

From: [Ken Eklund](#)
To: [Coffin Butte Landfill Appeals](#)
Subject: Explainer 6 of 12: The Risk of Elevated Temperatures at Coffin Butte Landfill
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Attachments: [Explainer - elevated temperatures at Coffin Butte.pdf](#)

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Dear Chair Wyse and Commissioners Shepherd and Malone:

I've developed a set of "explainers" first for myself, to try to make sense of these complex subjects (and to get all the things learned into one place) and to pass this info along to others. And now I'm sending them along to you.

The one attached here is about "elevated temperatures" at Coffin Butte Landfill – a situation that has developed in the past at the dump (but fortunately apparently was managed or receded), and could emerge again, because Coffin Butte scores high in many of the key risk factors for becoming an elevated temperature landfill. Basically, an elevated temperature landfill is one that has caught fire deep inside, a condition which effectively cannot be put out. The elevated temperatures (170°F and up) drastically change the entire dynamic of the landfill, in bad ways.

I hope you find these Explainers useful –

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#explainer

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ELEVATED TEMPERATURE LANDFILLS, SUBSURFACE LANDFILL FIRES

– an explainer –

(updated Oct 17, 2025)

EXOTHERMIC REACTIONS

Landfills can host unique kinds of “fires” (heat-generating chemical reactions) that begin or travel deep within the landfill and can be functionally impossible to extinguish. These fires fundamentally change the normal landfilling operations and usually lead to increased levels of toxins released in landfill gas and in leachate, both of which have been known to erupt out of the landfill itself. Elevated temperatures can also drastically degrade the durability of the membranes used as liners, causing them to prematurely fail.

AT-RISK LANDFILLS

The onset of these fires are not well understood; there is currently no reliable way to predict the onset of this kind of fire. There are known risk factors, though, including:

- wet conditions in the landfill
- incinerator ash mixed with municipal solid waste
- partially extinguished surface fires
- landfill gas leaks
- exothermic chemical reactions

All of these risk factors are present at Coffin Butte Landfill:

- The dump has very wet conditions. It exported 40 million gallons of leachate in 2024.
- The dump has been disposing of incinerator bottom and fly ash from the Covanta Incinerator for many years. The dump uses this ash as daily cover, i.e. it is spread over the municipal solid waste at the end of each working day.
- The dump operators acknowledge there are surface fires on a regular basis, but keep no records of them. Most notably, a surface fire at the working face in 2024 was only partially extinguished by dump operators and re-erupted after workers had gone home, requiring local fire response.
- The dump is under legal action by the EPA to investigate excessive leaks of landfill gas. A 2024 EPA inspection revealed an uncapped gas well, which was venting landfill gas out and allowing air to oxygenate the dump interior.
- The dump is the repository for at-risk substances for exothermic chemical reactions, as it received an unknown amount of industrial waste from the Teledyne Wah Chang metals plant in Albany before it was closed and became a Superfund site. Articles from the time disclose that this industrial waste included radium chloride (radioactive) and various forms of magnesium (reactive). Low-level waste from the Wah Chang Superfund cleanup went to an unnamed local landfill.

EFFECT OF A FIRE ON LANDFILL OPERATIONS: CHIQUITA CANYON LANDFILL

The Chiquita Canyon Landfill outside Castaic, California, is a case study of the real-life effects of such a fire.

From Newsweek, Feb 1, 2024:

Deep within the Chiquita Canyon Landfill site near Santa Clarita, to the north of Los Angeles, a fire has been burning, releasing noxious gases and vapors that have left local residents smelling foul odors and led to a multiagency task force to be formed to address the issue.

Hazardous chemicals such as benzene—a carcinogen—and dimethyl sulfide, which is considered acutely toxic, have been detected being emitted at the landfill site, along with a host of other compounds, as discarded substances in the landfill mix and react with one another, raising concerns about the impact to locals' health that the emissions could have if not addressed soon.

...

Benzene can cause skin and eye irritations, but can also cause genetic defects and cancer. Prolonged or repeated exposure to the chemical can cause damage to the organs. Glass described it as "a nasty and very common industrial chemical" that gave the sweet smell to gasoline, but became problematic the more someone is exposed to it.

Dimethyl sulfide can cause skin, eye and lung irritation as a vapor, as well as dizziness and asