waste put into it comes back out in short order and in large quantities in its leachate and landfill gas emissions. In just the way that PFAS has sprung onto the scene, other emerging health issues may be on the horizon. The New Staff Report should include an analysis of what other health or environmental concerns should be incorporated into the relevant issues considered by the Application.

EPA Enforcement.
As was documented at length during the Planning Commission hearings, the EPA began to investigate the landfill after its announced inspection in 2022 revealed widespread areas of concern about the dump's operation and commitment to environmental protection and to compliance. The dump received two Enforcement Alerts from the EPA in late 2024 and then was served a Section 114 Information Request in January 2025, which is essentially a subpoena of its records relating to compliance. We are now waiting to see if the Applicant has complied fully with the Section 114 and what the results of the audit are. In short, the EPA began an investigation in 2022 and this investigation has continued and escalated.

Since the landfill is actively the target of regulatory action, Commissioners, the New Staff Report should have a corresponding conservative view when it comes to the Applicant's commitment to the environment and its asserted record of regulatory compliance.

DEQ Enforcement.
DEQ Enforcement Officers accompanied the EPA Enforcement Team when they made an unannounced inspection of Coffin Butte Landfill in June 2024, which found over 40 infractions, one of which was an uncapped gas well. Since then, DEQ shown much more interest in pursuing complaints about landfill operations. In August 2024, Oregon DEQ filed a Notice of Violation over missed deadlines for performance-testing environmental equipment, and just recently announced an investigation of the landfill's claims of exemption for monitoring.

Since the landfill is actively the target of both state and federal regulatory action, the New Staff Report should have a corresponding conservative view when it comes to the Applicant's statements about its commitment to neighbors and the environment and its promises to willingly comply with regulations.

Transparency – Republic.
Republic declares that it is committed to transparency in its operations, but it has not released its Landfill Annual Report for 2024 yet – it's now about 4 months overdue. Staff should either obtain this report from the Applicant, to set its baseline information, or note in the New Staff Report that the Applicant is not being transparent about its operations.

Transparency – County Staff.
The New Staff Report should include the Incomplete/Letter sent to Republic Services in 2024. The record for the Planning Commission hearings had a folder on it for this letter, Folder #1, which sat empty for almost a year, and has now been deleted (that record now begins with Folder #2). I filed a Public Records Request for that letter on July 21, 2025, with the County Counsel's office, and have heard nothing back, which is a violation of state public records law.

Two attachments: other documentation referred to in this letter will be supplied via a separate portal.

Thank you, Commissioners, for your kind attention.

All best,

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Valley Landfills Inc. d/b/a Coffin Butte Landfill CUP

Appeal of Planning Commission Decision: Responses and Additional Evidence

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In support of the Applicant's appeal of the Benton County Board of Commissioners' findings regarding the proposed Coffin Butte Landfill Expansion, the following responses are provided to address and refute the assertions and claims raised by the Planning Commissioners during the hearing and in the Board's written findings. For clarity, these claims have been organized into categories: groundwater, fire, odor, traffic, sound, and conjecture. Each claim is presented in blue text, followed by Valley Landfills, Inc.'s corresponding response.

Groundwater Impacts – Response to Commissioner Lee

"If the applicant's assumptions about the nature of the fractured bedrock are incorrect, dewatering will have taken place by the time they [begin] monitoring... This is permanent and irreversible." – Commissioner Lee Opening Statement

Commissioner Lee's assertion ignores the expert opinions of Valley Landfills Inc.'s (the Applicant) expert and the County's own independent expert. In fact, the Applicant testimony regarding fractures being discontinuous is based on mapped observations during excavation of past cells and observations of geologic conditions in boreholes drilled at the site and was used to form the basis for some of the Applicant's testimony. However, the Applicant's used a porous media equivalent assumption in its groundwater model. This is intentionally even more conservative than modeling the subsurface in order to model a worst-case scenario for potential groundwater drawdown. Even under that assumption, predicted impacts to public water supply wells are minimal. Nevertheless, Condition OP-13 mandates installation of sentinel wells to detect and allow mitigation before any off-site effect could occur, satisfying both legal and technical requirements for prevention of harm.

"The applicant states an assumption that the fractures in the basalt that hold and transport groundwater are uniform and equally interconnected, such as a glass of sand that you fill with water and then drain out the bottom. Their modelling is based on that assumption..." – Commissioner Lee Opening Statement

Contrary to Commissioner Lee's claim, the model was developed using hydrogeologic data from 15 wells and boreholes located within or near the expansion footprint. It is standard practice to extrapolate such data across short distances during preliminary design, particularly where the geology is continuous, as is the case with the Siletz River Volcanics underlying both the existing landfill and the expansion area. This approach is consistent with accepted professional standards and meets the evidentiary threshold for reliable modeling assumptions.

"Evidence of toxic impacts to groundwater associated with CBL and landfills in general is already clear from testimony... Leachate Leaks from torn liners or stormwater pose serious, long-term impacts on adjacent property and the character of the area... The burden of proof is not met." – Commissioner Lee Opening Statement

As stated in previous the Applicant testimony, historical and current groundwater chemistry

data further support the argument that the elevated concentrations in arsenic in groundwater at the site are not the result of a leachate release (See Appendix A for background arsenic concentrations). Project opponents cite the elevated arsenic concentrations in samples from wells M-9S, M-26, and M-27, but ignore the vast majority of groundwater chemistry data collected from these wells. This selective approach to the data conflicts with the Planning Commission's obligation to weigh conflicting evidence and explain why it finds certain evidence more probative. It is important to note that groundwater and leachate samples are tested for more than 90 analytes during each monitoring period (see Appendix B for complete list of monitoring parameters).

Historical data collected from wells M-9S, M-26 and M-27 show no increasing trends of inorganic constituent concentrations that are common leachate indicators (chloride, sodium, total dissolved solids) and few or no detections of volatile organic compounds. These historical data are not refutable: the data are measured and certified by an independent, nationally-accredited laboratory, and supported by rigorous quality assurance analyses that validate the measurements.

If a leachate release were to occur, it would be apparent by increasing concentrations of several monitoring parameters. In fact, because arsenic is a heavy metal it tends to move more slowly in groundwater than other indicator parameters like chloride, dissolved solids, sodium, and volatile organic compounds, which makes these analytes better indicators of a release than arsenic. There is simply no evidence of leachate leaks.

"Nor have they made any effort to gather baseline data to use for comparison after the construction even though they have had the time, the adjacent land, and the resources to take baseline groundwater" – Commissioner Lee Opening Statement

Baseline groundwater data are provided in Appendix C.

the Applicant has been monitoring groundwater conditions at the Coffin Butte Landfill for more than 30 years. Contrary to Commissioner Lee's allegations, the Applicant has ample background information pertaining to groundwater elevations and groundwater chemistry for monitoring wells, piezometers, and groundwater production wells, including wells that are located within and adjacent to the proposed expansion area. Groundwater elevation and groundwater chemistry data have been provided to DWR on an annual basis in the Environmental Monitoring Reports required by the operating permit. In addition to historical groundwater elevation data, the Applicant has been sampling and testing groundwater in the vicinity of the expansion area for decades. These data, collected and reported annually to Oregon DEQ in Environmental Monitoring Reports, satisfy the evidentiary requirement for establishing baseline conditions. They have been part of the public record for decades. Commissioner Lee's statement is inconsistent with the substantial evidence requirement and disregards the obligation to consider all relevant information in the record.

"The water would be draining into the constructed open pit, as deep as 155 ft below the natural land surface on the north end of Tampico Ridge. Water from the pond on Tampico Ridge could drain into this pit. Any water-bearing features (such as fractured zones of the basalt) that are intersected by this excavation will drain into the resulting pit." – Commissioner Lee Opening Statement

Commissioner Lee ignores all of the experts who have reviewed the application. Commissioner Lee's analogy misrepresents aquifer behavior. The drawdown caused by excavation will stabilize at a steady-state condition when groundwater recharge equals discharge. The cone of depression will be shaped and limited by fracture conductivity and recharge rates - parameters which are incorporated into the Applicant's modeling. Condition OP-13 ensures early detection and corrective measures if drawdown deviates from predicted conditions, preventing off-site impacts. The Applicant is committed to ensuring that the proposed expansion area will not negatively affect public well water supply.

Fire Impacts – Response to Commissioner Biscoe

"5 fires were reported during Republic Services testimony while nearby Adair Rural Fire & Rescue documented response to 111 calls to fires near or on the landfill site" -- Commissioner Biscoe Opening Statement

This is inaccurate. Data provided by Adair Rural Fire & Rescue data from 2013 through July 2025 confirm that, in more than twelve years, there were eight fires requiring suppression and eleven additional calls that were investigated but determined not to involve active fires - typically false alarms caused by visible steam or methane flare activity. See Appendix D. This equates to fewer than one suppression-required fire per year, all of which were promptly addressed without injury to personnel or damage to adjacent properties. It is important to note that fires at landfills do occur on occasion. They are typically small, manageable, and not caused by the landfill operator or are a reflection on the landfill itself. There is no evidence in the record to suggest the landfill is a significant fire risk.

Odor Impacts – Response to Planning Commission Findings

"Odor from current landfill operations limits [adjacent property owners] from opening their windows and going outside... The applicant's consultants' odor studies and the third party reviewers' evidence [are] less credible... potential impact on these adjacent uses was not specifically evaluated." – Planning Commission Findings

The Commission's conclusion overlooks significant, tangible, measures already implemented in 2025 to actively reduce odor emissions. Coffin Butte Landfill acknowledges sporadic odor events in the past. The Applicant is aggressively addressing these issues. In the last 12 months,

Valley Landfills has constructed 21 new vertical gas collection wells and made improvements to 18 existing horizontal wells, supported by the installation of 16,835 feet of new gas piping to improve gas capture efficiency across the site and installed an enclosed flare to combust 99% more efficiently. These upgrades increase landfill gas collection rates, reducing the potential for fugitive emissions that could cause offsite odors.

To directly address concerns about ongoing and future odor impacts, Valley Landfills will commit to a phased closure plan of approximately five separate closure events with the last event occurring once final elevations have been reached. The first closure event will begin within the range of calendar year 2027 to 2029, dependent on landfill tonnage volumes. The last event will occur once all operations are moved to the expansion area. In addition, we will continue to enhance the existing gas collection system by installing new gas wells in areas with elevated emissions. Finally, we are prepared to adopt objective, enforceable mitigation triggers. For example, immediate operational adjustments will be made if nuisance-level offsite odors are verified through monitoring, thereby demonstrating our commitment to protecting neighboring properties.

Traffic Impacts – Response to Planning Commissioner Biscoe

“Traffic Impact Analysis submitted by applicant does not include 3-4 years of construction traffic, increase of traffic from nearby housing developments traffic–witness accounts used in part to determine traffic impacts...leaving questions regarding modeling used and validity of report.” --Commissioner Biscoe Opening Statement

This comment is inaccurate. The transportation impact analysis for Coffin Butte was finalized in February 2024 and supplemental information responsive to this comment was provided on May 23, 2025 within the public open record period. As summarized in Appendix F, trip rates for landfills are somewhat variable depending on the amount of public versus commercial access, as well as the landfill tonnage and area supported. To capture the specific characteristics of Coffin Butte Landfill, traffic counts were collected at the site entrance and surrounding roads in January 2021, March 2021, January 2022, September 2023, and April 2025. The actual volume of entering cars and trucks was used to identify current operations.

The activity captured at Coffin Butte Landfill not only captured trips associated with the landfill, but also with the adjacent construction of the former Knife River quarry site, which was being excavated to serve as the future landfill site. Accordingly, the traffic counts include quarry trips (construction trips) plus landfill trips. In fact, the April 2025 traffic counts also included the accelerated construction of the landfill expansion area to the west to enable near-term use of this airspace.

As noted, the traffic study does not directly account for any nearby housing development traffic using what is commonly referred to as “in-process trips” as there were no nearby housing developments identified by staff within the scoping process that contribute trips onto Coffin Butte Road or impact the study intersections. The study does, however, broadly account for traffic growth as part of regional housing changes using growth rates identified in the Linn-Benton Transportation System Plans.

The traffic study was reviewed by County staff, ODOT staff, and the County’s consultant reviewer. Each reviewer found that the traffic study reasonably assesses the system impacts and agreed with the reports’ findings and conclusions. See Appendix F for Construction Traffic Assessment Memo.

“Traffic impact analysis that does not address remaining 35% increase of waste intake at current site, simultaneously as the blasting and development of proposed site, the filling of Cell 6 simultaneously or any impact from removal of tonnage cap – based on assumption traffic volumes will not change” --Commissioner Biscoe Opening Statement

The Transportation Impact Analysis had been prepared assuming that the current level of traffic and nearby quarry (landfill construction) operations could increase by 50% within the future analysis scenario. This analysis found that the study findings do not change, and all of the study intersections continue to operate acceptably and well within their carrying capacity.

As previously noted, tonnage and trips are not directly correlated; the presence of transfer stations that “intercept” landfill trips results in fewer trips with larger trucks (heavier loads and higher per-vehicle tonnage) from longer distances. Some transfer stations also include solid waste compactors, which can increase tonnage within an equivalent volume. Accordingly, as the site is already a regional landfill that provides trash services for adjacent counties, any increase in tonnage would necessarily occur from longer-distance transport. A 35 (or 50) percent increase in site trips (which would predominantly consist of larger transfer trucks rather than personal vehicles, dump trailers, or even garbage trucks) equates to more than double the current tonnage and would still provide a very conservative analysis.

Finally, as part of its July 16, 2025, submittal, Valley Landfills, Inc. proposed amending the Conditions of Approval to include a tonnage cap that would take effect upon expiration of the tonnage cap in the Franchise Agreement. Commissioner Biscoe’s assertion failed to take this proposal into account.

Sound Impacts – Response to Planning Commission Statements

“I am particularly moved by adjacent neighbor testimony indicating blasting is causing stress on livestock, impacting their livelihood. One top of existing operation noise, the expansion will have three to four years of six to eight months per year of major earth moving in advance of operations. Anyone with pets on the 4th of July not only empathizes but can see adverse impact from development noise. And, blowing debris also threatens livestock. These are serious interferences, not nuisances. Fencing may, but is not guaranteed, to address ingestion risk to livestock. I do not see how the existing proposed conditions of approval sufficiently mitigate the impact of noise on both the agricultural and residential zones.” – Commissioner Fowler Opening Statement

Operations within the expansion area are anticipated to be quieter than median existing sound levels and up to 6 dB above the quietest existing daytime sound level. This does not constitute serious interference. Please refer to the response in Appendix G for additional information regarding construction noise and blasting.

“Noise pollution and heavy truck and waste hauling traffic has been a persistent complaint topic regarding current operations of the Coffin Butte Landfill. The expansion application did not address noise concussions, increased heavy truck traffic to remove 2.1 million cubic yards of blast material from the expansion site, and other heavy equipment noises and impacts for the construction of the expansion area, including removal and mitigation of the current leachate ponds.” – Commissioner Biscoe Opening Statement

An assessment of construction noise has now been completed, including noise from blasting and hauling activities within the expansion area. Construction noise is anticipated to be up to 5 dB louder than typical existing daytime levels, which does not result in any significant noise effects. Sound from blasting is predicted to be 10dB quieter than the sound limits for blasting identified in the OAR, which is approximately half as loud as what is allowed by Code. Vibration from blasting is not expected to affect any existing structures within 675 feet of the center of the blast site. Therefore structures will not be affected. Please refer to Appendix G for the construction noise assessment.

Response to Planning Commission Conjecture

“Coffin Butte Landfill is the second largest landfill in Oregon...and one of Republic Services most profitable revenue generating landfill” --Commissioner Biscoe Opening Statement

The record contains no financial or operational data to substantiate Commissioner Biscoe’s claim regarding profitability.

“Some residents point to increasing cancer clusters in their neighborhood and suggest that poor air quality may be responsible.”—Commissioner Lee Opening Statement

This assertion is entirely unsupported by any evidence in the record. No studies, reports, or data were introduced during the proceedings to substantiate the claim, nor is there any indication that public health authorities have identified or confirmed such a phenomenon in proximity to Coffin Butte Landfill. Moreover, the vagueness of the statement, offered without reference to location, timeframe, or affected population renders it impossible to meaningfully confirm or rebut. Introducing unsubstantiated and undefined allegations of serious public health impacts not only falls outside the evidentiary record but also risks misleading the public and improperly influencing the decision-making process. The Commission’s findings must be based on credible, record-based evidence, not conjecture or generalized fears.

“Additionally, in-person testimony... carries more weight than those not directly impacted by the landfill’s adverse impacts. The weight therefore that this public testimony is given is significant.” — Commissioner Catherine Biscoe, Opening Statement

Substantial evidence requires information that is relevant, reliable, and supported by objective data. Public testimony does not become more relevant merely because the speaker appears at a hearing.

By elevating in-person testimony above technical studies and professional conclusions, the Commission’s approach departs from the legal standard and undermines the requirement that land use decisions rest on reliable, site-specific data rather than subjective impressions.

“Reclamation – a Conditions of Approval – Benton County and public didn’t anticipate the landfill being covered indefinitely under tarps, due to delayed cell closures... Torn tarps and cover not being maintained, not being used as farm areas, or for recreational or green space.” -- Commissioner Biscoe Opening Statement

This statement mischaracterizes both current practice and future commitments. Interim tarping is a standard and DEQ-approved method of daily and intermediate cover used at modern landfills, designed specifically to reduce odor, litter, and leachate generation. This approach ensures progressive reclamation, reduction of the exposed temporary, intermediate fill, and corresponding decreases in odor and visual impact.

The record also documents substantial upgrades to the landfill’s gas collection and control system, including the installation of new vertical wells, rehabilitation of existing horizontal wells, and addition of thousands of feet of collection piping. These actions directly address odor

at its source and demonstrate proactive mitigation, not indefinite reliance on tarps.

Finally, final cover areas will be reclaimed for beneficial use once installed. The suggestion that the site will remain permanently under tarps without reclamation is unsupported and contradicted by both the applicant's permit commitments and enforceable conditions.

“Coffin Butte leachate is processed at the Corvallis municipal water treatment center... and we have no evidence that such treatment mitigates PFAS.” — Commissioner Fowler, Opening Statement

This observation falls outside the scope of the applicable land use approval criteria. The Conditional Use Permit review is not the forum for regulating PFAS treatment technology at municipal wastewater facilities. Instead, PFAS monitoring and treatment are governed under state and federal water quality regulations through the Department of Environmental Quality and the Clean Water Act's permitting framework. The applicant's responsibility under this proceeding is to demonstrate compliance with Benton County Code criteria—specifically, that landfill operations will not create undue adverse impacts to surrounding uses.

The record demonstrates that leachate is properly managed, transported, and treated under valid permits, and there is no evidence of noncompliance. For this reason, Commissioner Fowler's assertion that “we have no evidence” of PFAS treatment is not relevant evidence under the law: Land use decisions must rest on competent, material evidence, not conjecture about matters already regulated under separate environmental programs.

Appendix A – Basalt Arsenic Concentrations



Apex Laboratories, LLC

12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

Friday, August 24, 2018

Gabriel Ittis
Geo-Logic Associates (Lakewood, CO)
13949 West Colfax Avenue, Suite 220
Lakewood, CO 80401

RE: A8H0221 - Corvallis Basalt Testing - Coffin Butte/AU18.1148.00

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8H0221, which was received by the laboratory on 8/8/2018 at 3:30:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: ldomenighini@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

A handwritten signature in black ink that reads "Lisa A. Domenighini".

Lisa Domenighini, Client Services Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Apex Laboratories, LLC

12232 S.W. Garden Place
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EPA ID: OR01039

Geo-Logic Associates (Lakewood, CO)
13949 West Colfax Avenue, Suite 220
Lakewood, CO 80401

Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GLA-BG-1 (As Received)	A8H0221-01	Solid	08/07/18 12:30	08/08/18 15:30
GLA-BG-1 (After Processing)	A8H0221-02	Solid	08/07/18 12:30	08/08/18 15:30
GLA-BG-2 (As Received)	A8H0221-03	Solid	08/07/18 12:40	08/08/18 15:30
GLA-BG-2 (After Processing)	A8H0221-04	Solid	08/07/18 12:40	08/08/18 15:30
GLA-BG-3 (As Received)	A8H0221-05	Solid	08/07/18 12:55	08/08/18 15:30
GLA-BG-3 (After Processing)	A8H0221-06	Solid	08/07/18 12:55	08/08/18 15:30
GLA-BG-4 (As Received)	A8H0221-07	Solid	08/07/18 13:05	08/08/18 15:30
GLA-BG-4 (After Processing)	A8H0221-08	Solid	08/07/18 13:05	08/08/18 15:30
GLA-BG-5 (As Received)	A8H0221-09	Solid	08/07/18 13:15	08/08/18 15:30
GLA-BG-5 (After Processing)	A8H0221-10	Solid	08/07/18 13:15	08/08/18 15:30
GLA-BG-6 (As Received)	A8H0221-11	Solid	08/07/18 13:30	08/08/18 15:30
GLA-BG-6 (After Processing)	A8H0221-12	Solid	08/07/18 13:30	08/08/18 15:30
GLA-BG-7 (As Received)	A8H0221-13	Solid	08/07/18 13:35	08/08/18 15:30
GLA-BG-7 (After Processing)	A8H0221-14	Solid	08/07/18 13:35	08/08/18 15:30

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Lisa Domenighini, Client Services Manager

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Lakewood, CO 80401

Project Corvallis Basalt Testing

Project Number: Coffin Butte/AU18.1148.00

Project Manager: Gabriel Iltis

Report ID:

A8H0221 - 08 24 18 1450

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GLA-BG-1 (After Processing) (A8H0221-02)				Matrix: Solid				
Batch: 8080783								
Antimony	ND	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Arsenic	ND	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Barium	37.2	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Beryllium	0.489	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	1.05	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Chromium	20.7	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	34.6	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Copper	191	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Lead	1.05	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Manganese	659	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Mercury	ND	---	0.0885	mg/kg	10	08/20/18	EPA 6020A	
Nickel	27.8	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.221	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	99.6	---	1.11	mg/kg	10	08/20/18	EPA 6020A	
Zinc	59.2	---	4.42	mg/kg	10	08/20/18	EPA 6020A	

GLA-BG-2 (After Processing) (A8H0221-04)				Matrix: Solid			
Batch: 8080783							
Antimony	ND	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Arsenic	1.75	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Barium	199	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Beryllium	0.540	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Cadmium	0.806	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Chromium	40.0	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Cobalt	33.5	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Copper	134	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Lead	2.51	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Manganese	947	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Mercury	ND	---	0.0862	mg/kg	10	08/20/18	EPA 6020A
Nickel	49.7	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Selenium	ND	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Silver	ND	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Thallium	ND	---	0.216	mg/kg	10	08/20/18	EPA 6020A
Vanadium	134	---	1.08	mg/kg	10	08/20/18	EPA 6020A
Zinc	74.3	---	4.31	mg/kg	10	08/20/18	EPA 6020A

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Lisa Domenighini, Client Services Manager

**Geo-Logic Associates (Lakewood, CO)**

13949 West Colfax Avenue, Suite 220

Lakewood, CO 80401

Project**Corvallis Basalt Testing**

Project Number: Coffin Butte/AU18.1148.00

Project Manager: Gabriel Iltis

Report ID:

A8H0221 - 08 24 18 1450

ANALYTICAL SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GLA-BG-3 (After Processing) (A8H0221-06)								
Matrix: Solid								
Batch: 8080783								
Antimony	ND	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Arsenic	ND	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Barium	47.9	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Beryllium	0.577	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	1.04	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Chromium	9.63	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	35.1	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Copper	268	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Lead	1.23	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Manganese	339	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Mercury	ND	---	0.0808	mg/kg	10	08/20/18	EPA 6020A	
Nickel	29.3	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.202	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	75.1	---	1.01	mg/kg	10	08/20/18	EPA 6020A	
Zinc	42.3	---	4.04	mg/kg	10	08/20/18	EPA 6020A	

GLA-BG-4 (After Processing) (A8H0221-08)**Matrix: Solid**

Batch: 8080783								
Antimony	ND	---	0.977	mg/kg	10	08/20/18	EPA 6020A	Q-42
Arsenic	1.65	---	0.977	mg/kg	10	08/20/18	EPA 6020A	
Barium	111	---	0.977	mg/kg	10	08/20/18	EPA 6020A	Q-42
Beryllium	0.446	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	0.662	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Chromium	48.8	---	0.977	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	29.5	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Copper	139	---	0.977	mg/kg	10	08/20/18	EPA 6020A	Q-42
Lead	1.09	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Manganese	601	---	0.977	mg/kg	10	08/20/18	EPA 6020A	Q-42
Mercury	ND	---	0.0781	mg/kg	10	08/20/18	EPA 6020A	
Nickel	48.5	---	0.977	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	0.977	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.195	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	131	---	0.977	mg/kg	10	08/20/18	EPA 6020A	Q-42

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Lisa Domenighini, Client Services Manager

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Lakewood, CO 80401

Project **Corvallis Basalt Testing**Project Number: **Coffin Butte/AU18.1148.00**Project Manager: **Gabriel Iltis****Report ID:****A8H0221 - 08 24 18 1450****ANALYTICAL SAMPLE RESULTS****Total Metals by EPA 6020 (ICPMS)**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GLA-BG-4 (After Processing) (A8H0221-08)				Matrix: Solid				
Zinc	55.9	---	3.91	mg/kg	10	08/20/18	EPA 6020A	
GLA-BG-5 (After Processing) (A8H0221-10)				Matrix: Solid				
Batch: 8080783								
Antimony	ND	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Arsenic	1.32	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Beryllium	0.594	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	0.939	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Chromium	33.2	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	30.7	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Copper	202	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Lead	1.31	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Manganese	568	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Mercury	ND	---	0.0881	mg/kg	10	08/20/18	EPA 6020A	
Nickel	46.7	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.220	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	112	---	1.10	mg/kg	10	08/20/18	EPA 6020A	
Zinc	63.5	---	4.41	mg/kg	10	08/20/18	EPA 6020A	
GLA-BG-5 (After Processing) (A8H0221-10RE1)				Matrix: Solid				
Batch: 8080783								
Barium	111	---	1.10	mg/kg	10	08/21/18	EPA 6020A	
GLA-BG-6 (After Processing) (A8H0221-12)				Matrix: Solid				
Batch: 8080783								
Antimony	ND	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Arsenic	ND	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Beryllium	0.840	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	1.08	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Chromium	33.7	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	43.6	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Copper	228	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Lead	2.45	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Manganese	1180	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Mercury	ND	---	0.0864	mg/kg	10	08/20/18	EPA 6020A	

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Lisa Domenighini, Client Services Manager



Geo-Logic Associates (Lakewood, CO)
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Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
GLA-BG-6 (After Processing) (A8H0221-12)				Matrix: Solid				
Nickel	31.7	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.216	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	179	---	1.08	mg/kg	10	08/20/18	EPA 6020A	
Zinc	78.7	---	4.32	mg/kg	10	08/20/18	EPA 6020A	
GLA-BG-6 (After Processing) (A8H0221-12RE1)				Matrix: Solid				
Batch: 8080783								
Barium	57.9	---	1.08	mg/kg	10	08/21/18	EPA 6020A	
GLA-BG-7 (After Processing) (A8H0221-14)				Matrix: Solid				
Batch: 8080783								
Antimony	ND	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Arsenic	ND	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Beryllium	0.576	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Cadmium	0.939	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Chromium	16.5	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Cobalt	39.8	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Copper	214	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Lead	0.818	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Manganese	391	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Mercury	ND	---	0.0774	mg/kg	10	08/20/18	EPA 6020A	
Nickel	32.9	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Selenium	ND	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Silver	ND	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Thallium	ND	---	0.193	mg/kg	10	08/20/18	EPA 6020A	
Vanadium	117	---	0.967	mg/kg	10	08/20/18	EPA 6020A	
Zinc	67.7	---	3.87	mg/kg	10	08/20/18	EPA 6020A	
GLA-BG-7 (After Processing) (A8H0221-14RE1)				Matrix: Solid				
Batch: 8080783								
Barium	64.4	---	0.967	mg/kg	10	08/21/18	EPA 6020A	

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Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8080783 - EPA 3051A						Solid						
Blank (8080783-BLK1)		Prepared: 08/15/18 12:57 Analyzed: 08/20/18 19:53										
EPA 6020A												
Antimony	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Arsenic	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Barium	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Beryllium	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Cadmium	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Chromium	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Cobalt	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Copper	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Lead	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Manganese	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Mercury	ND	---	0.0769	mg/kg	10	---	---	---	---	---	---	
Nickel	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Selenium	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Silver	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Thallium	ND	---	0.192	mg/kg	10	---	---	---	---	---	---	
Vanadium	ND	---	0.962	mg/kg	10	---	---	---	---	---	---	
Zinc	ND	---	3.85	mg/kg	10	---	---	---	---	---	---	

LCS (8080783-BS1) Prepared: 08/15/18 12:57 Analyzed: 08/20/18 20:06

EPA 6020A

Antimony	23.6	---	1.00	mg/kg	10	25.0	---	94	80-120%	---	---
Arsenic	48.4	---	1.00	mg/kg	10	50.0	---	97	80-120%	---	---
Barium	52.4	---	1.00	mg/kg	10	50.0	---	105	80-120%	---	---
Beryllium	23.1	---	0.200	mg/kg	10	25.0	---	92	80-120%	---	---
Cadmium	47.9	---	0.200	mg/kg	10	50.0	---	96	80-120%	---	---
Chromium	47.7	---	1.00	mg/kg	10	50.0	---	95	80-120%	---	---
Cobalt	51.0	---	0.200	mg/kg	10	50.0	---	102	80-120%	---	---
Copper	47.4	---	1.00	mg/kg	10	50.0	---	95	80-120%	---	---
Lead	49.1	---	0.200	mg/kg	10	50.0	---	98	80-120%	---	---
Manganese	55.3	---	1.00	mg/kg	10	50.0	---	111	80-120%	---	---
Mercury	0.962	---	0.0800	mg/kg	10	1.00	---	96	80-120%	---	---
Nickel	48.0	---	1.00	mg/kg	10	50.0	---	96	80-120%	---	---
Selenium	24.1	---	1.00	mg/kg	10	25.0	---	96	80-120%	---	---

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Lisa Domenighini, Client Services Manager

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Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8080783 - EPA 3051A							Solid					
LCS (8080783-BS1)		Prepared: 08/15/18 12:57		Analyzed: 08/20/18 20:06								
Silver	24.7	---	0.200	mg/kg	10	25.0	---	99	80-120%	---	---	
Thallium	23.8	---	0.200	mg/kg	10	25.0	---	95	80-120%	---	---	
Vanadium	46.5	---	1.00	mg/kg	10	50.0	---	93	80-120%	---	---	
Zinc	48.8	---	4.00	mg/kg	10	50.0	---	98	80-120%	---	---	

Duplicate (8080783-DUP1) Prepared: 08/15/18 12:57 Analyzed: 08/20/18 20:38

QC Source Sample: GLA-BG-4 (After Processing) (A8H0221-08)**EPA 6020A**

Antimony	ND	---	1.09	mg/kg	10	---	ND	---	---	---	40%
Arsenic	1.93	---	1.09	mg/kg	10	---	1.65	---	---	16	40%
Beryllium	0.477	---	0.218	mg/kg	10	---	0.446	---	---	7	40%
Cadmium	0.663	---	0.218	mg/kg	10	---	0.662	---	---	0.2	40%
Chromium	56.1	---	1.09	mg/kg	10	---	48.8	---	---	14	40%
Cobalt	32.3	---	0.218	mg/kg	10	---	29.5	---	---	9	40%
Copper	149	---	1.09	mg/kg	10	---	139	---	---	7	40%
Lead	1.16	---	0.218	mg/kg	10	---	1.09	---	---	7	40%
Manganese	643	---	1.09	mg/kg	10	---	601	---	---	7	40%
Mercury	ND	---	0.0873	mg/kg	10	---	ND	---	---	---	40%
Nickel	54.6	---	1.09	mg/kg	10	---	48.5	---	---	12	40%
Selenium	ND	---	1.09	mg/kg	10	---	ND	---	---	---	40%
Silver	ND	---	0.218	mg/kg	10	---	ND	---	---	---	40%
Thallium	ND	---	0.218	mg/kg	10	---	ND	---	---	---	40%
Vanadium	150	---	1.09	mg/kg	10	---	131	---	---	14	40%
Zinc	64.1	---	4.37	mg/kg	10	---	55.9	---	---	14	40%

Duplicate (8080783-DUP2) Prepared: 08/15/18 12:57 Analyzed: 08/21/18 19:31

QC Source Sample: GLA-BG-4 (After Processing) (A8H0221-08)**EPA 6020A**

Barium	127	---	1.09	mg/kg	10	---	111	---	---	14	40%	Q-16
--------	-----	-----	------	-------	----	-----	-----	-----	-----	----	-----	------

Matrix Spike (8080783-MS1) Prepared: 08/15/18 12:57 Analyzed: 08/20/18 20:43

QC Source Sample: GLA-BG-4 (After Processing) (A8H0221-08)**EPA 6020A**

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Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

QUALITY CONTROL (QC) SAMPLE RESULTS**Total Metals by EPA 6020 (ICPMS)**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8080783 - EPA 3051A							Solid					
Matrix Spike (8080783-MS1)		Prepared: 08/15/18 12:57 Analyzed: 08/20/18 20:43										
QC Source Sample: GLA-BG-4 (After Processing) (A8H0221-08)												
Antimony	16.7	---	1.04	mg/kg	10	26.1	ND	64	75-125%	---	---	A-02, Q-01
Arsenic	53.1	---	1.04	mg/kg	10	52.2	1.65	99	75-125%	---	---	
Beryllium	26.4	---	0.209	mg/kg	10	26.1	0.446	99	75-125%	---	---	
Cadmium	52.4	---	0.209	mg/kg	10	52.2	0.662	99	75-125%	---	---	
Chromium	111	---	1.04	mg/kg	10	52.2	48.8	120	75-125%	---	---	
Cobalt	88.6	---	0.209	mg/kg	10	52.2	29.5	113	75-125%	---	---	
Copper	215	---	1.04	mg/kg	10	52.2	139	144	75-125%	---	---	Q-04
Lead	50.8	---	0.209	mg/kg	10	52.2	1.09	95	75-125%	---	---	
Manganese	726	---	1.04	mg/kg	10	52.2	601	239	75-125%	---	---	Q-03
Mercury	1.03	---	0.0835	mg/kg	10	1.04	ND	98	75-125%	---	---	
Nickel	109	---	1.04	mg/kg	10	52.2	48.5	117	75-125%	---	---	
Selenium	24.0	---	1.04	mg/kg	10	26.1	ND	92	75-125%	---	---	
Silver	26.5	---	0.209	mg/kg	10	26.1	ND	102	75-125%	---	---	
Thallium	24.3	---	0.209	mg/kg	10	26.1	ND	93	75-125%	---	---	
Vanadium	205	---	1.04	mg/kg	10	52.2	131	143	75-125%	---	---	Q-04
Zinc	118	---	4.18	mg/kg	10	52.2	55.9	120	75-125%	---	---	

Matrix Spike (8080783-MS2) Prepared: 08/15/18 12:57 Analyzed: 08/21/18 19:38

QC Source Sample: GLA-BG-4 (After Processing) (A8H0221-08)**EPA 6020A**

Barium	186	---	1.04	mg/kg	10	52.2	111	144	75-125%	---	---	Q-16
--------	-----	-----	------	-------	----	------	-----	-----	---------	-----	-----	------

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Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8080783							
A8H0221-02	Solid	EPA 6020A	08/07/18 12:30	08/15/18 12:57	0.452g/50mL	0.5g/50mL	1.11
A8H0221-04	Solid	EPA 6020A	08/07/18 12:40	08/15/18 12:57	0.464g/50mL	0.5g/50mL	1.08
A8H0221-06	Solid	EPA 6020A	08/07/18 12:55	08/15/18 12:57	0.495g/50mL	0.5g/50mL	1.01
A8H0221-08	Solid	EPA 6020A	08/07/18 13:05	08/15/18 12:57	0.512g/50mL	0.5g/50mL	0.98
A8H0221-10	Solid	EPA 6020A	08/07/18 13:15	08/15/18 12:57	0.454g/50mL	0.5g/50mL	1.10
A8H0221-10RE1	Solid	EPA 6020A	08/07/18 13:15	08/15/18 12:57	0.454g/50mL	0.5g/50mL	1.10
A8H0221-12	Solid	EPA 6020A	08/07/18 13:30	08/15/18 12:57	0.463g/50mL	0.5g/50mL	1.08
A8H0221-12RE1	Solid	EPA 6020A	08/07/18 13:30	08/15/18 12:57	0.463g/50mL	0.5g/50mL	1.08
A8H0221-14	Solid	EPA 6020A	08/07/18 13:35	08/15/18 12:57	0.517g/50mL	0.5g/50mL	0.97
A8H0221-14RE1	Solid	EPA 6020A	08/07/18 13:35	08/15/18 12:57	0.517g/50mL	0.5g/50mL	0.97

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- A-02** Serial dilution was performed and was within limits. Data is acceptable.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-03** Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
- Q-04** Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-42** Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits.
(Refer to the QC Section of Analytical Report.)

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Project Manager: **Gabriel Iltis**

Report ID:
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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('---- '), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) are not included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

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Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories

Lisa Domenighini, Client Services Manager

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Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Geo-Logic Associates (Lakewood, CO)
13949 West Colfax Avenue, Suite 220
Lakewood, CO 80401

Project: **Corvallis Basalt Testing**
Project Number: **Coffin Butte/AU18.1148.00**
Project Manager: **Gabriel Iltis**

Report ID:
A8H0221 - 08 24 18 1450

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

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Lisa Domenighini, Client Services Manager



Apex Laboratories, LLC

12232 S.W. Garden Place

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Lakewood, CO 80401

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Project Number: Coffin Butte/AU18.1148.00

Project Manager: Gabriel Iltis

Report ID:

A8H0221 - 08 24 18 1450

A handwritten signature in black ink, reading "Lisa A. Domenighini".

Lisa Domenighini, Client Services Manager

Exhibit 67
Page 25 of 49

Page 15 of 16

APEX LABS

CHAIN OF CUSTODY

Lab # A8H0221 COC 1 of 1

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718 0333

PO#

Company: <u>Geo-Logic Associates</u>		Project Mgr: <u>Aaron Ogorzalek</u>		Project Name: <u>Coffin Butte</u>		Project # <u>AU18.1148.00</u>																																																																																																																																																																																																																																																																																		
Address: <u>803 SW Industrial Way, Ste 211 Bend, OR 97702</u>		Phone: <u>541-678-5733</u>		Fax: <u> </u>		Email: <u>agor@geo-logic.com</u>																																																																																																																																																																																																																																																																																		
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Geo-Logic Associates (Lakewood, CO)

13949 West Colfax Avenue, Suite 220

Lakewood, CO 80401

Project: Corvallis Basalt Testing

Project Number: Coffin Butte/AU18.1148.00

Project Manager: Gabriel Iltis

Report ID:

A8H0221 - 08 24 18 1450

APEX LABS COOLER RECEIPT FORM

Client: Geo-Logic Associates Element WO#: A8 H0221

Project/Project #: Coffin Butte / AU18.1148.00

Delivery info:

Date/Time Received: 8/18/18 @ 1530 By: AM

Delivered by: Apex ☐ Client ☐ ESS ☐ FedEx ☒ UPS ☐ Swift ☐ Senvoy ☐ SDS ☐ Other ☐

Cooler Inspection Inspected by: AM : 8/18/18 @ 1530

Chain of Custody Included? Yes ☒ No ☐ Custody Seals? Yes ☐ No ☒

Signed/Dated by Client? Yes ☒ No ☐

Signed/Dated by Apex? Yes ☒ No ☐

Cooler #1 Cooler #2 Cooler #3 Cooler #4 Cooler #5 Cooler #6 Cooler #7

Temperature (deg. C) _____

Received on Ice? ☒ (Y/N) _____

Temp. Blanks? ☒ (Y/N) 5.6 _____

Ice Type: ☒ Gel ☐ Real ☐ Other _____

Condition: _____

Cooler out of temp? ☒ (Y/N) Possible reason why: _____

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA ☒

Samples Inspection: Inspected by: AM : 8/18/18 @ 1530

All Samples Intact? Yes ☒ No ☐ Comments: _____

Bottle Labels/COCs agree? Yes ☒ No ☐ Comments: _____

Containers/Volumes Received Appropriate for Analysis? Yes ☒ No ☐ Comments: _____

Do VOA Vials have Visible Headspace? Yes ☐ No ☐ NA ☒

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes ☐ No ☐ NA ☒

Comments: _____

Additional Information: _____

Labeled by: AM Witness: W Cooler Inspected by: AM See Project Contact Form: Y

Apex Laboratories

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Lisa Domenighini

Lisa Domenighini, Client Services Manager

Exhibit 67
Page 27 of 49

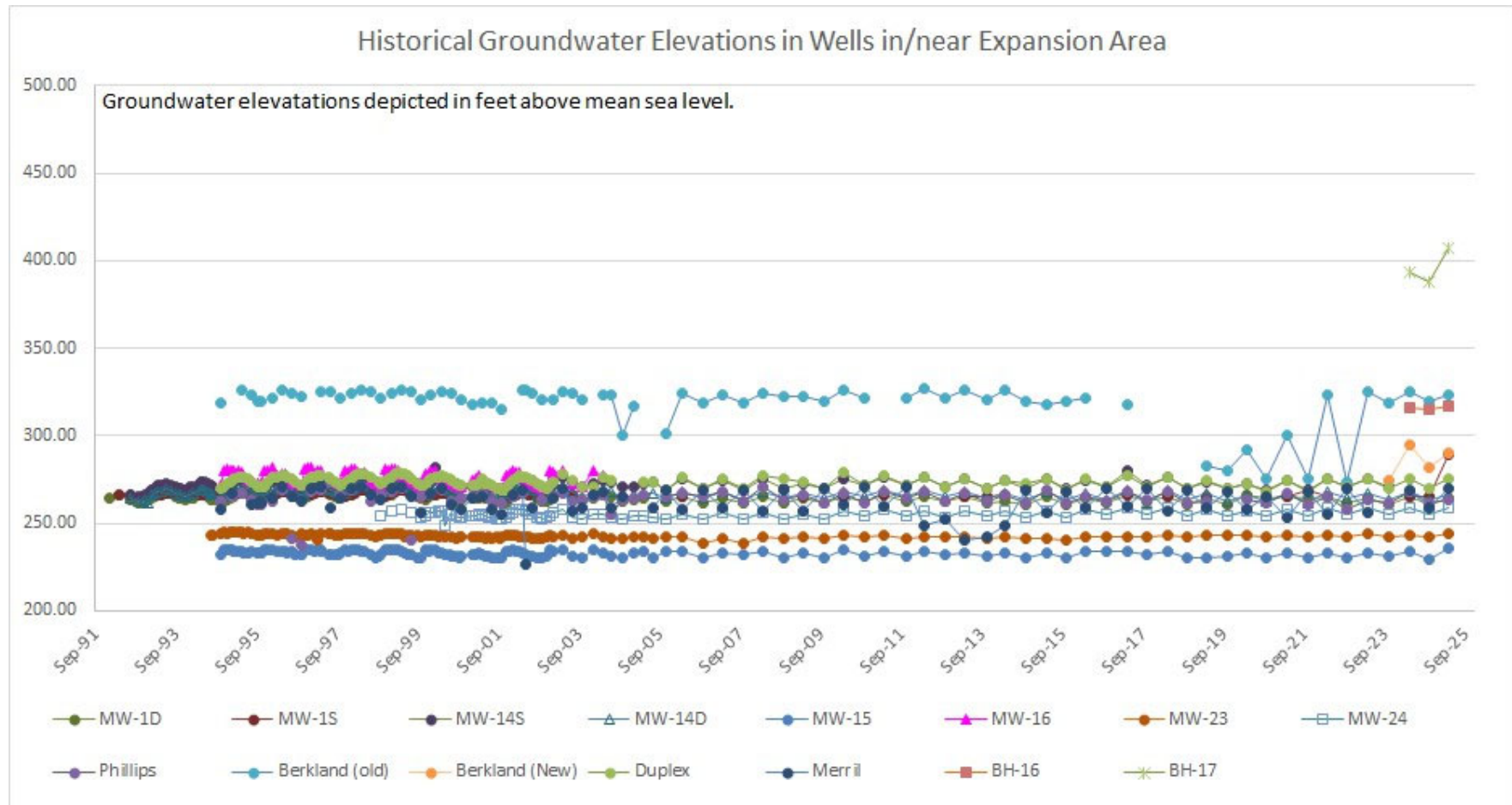
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Appendix B – Groundwater Analytes

General Chemistry	Metals	Volatile Organic Compounds	
Ammonia as Nitrogen	Antimony	1,1,1,2-Tetrachloroethane	Bromomethane
Bicarbonate Alkalinity	Arsenic	1,1,1-Trichloroethane	Carbon disulfide
Chemical Oxygen Demand	Barium	1,1,2,2-Tetrachloroethane	Carbon tetrachloride
Chloride	Beryllium	1,1,2-Trichloroethane	Chlorobenzene
Nitrate and Nitrite as Nitrogen	Cadmium	1,1-Dichloroethane	Chloroethane
Sulfate	Calcium	1,1-Dichloroethene	Chloroform
Total Dissolved Solids	Chromium	1,1-Dichloropropene	Chloromethane
Total Suspended Solids	Cobalt	1,2,3-Trichlorobenzene	cis-1,2-Dichloroethene
Total Organic Carbon	Copper	1,2,3-Trichloropropane	cis-1,2-Dichloropropene
	Iron	1,2,4-Trichlorobenzene	Dibromochloromethane
	Magnesium	1,2,4-Trimethylbenzene	Dibromomethane
	Manganese	1,2-Dibromo-3-chloropropane	Dichlorodifluoromethane
	Lead	1,2-Dibromoethane	Ethylbenzene
	Nickel	1,2-Dichlorobenzene	Hexachlorobutadiene
	Potassium	1,2-Dichloroethane	Isopropylbenzene
	Selenium	1,2-Dichloropropane	Methylene Chloride
	Silver	1,3,5-Trimethylbenzene	Naphthalene
	Sodium	1,3-Dichlorobenzene	n-Butylbenzene
	Thallium	1,3-Dichloropropane	n-Propylbenzene
	Vanadium	1,4-Dichlorobenzene	sec-Butylbenzene
	Zinc	2,2-Dichloropropane	Styrene
		2-Butanone	tert-Butylbenzene
		2-Chlorotoluene	Tetrachloroethene
		2-Hexanone	Toluene
		4-Chlorotoluene	trans-1,2-Dichloroethene
		4-Isopropyltoluene	trans-1,2-Dichloropropene
		4-Methyl-2-pentanone	Trichloroethene
		Acetone	Trichlorofluoromethane
		Benzene	Vinyl Chloride
		Bromobenzene	Xylenes-m
		Bromochloromethane	Xylenes-o
		Bromodichloromethane	Xylenes-p
		Bromoform	

Groundwater monitoring is conducted on a semiannual basis, and the results, including statistical analysis, time-series charts, hydrographs, equipotential contour maps, groundwater flow direction and gradients, and other information is provided as a comprehensive report to DEQ every year and provides the burden of proof to refute the Commissioner's allegations.

Appendix C – Well Level Data



Appendix D – Adair Fire Documentation



ADAIR RURAL FIRE & RESCUE

6021 NE Marcus Harris Ave • Adair Village, OR 97330 • Tel 541-745-7212 • Fax 541-745-2059

Broc Kienholz,
Valley Landfill, Inc.
28972 Coffin Butte Rd.
Corvallis, OR 97330

Dear Broc,

Enclosed is the response to your 6-10-2025 public records request asking for the "Adair FD to confirm that we've received 28 calls for "Fires" at the coffin Butte Landfill from 2013-2025. This will not include PRC or any dispatched personnel for other calls".

Data was gathered from run sheets, call logs and electronic reporting data to filter out all motor vehicle fires, pole fires, medical calls, motor vehicle accidents or other events at or adjacent to the landfill address. None of the fires or other calls to the PRC location are included.

Eight of the nineteen calls listed on the attached chart were confirmed fires requiring suppression efforts. The eleven investigations were responded to as working fires tying up resources until they are proven to be false alarms, typically caused by the methane stacks.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Larkin".

Mike Larkin, Staff Officer
Adair Rural Fire & Rescue

Enclosure: Page 2, Data Set.
CC: Chief Aaron Harris

Page 1 of 2

"Desire to Serve • Ability to Perform • Courage to Act"



ADAIR RURAL FIRE & RESCUE

6021 NE Marcus Harris Ave • Adair Village, OR 97339 • Tel 541-745-7212 • Fax 541-745-2059

Fire Calls to Valley Landfills 28972 Coffin Butte Road facilities from January 1, 2013, through July 25, 2025. Data does not include fires at the PRC.

Date	Run#	Location	Type
4/28/2013	13-39	Land Fill Fire	Fire
7/20/2013	13-72	Land Fill Fire	Fire
8/20/2013	13-98	Land Fill Fire	Fire
12/1/2013	13-131	99 & Coffin Butte Road	Investigation
11/25/2014	14-126	99 & Coffin Butte Road	Investigation
6/20/2016	16-59	Land Fill Fire	Fire
5/27/2018	18-51	Land Fill Fire	Fire
8/11/2018	18-84	Land Fill Fire	Fire
3/2/2019	19-35	99 & Coffin Butte Road	Investigation
12/13/2019	19-172	99 & Coffin Butte Road	Investigation
3/1/2020	20-34	99 & Coffin Butte Road	Investigation
1/17/2020	21-11	99 & Coffin Butte Road	Investigation
21-189	21-189	99 & Coffin Butte Road	Investigation
12/24/2023	23-154	99 & Coffin Butte Road	Investigation
1/7/2024	24-01	99 & Coffin Butte Road	Investigation
1/11/2024	24-06	99 & Coffin Butte Road	Investigation
2/22/2024	24-19	99 & Coffin Butte Road	Investigation
5/18/2024	24-63	Land Fill Fire	Fire
7/24/2024	24-110	Stacks Grass Fire	Fire

Appendix E – John Hower, PE, CEG - Groundwater Responses

Joel Geier.

Mr. Geier provided 12 general comments directed at County staff following by 3 “Annexes” containing more specific comments. More specific comments are provided in the “Annexes”. The general comments are re-iterated in the Annexes, and require no formal response.

Geier Annex 1, Comment 6:

Assertion: Staff suggests that groundwater impacts will be addressed by “multiple levels of state and federal regulation” but they have not identified any specific regulatory steps in which risks of impacts on nearby wells will be assessed, nor have they even contacted the most appropriate state agency (Oregon Water Resources Department).

Response: the Applicant is required to comply with all site-specific, state, and federal regulations concerning the siting, design, construction, monitoring, and closure of the CBL. With respect to groundwater monitoring and reporting, these regulations include:

- Federal regulations concerning municipal solid waste landfill environmental monitoring and reporting requirements, including detection monitoring, assessment monitoring, evaluation and selection of a remedy, and implementation of corrective actions are found in Title 40, Part 258.50 through 258.58 of the Code of Federal Regulations.
- State of Oregon regulations concerning municipal solid waste landfill environmental monitoring and reporting requirements are found in Oregon Administrative Rules Chapter 340, Division 40 and Division 94, Rule 340-094-0080.
- Site-specific environmental monitoring requirements are found in Solid Waste Disposal Site Permit No. 306 and the site-specific Environmental Monitoring Plan.
- Oregon Department of Environmental Quality (not Oregon Water Resources Department) is the lead agency responsible for ensure proper implementation and adherence to these regulations.

Geier Annex 1, Comments 7-8. Comment directed at County. No response required.

Geier Annex 1, Comment 9.

Assertion: *Information presented by the applicant on groundwater topics is misleading on numerous counts, possibly deliberately so. It is also inadequate to support the applicant’s claim that groundwater resources will not be adversely affected, either in terms of quantity or quality.*

Response: See specific responses below.

9.a. Seismic disturbances from blasting

Assertion: the Applicant did not address how far and how strongly seismic waves propagate from blast holes.

Response: In fact, previous responses to comments do exactly that: The anelastic response to blasting is expected to be limited to about 15 feet from the blasting borehole. In addition, past seismic monitoring shows that at a distance of 1100 feet, the peak particle velocity is far below levels of concern for damage to structures.

Assertion: the Applicant and its consultants do not understand the seismic wave velocity/seismic wave amplitude from blasting and how it relates to building damage.

Response: The term “seismic velocity” referenced in the Applicant’s response is the peak-particle velocity, which is a key metric in evaluating potential damage to residential structures associated with blasting operations; not the shear wave or seismic velocity that the author states it to be. The seismic measurements conducted by the Applicant follow typical industry standards for monitoring blasting operations.

Assertion: the Applicant has not addressed whether the natural fracture system could be affected by blast-induced seismicity. Applicant should evaluate fracture effects following an earthquake.

Response: Earthquakes and blasting events are very different ground motion events. Earthquakes are typically characterized by low frequency, high velocity, longer duration shaking events that release far more energy by even a magnitude 1 event than a blasting event of the size that would be deployed in the proposed CBL expansion area, which is characterized by high frequency, low velocity, very short duration shaking. Stating that blasting can affect groundwater elevations because earthquakes affect groundwater elevations is a technically inappropriate comparison. The better comparison is to look at the response of groundwater levels at the CBL to past blasting events and extrapolating those effects to the expansion area. Groundwater elevations in the CBL monitoring network have not shown a long-term effect to blasting or landfill development operations. Consequently, it is very unlikely that blasting and landfill development in the proposed expansion area would affect groundwater conditions

the Applicant’s commitment to installing and monitoring sentry wells and nearby residential water supply wells (upon gaining permission to do so from the residents) is an appropriate and adequate means in which to evaluate groundwater conditions surrounding the expansion area.

Comment 9.b: Regarding Dewatering Effects on Neighboring Wells

Assertion: Applicant has not provided the mathematical formula used, nor the results, nor the parameter values that they assumed as input for their calculation.

Response: the Applicant used the Dupuis solution supported by conservative assumptions of hydraulic conductivity and fracture interconnectivity to estimate the effect of the proposed expansion development on groundwater conditions upgradient of the proposed expansion area. Recognizing that this is a simplified estimation of groundwater flow, the Applicant is committing to conduct a hydrogeologic investigation of the proposed expansion area to obtain specific information about fracture spacing, distribution, interconnectivity, boundaries, and hydraulic properties. The results of the hydrogeologic investigation will be used to construct a working hydrogeologic model of this portion of the landfill and to site and design sentry wells. Sentry wells along with residential water supply wells will be used to monitor groundwater conditions during and following landfill expansion. If the monitoring data suggest that the development and operation of the expansion area are having a deleterious effect on the community water supply, the Applicant is committed to working with the community to develop a mutually-acceptable solution to mitigate the condition.

Comment 9.c: Arsenic.

Assertion: the Applicant “cherry picked” the information from the USGS study by Hinkle and Polette (1999), omitting mention of contradictory evidence.

Response: Not all data found in the Hinkle and Polette 1999 study are applicable to the geologic conditions at the CBL. the Applicant used the data and findings from that study that appeared most applicable. The important finding from the Hinkle and Polette 1999 study is that arsenic occurs naturally in groundwater in large portions of the State of Oregon at concentrations that are similar to those measured in groundwater at CBL.

Assertion: the Applicant misled the County about the arsenic levels near the CBL - of the wells and spring near the CBL that are referenced in the USGS study, only one contained arsenic at a concentration that exceeded the maximum contaminant level.

Response: the Applicant notes that the presence of arsenic in groundwater near the Coffin Butte Landfill is due to two factors: naturally-occurring arsenic in the screened water-bearing zone and a low dissolved oxygen content of the water-bearing zone. Both are needed to yield high concentrations of arsenic in the groundwater. If either factor is absent in the wells cited by the author in the USGS study, then elevated arsenic would not be flagged in the USGS report for those wells and the spring. The dissolved oxygen content of groundwater in the USGS study was not presented, and so it is not possible to conclude that the low arsenic concentrations were because the wells were screened in formations with low arsenic concentrations or the groundwater contained moderate to high dissolved oxygen concentrations that would have precipitated the arsenic out of groundwater.

Assertion: The commentor, citing the 1999 USGS study by Hinkle and Polette, asserts that arsenic is from the rhyolitic and intermediate-compositions of volcanic rock of the Eugene and Fisher formations of Lane and Line counties.

Response: The quotation cited by the commentor actually acknowledges that arsenic can come from basalts. When reviewing the entire quotation cited, it reads: “High arsenic concentrations in Lane and Linn Counties appear to be associated with two regionally extensive associations of rocks, the Fisher and Eugene Formations and correlative rocks, and the undifferentiated tuffaceous sedimentary rocks, tuffs, and **basalt**.”

The CBL is underlain by the Siletz River Volcanics, not the Fisher and Eugene formations, so comparison of the arsenic concentrations in those formations is not meaningful. Arsenic is known to occur in soils derived from the Siletz River Volcanics, which are composed primarily of pillow basalt, basalt breccia, and tuffaceous and marine deposits. A 2013 Master’s degree thesis published by Portland State University (Ryan Rickard, Tracy, 2013, “Arsenic in the soils of Northwestern Oregon”) found arsenic at concentrations ranging from 2.62 to 2.68 milligrams per kilogram in samples collected from Siletz River Volcanics just west of the City of Corvallis. At those concentrations it is conceivable to produce dissolved concentrations on the order of those observed in groundwater at wells MW-9S, MW-26, and MW-27 near the eastern property boundary.

Assertion: the Applicant’s presentation of data from monitoring wells at CBL is also misleading. The scale is 10 times the maximum range of the data. The most recent data were omitted from the graphs.

Response: The scale of the graphs presented in the June 12, 2025 memorandum was selected to compare the chloride and arsenic data from all three wells at the same scale. The most recent data were not intentionally omitted, but had not been updated into the Applicant’s database. The new data do not change the interpretation of groundwater conditions in this area of the landfill.

Assertion: The AEMR statement about leachate seepage near MW-23 contradicts the statement in oral testimony on July 9th, that there has never been a seepage event from any of the lined cells at Coffin Butte.

Response: The statement made during oral testimony was factual: there has not been leachate discharged through the lined sections of the landfill. The seepage that occurred from Cell 2 was from an open face of the landfill; it did not occur by leakage through the liner system. This seepage occurred prior to the Applicant taking ownership and operational responsibility for the CBL.

Assertion: The second plot in Exhibit 49 (reproduced in the commentor's written statement) shows that the initial measurement of chloride in MW-9S was about 50 mg/L, but soon jumped by nearly a factor of 6.

Response: Well MW-9S was constructed about 40 years ago. It was common practice to introduce potable water to a monitoring well during the well development process to aid in the removal of sediment in the screen and filter pack. Samples were typically collected immediately after development was completed and often contained some amount of the potable well-development water. This resulted in diluted samples that were not representative of aquifer water quality. This phenomenon can be seen in time-series charts for many wells that were constructed during this time period.

Assertion: The commentor notes that lower chloride levels are seen in the two compliance-boundary wells, MW-26 and MW-27, but states that this does not necessarily rule out that the high levels of arsenic observed in those wells could come from past or ongoing leaks.

Response: A release from a landfill is not characterized by elevated concentrations of a single monitoring parameter. As the commentor stated previously, the discharge from Cell 2 resulted in increases in hardness, bicarbonate alkalinity, chloride, TDS, dissolved metals AND arsenic in samples from well MW-23. Likewise, if a leak were to have occurred from the eastern portion of the landfills, concentrations of several monitoring parameters would increase over time. Furthermore, concentrations of arsenic in samples from wells MW-9S, MW-26, and MW-27 are NOT increasing over time. Concentrations show temporal variability inversely proportional to dissolved oxygen concentrations.

Assertion: As noted by the Applicant's consultants, chloride and arsenic have different mobility in the subsurface environment. This means, for example, that arsenic released by seepage from a zone of anoxic conditions below the landfill could precipitate in soils as a leachate plume emerges from under the landfill, even as chloride is carried onward by the groundwater.

Response: It is for this very reason that groundwater at the CBL is monitored for more than 60 monitoring parameters.

Assertion: The commentor suggests that groundwater flow conditions can change the position of a leachate plume.

Response: No leachate plume has been identified from lined portions of the landfill. The groundwater flow conditions at the landfill have not changed significantly since monitoring began. The adequacy of the environmental monitoring network is evaluated by ODEQ with submittal of every annual monitoring point and with submittal of each Environmental Monitoring Plan. compliance boundary.

Comment 10:

Assertion: Applicant provides no model results or other calculations to justify the position of these wells or why just two or three wells just outside the landfill footprint should be sufficient.

Response: Please see response to comment 9.b.

Comment 11: Critique of Benton County staff. No response needed.

Comment 12:

Assertion: Benton County conditions of approval are not legally binding.

Response: The conditions of approval are legally binding and are subject to enforcement by the County up to and including revocation of the CUP.

- Note: all work conducted under the supervision of a State of Oregon Registered Professional Geologist. John Hower not registered to practice in State of Oregon. Gary Lass (John's supervisor) is a State of Oregon Engineering Geologist. Eric Tuppan is a State of Oregon Licensed Geologist
-

Commentor: Camille Hall

Assertion: Blasting and excavation and excavation will affect groundwater and wells on adjacent properties.

Response: Please see response Geier Comment 9.a.

Assertion: Groundwater from the north half of the landfill or expansion area will contaminate wells on adjacent parcels.

Response: Groundwater from Tampico Ridge flows toward the landfill. It does not flow from the landfill toward Tampico Ridge. As a result, it is not reasonable to expect groundwater from the landfill to affect water quality in wells along Tampico Ridge.

Assertion: The applicant does not provide evidence to convince us of the factual basis for this assumption.

Response: The groundwater elevations, flow directions, and gradients beneath the existing landfill have not changed in response to the lined development of the landfill over the last 30 years. This observational evidence is reported in every annual monitoring report.

Commentor: Kate Harris

Assertion: PFAS found near WWTP, PFAS regulations are lacking, Republic should fund PFAS testing in Adair Village.

Response: None needed.

Commentor: Jenny Saarloos

Assertion: Promises can be made to keep the leachate from getting to the groundwater. But there is no way to guarantee that.

Response: The proposed expansion will be fully lined with a state-of-the-art composite liner system. The composite liner system will be constructed under third-party construction quality assurance observation and testing, including geo-electric leak location surveys to ensure the integrity and function of the constructed liner. Leak detection layers will be integrated into routine monitoring program, and will be sampled to evaluate future liner system performance. Groundwater monitoring will continue to identify potential impacts to water quality. These design, construction, and monitoring practices provide assurances that environmental quality will be maintained throughout the active life and post-closure period of the landfill.

Appendix F – Joe Bessman, PE - Construction Traffic Memo

Date:	August 25, 2025
To:	Petra Schuetz
From:	Joe Bessman, PE
Project Reference No.:	1539
Project Name:	Coffin Butte Landfill Appeal



This memorandum supplements the record for the Coffin Butte Landfill expansion with a response to transportation comments from the Benton County Planning Commission recommendation for denial. There were two comments within the decision that this response addresses:

Comment 1: Traffic Impact Analysis submitted by applicant does not include 3-4 years of construction traffic, increase of traffic from nearby housing developments traffic– witness accounts used in part to determine traffic impacts...leaving questions regarding modeling used and validity of report.”

Comment 2: Traffic impact analysis that does not address remaining 35% increase of waste intake at current site, simultaneously as the blasting and development of proposed site, the filling of Cell 6 simultaneously or any impact from removal of tonnage cap – based on assumption traffic volumes will not change”

A response to each of these comments is provided below.

Comment 1: Quarry (Construction) Traffic Inclusion

Response: The transportation impact analysis for Coffin Butte was finalized in February 2024 and supplemental information responsive to this comment was provided on May 23, 2025 within the public open record period. As summarized within these materials, trip rates for landfills are somewhat variable depending on the amount of public versus commercial access, as well as the landfill tonnage and area supported. To capture the specific characteristics of Coffin Butte Landfill, traffic counts were collected at the site entrance and surrounding roads in January 2021, March 2021, January 2022, September 2023, and April 2025. The actual volume of entering cars and trucks was used to identify current operations.

The activity captured at Coffin Butte Landfill not only captured trips associated with the landfill, but also with the adjacent construction of the former Knife River quarry site, which was being excavated to serve as the future landfill site. Accordingly, the traffic counts include quarry trips (construction trips) plus landfill trips. In fact, the April 2025 traffic counts even included the accelerated construction of the landfill expansion area to the west to enable near-term use of this airspace.

As noted, the traffic study does not directly account for any nearby housing development traffic using what is commonly referred to as “in-process trips” – there were no nearby housing developments identified by staff within the scoping process that contribute trips onto Coffin Butte Road or impact the study intersections. The study does, however, broadly account for traffic growth as part of regional housing changes using growth rates identified in the Linn-Benton Transportation System Plans.

The traffic study was reviewed by County staff, ODOT staff, and the County's consultant reviewer. Each reviewer found that the traffic study reasonably assesses the system impacts and agreed with the reports' findings and conclusions.

Comment 2: Increased Waste Accommodation

Response: This comment was previously addressed within "Comment 1" of the June 17, 2025 VNEQS response that was submitted into the record. Republic Services has stated that there are no plans to modify site operations beyond its current tonnage. Regardless, the Transportation Impact Analysis had been prepared assuming that the current level of traffic and nearby quarry (landfill construction) operations could increase by 50% within the future analysis scenario. This analysis found that the study findings do not change, and all of the study intersections continue to operate acceptably and well within their carrying capacity.

As previously noted, tonnage and trips are not directly correlated; the presence of transfer stations that "intercept" landfill trips results in fewer trips with larger trucks (heavier loads and higher per-vehicle tonnage) from longer distances. Some transfer stations also include solid waste compactors, which can increase tonnage within an equivalent volume. Accordingly, as the site is already a regional landfill that provides trash services for adjacent counties, any increase in tonnage would necessarily occur from longer-distance transport. A 35 (or 50) percent increase in site trips (which would predominantly consist of larger transfer trucks rather than personal vehicles, dump trailers, or even garbage trucks) equates to more than double the current tonnage and would still provide a very conservative analysis. There are no current plans by Republic Services to increase its operations at the site, but operational fluctuations have occurred historically, and the site's transportation elasticity can readily support these levels.

The comment indicates that new waste streams will occur that will change the results of the traffic study. It is not clear from the comments where the additional 35% of waste intake will come from, but the assumptions within the traffic study fully account for this level of change, as well as the simultaneous blasting and development of Cell 6 (which is largely an on-site operation that does not impact the public street system). The traffic study accounted for conditions at Coffin Butte with the accelerated Knife River construction of an adjacent landfill cell (Cell 6), as well as on-going monitoring and maintenance of older cells. The construction of the proposed expansion site would be similar to these prior activities. Again, the traffic study does not assume traffic volumes will not change, it demonstrates that the system has capacity for the volumes to change by 50% while continuing to operate acceptably with low delays for traffic turning onto or off of Coffin Butte Road.

Assessing construction conditions at a higher level of accuracy is not possible at this time. There are no construction plans developed for the site, and these will vary seasonally and depending on the subsurface materials encountered. If there is a need for a crossing of Coffin Butte Road this could readily be accommodated on this low-volume rural Collector, but further coordination will be required with the County when additional details on the specific location, types of construction vehicles, and duration are known. The prior traffic counts collected by Benton County staff and third-party data collection firms show about one eastbound or westbound vehicle every five minutes on Coffin Butte Road east of the Soap Creek Road intersection during the evening peak hour, and about one vehicle every two minutes during the early afternoon peak hour when the Knife River Quarry site was in operation. When Knife River was operating with an accelerated schedule there was nearly one vehicle in either direction per minute (between 2:00 and 3:00 p.m.), with about 75% of these associated with the quarry. With this elevated level of site operations all of the study intersections operated acceptably at Level of Service "B" or better, which is well within Benton County performance standards.

NEXT STEPS

As discussed at the Planning Commission hearings, the traffic study for the landfill expansion accounts for expanded operations, adjacent landfill construction, and general population growth, despite the Benton County Talks Trash (BCTT) report showing “steady annual tonnage intake of between 1 million and 1.1 million tons for the duration of the landfill’s projected remaining site life.” (BCTT, pp 618). Even in a highly aggressive and conservative analysis scenario with a 50% increase in site trips all of the study intersections will operate acceptably, indicating substantial system resiliency. These findings have been reviewed and agreed to by County staff, ODOT, and the County’s consultant review team.

Thank you for the opportunity to provide these transportation materials in response to the Planning Commission findings, if you have any questions I can be reached at (503) 997-4473 or via email at joe@transightconsulting.com.

Memorandum

DATE: September 10, 2025

TO: Jeff Shepherd, PE – Civil & Environmental Consultants, Inc.

FROM: Adam C. Jenkins, PE, INCE Bd. Cert., CTS-D
Justin Morgan, INCE

RE: Republic Services Coffin Butte Landfill – Construction Noise Assessment

This memorandum provides responses to findings relating to noise identified in the Benton County Planning Commission Decision on the Conditional Use Permit for the expansion of the Coffin Butte Landfill issued on July 22, 2025 (Decision). Many of the findings pertained to noise that would be produced during the construction of the expansion area. Additional sound level measurements and analysis were completed since the Decision was issued to investigate concerns identified in the Decision. While not referenced in the Decision, a discussion of vibration levels from blasting activities is also presented since it was mentioned during public testimony.

Exhibit A-1 Fowler Opening Statement

I am particularly moved by adjacent neighbor testimony indicating blasting is causing stress on livestock, impacting their livelihood. One top of existing operation noise, the expansion will have three to four years of six to eight months per year of major earth moving in advance of operations. Anyone with pets on the 4th of July not only empathizes but can see adverse impact from development noise. And, blowing debris also threatens livestock. These are serious interferences, not nuisances. Fencing may, but is not guaranteed, to address ingestion risk to livestock. I do not see how the existing proposed conditions of approval sufficiently mitigate the impact of noise on both the agricultural and residential zones.

Operations within the expansion area are anticipated to be quieter than median existing sound levels and up to 6 dB above the quietest existing daytime sound level. Please refer to the response to Exhibit A-4, Biscoe Opening Statement for additional information regarding construction noise and blasting.

Exhibit A-3, Lee Opening Statement

53.215.1 Noise seriously interferes with uses on adjacent properties and the character of the area:

The applicant stated: Typically, construction activity to site a proposed use is not considered part of the impact for conditional use review.

I believe I have the option to disagree.

Noise levels already cause concerns. The applicant proposes blasting and other construction noise to take place over the span of at least 4 years, on top of the noise levels already causing complaint.

OP-2 is intended to mitigate noise only after commercial operation begins, and specifically not during the construction phase. This is not adequate to respond to interference with uses on adjacent properties and the character of the area from the application.

OP-2 relies on reporting noise. Enforcement of this COA would result in lots of reports, but no mitigation.

Please refer to the final comment response to Exhibit A-4, Biscoe Opening Statement for additional information regarding construction noise and blasting .

Exhibit A-4, Biscoe Opening Statement

Expansion impacts of the construction period, reported by RS to be up to 8 months for up to 4 years, resulting in 32 months of blasting, truck hauling rock, increased traffic and noise (Joel Geier, May 6, 2025) – this is not part of the conversation when we consider noise, odor, traffic, livability for nearby neighbors – not been considered in the application and not presented here other than intermittently by public testimony.

Construction noise and noise generated by blasting operations have now been assessed. Please refer to the response to the final comment response for additional information regarding construction and blasting noise.

Noise pollution and heavy truck and waste hauling traffic has been a persistent complaint topic regarding current operations of the Coffin Butte Landfill. The expansion application did not address noise concussions, increased heavy truck traffic to remove 2.1 million cubic yards of blast material from the expansion site, and other heavy equipment noises and impacts for the construction of the expansion area, including removal and mitigation of the current leachate ponds. The combined adverse impacts, undue burden and serious interference of the region due to the noise and traffic increases of the combined current operations and the expansion area were not addressed, including any reasonable mitigation to the region or surrounding properties proposals by Republic Services.

An assessment of construction noise has now been completed, including noise from blasting and hauling activities within the expansion area. Please refer to the final comment response in this section for additional information.

Construction phases of expansion are not included in the LU-24-027 application analysis. There is insufficient information on combined traffic and noise, impacts resulting from applicant reported 2.1 million cubic yards of rock blasted and removed – An estimated 147,000 – 220,000 truckloads for just the expansion phase of this application and easily calculated by the most common size of hauling trucks and volume of material removed. This phase is expected to take place over an estimated 32 months of the next 48... continuously for 6-8 months at a time.

Sound levels generated from blasting are regulated by the Oregon Administrative Rules (OAR) Section 340-035-0035, which prohibits sound levels at nearby properties from exceeding 98 dBC (slow response, LCS_{max}) between the hours of 7 a.m. and 10 p.m. and 93 dBC (slow response, LCS_{max}) between 10 p.m. and 7 a.m. Although sound levels from construction operations are not regulated by local or state noise ordinances, sound levels produced during the construction phase and blasting have now been assessed.

Sound level measurements were made of blasting and construction equipment in existing Cell 6 on August 25th and 28th, 2025. Sound levels from bulldozers, excavators, empty and full haul trucks, rockdrills, and blasting were measured. This information has been used to predict sound levels in nearby areas from construction and blasting operations occurring within the expansion area.

Construction equipment was located within a computer noise model at locations and elevations where construction is likely to occur based on information provided by Republic Services. Haul routes through the expansion area were also included in the model. Equipment sound levels used to model construction noise emissions were based upon the sound levels measured from construction equipment on August 25th and 28th, 2025. Similar construction activities were modeled at three locations within the expansion area, all operating concurrently, and each with a separate haul route. Each haul route was assumed to include 20 haul trucks per hour.



The results of the noise modeling indicate that construction noise will be up to 5 dB louder than median existing daytime L₅₀ sound levels in the area. Increases to the existing daytime sound levels are anticipated to be highest near Locations 1 and 4 (please refer to the Republic Services Coffin Butte Landfill Noise Study dated September 25, 2023 for the locations of predicted sound levels).

Sound levels generated by blasting were also modeled. Blasting operations were measured at a nearby site to represent similar soil types found within the expansion area. Sound levels were measured approximately 300 feet away from the blast and the loudest 1-second LCS_{max} recorded during the blast was used as a source level in the noise model. Sound levels used in the computer noise model are likely conservative because the charges that will be used within the expansion area are likely to be less powerful than the ones measured near the site. Blasting was modeled near the southwest corner of the expansion area at the highest elevation that blasting is likely to be needed.

Based on the results of the noise modeling, the loudest 1-second LCS_{max} sound level anticipated to be experienced from blasting is 88 dBC at Location 4, which is 10 dB quieter than the daytime sound limits for blasting identified in the Section 340-035-0035 of the OAR.

In addition to modeling sound levels from blasting, vibration generated by blasting was also modeled. Vibration produced by blasting was measured at four different distances from blasting operations within Cell 6 and was used to predict how vibration propagates through similar soils as those found within the expansion area.

Criteria for potential cosmetic damage to buildings found in the Federal Transit Administration Transit Noise and Vibration Impact Assessment Manual dated September 2018 (FTA Manual) were used. Damage criteria used by the FTA Manual applies to the foundation of structures and is based on the construction of the structure. FTA Damage criteria is shown in Table 1.

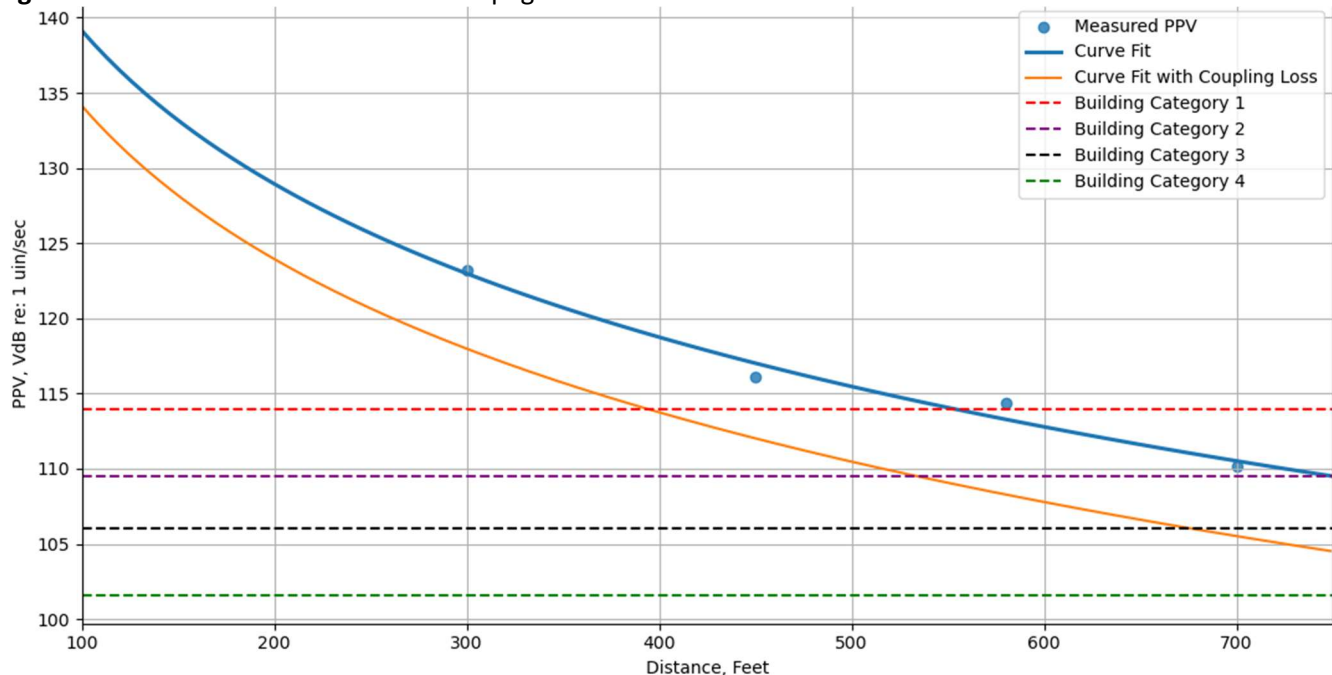
Table 1 FTA Damage Criteria

Building/Structural Category	PPV, in/sec	PPV, VdB re: 1 µin/sec
1.Reinforced-concrete, steel or timber (no plaster)	0.5	114
2.Engineered concrete and masonry (no plaster)	0.3	110
3.Non-engineered timber and masonry buildings	0.2	106
4.Buildings extremely susceptible to vibration damage	0.12	102

The FTA Manual also includes typical coupling losses between soil and a variety of structures and types of foundations. Based on this information, the typical attenuation between soil and wood-framed houses is typically -5 dB.

Measured peak particle velocity levels, resulting vibration propagation curve, and vibration propagation curve including coupling loss between building foundations and the soil are shown in Figure 1. The resulting R² value of the curve, which is a measure of how well the curve is fit to the data, was 0.99, and a curve fitting the data exactly would have a value of 1.

Figure 1 Measured PPV and Vibration Propagation Curves

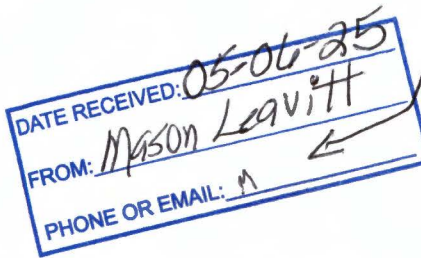


Vibration levels from blasting within the expansion area are anticipated to be less than those measured within Cell 6 and therefore the levels shown in Figure 1 would likely be lower. Reduced vibration levels will likely result from the use of smaller charges within the expansion area. Additionally, vibration propagation was measured through rock that was exposed in Cell 6. The foundations of structures situated near the expansion area are unlikely to be within the same hard subsurface as blasting and therefore vibration propagation between the rock being blasted and the looser surface soils would reduce vibration levels received at the structures.

In conclusion, construction noise is anticipated to be up to 5 dB louder than typical existing daytime levels, which will not result in any significant noise effects. Sound from blasting is predicted to be 10 dB quieter than the sound limits for blasting identified in the OAR, which is approximately half as loud as what is allowed by Code. Vibration from blasting is not expected to affect any existing structures within 675 feet of the center of the blast site, therefore no structures will be affected.

Sincerely,

Adam C. Jenkins, PE, INCE Bd. Cert., CTS-D
Vice President – Acoustical



MLeavitt@BeyondToxics.org
LU-24-027
Mason Leavitt GIS Analyst
120 Shelton McMurphy Blvd
Suite 280, Eugene OR, 97401

Becky Merja, speaker 67 and Todd Rowland, Speaker 69 have ceded their time to me. I am speaking for 9 minutes today.

My name is Mason Leavitt, and I am testifying on behalf of Beyond Toxics, a decades old Oregon Based environmental organization that fights for all Oregonians to have access to clean, safe air, water, and land. Our organization has worked with Soap Creek Valley and Adair Village Residents for three years to find solutions to many of the challenges posed by this facility, and I have been there through that journey.

My background is based in Geographic Information Systems or GIS, and I have been trained to map and analyze spatial data.

Today I want to draw attention to the odor study, which the county has determined as grounds for denial. This is due to the fact the applicant used an outdated software version and did not adequately take elevational differences into account. I wish to elaborate on why this odor study is neither **comprehensive nor objective**. But, first, I want to add some related details to the record.

One, the applicant highlighted the newly installed enclosed flare as an important piece of infrastructure to manage landfill gas. I want to note for the record that DEQ announced the requirement of enclosing all landfill gas flares in 2022. The applicant received multiple notices and extensions to comply with this requirement, and failed to do so resulting in an enforcement notice from DEQ. It's installed now, but this process is illustrative of how laborious it is to get the applicant to respond to required operating conditions.

Two, the applicant has waited until last week's hearing to announce their intentions to install fence line monitoring for odorous pollutants. Beyond Toxics and residents have been pressing for this for years now, and that technology has been available the entire time. I want to note that the applicant's odor study chose not to incorporate any real time air monitoring despite the availability of that technology.

Third, I want to problematize the applicant's claim they found 99% of odor complaints to be "impossible" despite acknowledging they were working with an incomplete data set that does not have the time or location of odor detection. It's worth elaborating on this. How can we know someone didn't smell the landfill because the wind was blowing the opposite direction of their location, if we do now know their location or the wind direction at the time of their complaint? Additionally, when we find a model invalidates 99% of human experiences, we typically conclude the model is wrong. I teach GIS part time at the UO, and I would fail any student who would make a similar claim to the applicant without additional explanation.

Next, I want to turn to some additional assumptions of the applicant's odor study that need more explanation. The applicant has chosen to go with an atmospheric modeling system

using weather data from Coffin Butte, Salem Airport, and Corvallis airport. Using this data, they have made an educated guess on how air has moved around in the nearby area of the landfill.

As the famous saying goes: "All models are wrong, but some are useful." Models have fundamental limitations and they cannot and do not reflect all the complexities of the real world. Modeling is a great tool but it is not the entire picture and there are many other tools in the toolbox the applicant has chosen not to deploy including the air monitoring I mentioned above.

Models are a series of mathematical equations- if you change the numerical inputs or the parameters, you get different results. Choosing those inputs is not an objective decision- it is subjective to the applicants preferences.

One of the most important assumptions made by the applicant is that the facility has a 25% fugitive emissions rate - mind you, I want to note that they used to claim it was 10%- the best in Oregon before quietly revising those numbers last year. Recall, fugitive emissions are landfill gas emissions that are not captured by gas extraction wells and other gas controls. I want to complicate that 25% assumption made by the applicant. Planning Commissioners brought up two important questions last session I would like to answer:

1. What about all the photos of holes in Coffin Butte's covers and tarps meticulously documented by residents? Recall, the applicant stated they do regular surface emissions monitoring to repair these holes. This prompted the second question.
2. Do we have results of the surface emissions monitoring done by the applicant?

First, let's look at the EPA: Coffin Butte has been inspected twice by the US EPA inspections which uncovered over 100 violations, some of them 200 times the regulatory limit. The first time EPA inspected the landfill in 2022, Coffin Butte had done their own SEM monitoring 10 days prior where they found 6 leaks between 500ppm and 1,500 Ppm. The EPA found 71 leaks between 500 ppm and over 70,000 ppm and they only monitored a small portion of the landfill. They also found that the applicant had been not complying with several standard testing procedures required by Oregon Law. A similar story occurred in 2024 with 41 leaks between 500 and 118,000 ppm. the applicant is currently under investigation for failing to meet Clean Air Act standards.

Second, I have analyzed surface emissions monitoring reports submitted to DEQ by all Oregon Landfills legally required to do so. I found records that show that Coffin Butte is choosing not to monitor 56% percent of their landfill surface area in SEM using a legal loophole (**Exhibit A**). This is above average for privately operated landfills in Oregon which omit 50% on average. Publicly operated landfills omit about 10%. Coffin Butte claims that some of their slopes are too steep or too covered in vegetation meaning they can't monitor them. These are slopes operators designed and vegetation they chose not to maintain, and the legality of these exemptions are ambiguous at best or illegal at worst.

Additionally, Third party satellite flyovers have found massive plumes of landfill gas that can be observed from space. They have flown over Coffin Butte 6 times over the last two years, and found leaks 100% of the time.

The working face, where garbage is currently being deposited, is a site of significant fugitive emissions. Coffin Butte claims they limit their working face to a half acre at any time. I have submitted nearly a dozen random satellite images showing otherwise (**Exhibit B**). They also claim they cover it with daily cover at the end of each working day. Photographs show otherwise.

Additionally, I have used air monitoring equipment to document hydrogen sulfide levels at residential households. This is the classic rotten-eggy smell we have all smelled in our garbage. Through monitoring, we have found Hydrogen sulfide levels between 250 and 500 ppb. This is well over the human detection threshold of 30 ppb (**Exhibit C**)

I also worked with Linfield University students to conduct a door to door survey of all 500 homes in Adair Village. Of 126 households that spoke to us, we found 60% of residents reported regularly smelling the landfill, and many were specific that the smell is distinct from the compost facility. 20% of residents reported having modified their daily activities to avoid going outside due to the smell being unbearable or concerns over exposure to toxics.

Remember, all models are wrong, but some are useful. The applicant's model is serving a purpose to cast doubt on hundreds of people's lived experiences. The applicant has offered no explanation for the discrepancy between their odor study results and the experience of residents. They have offered no explanation of why their gas collection system is failing and how they plan to fix it. I urge the planning committee to believe the residents' experiences, and to acknowledge the applicants reliable record of bad behaviour.

Exhibit A

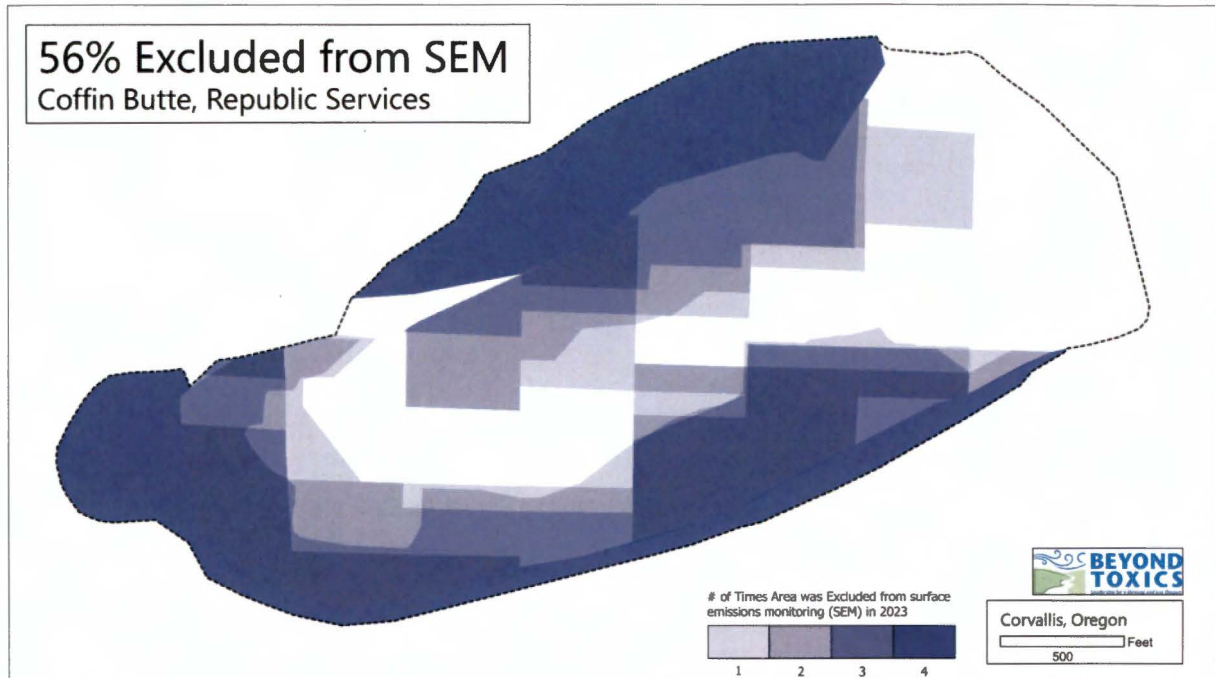


Exhibit B







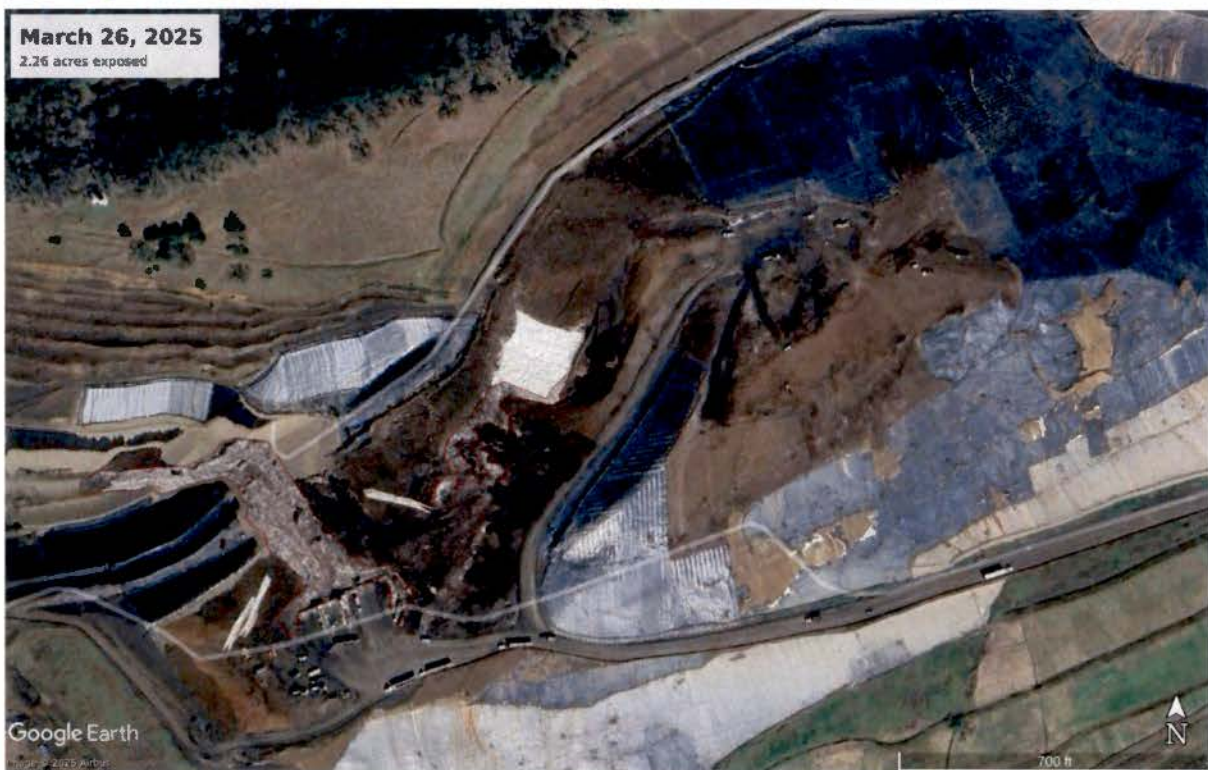
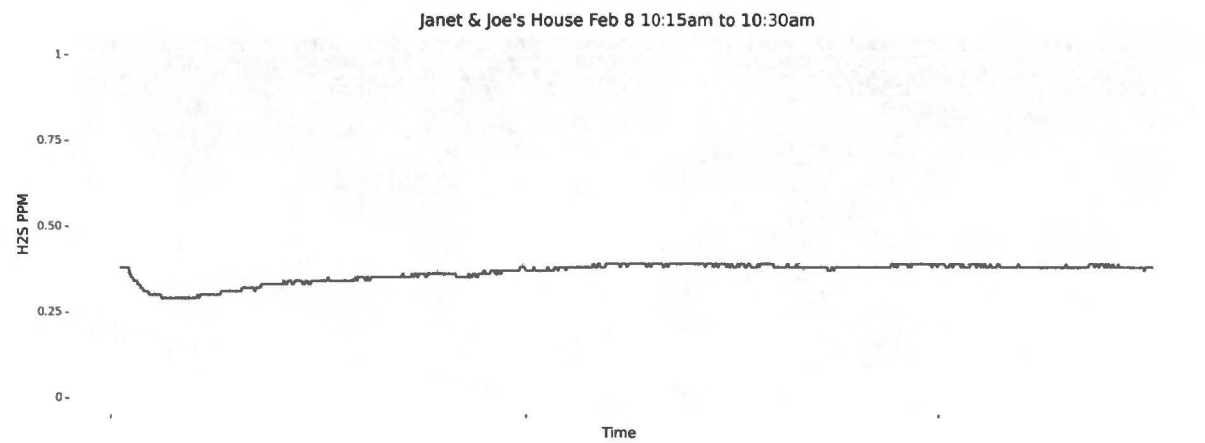
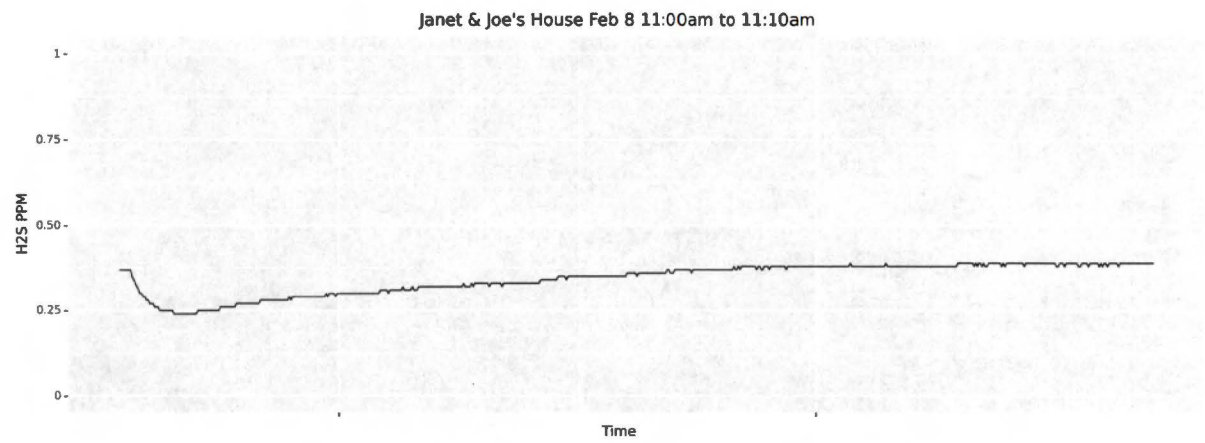
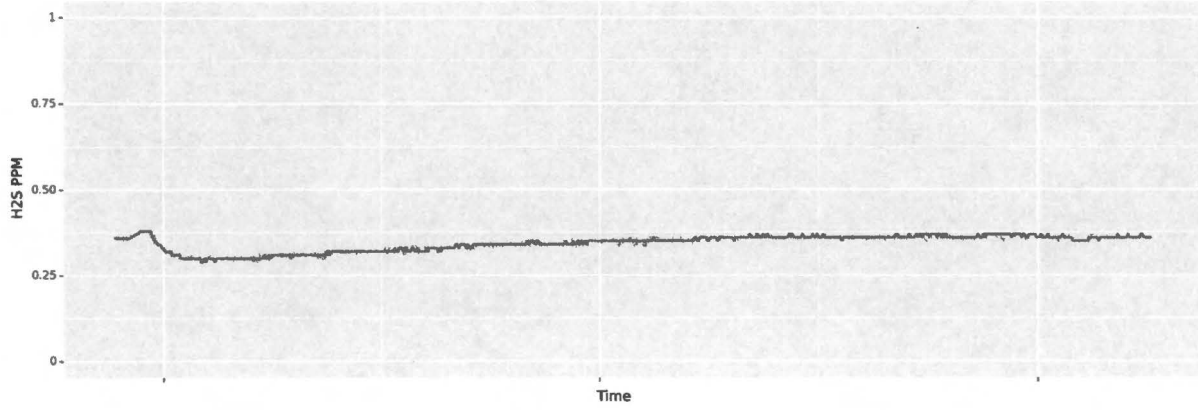


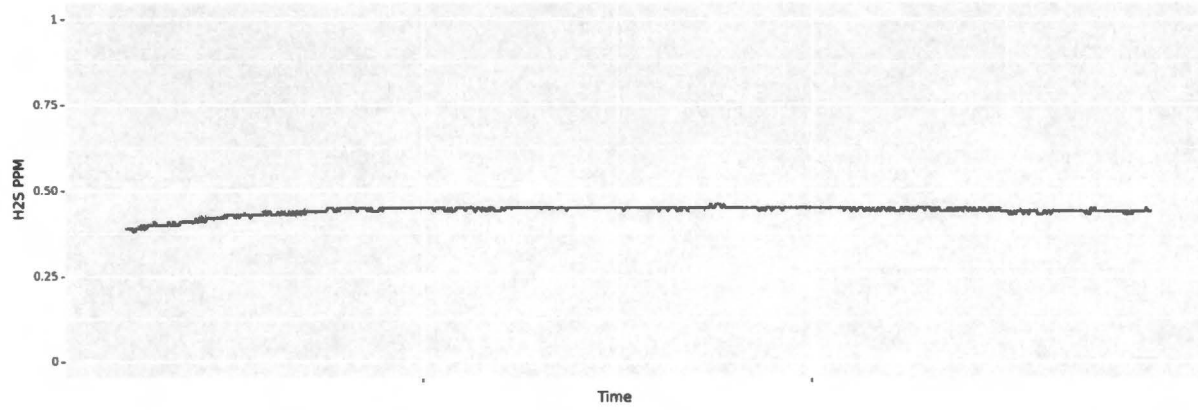
Exhibit C (Note graphics are in PPM. Convert to PPB= PPM x 1,000)



Janet & Joe's House Feb 9 11:20am to 11:30am



Janet & Joe's House Feb 15 10:10am to 10:25am



Janet & Joe's House Feb 1 3:15pm to 3:45pm

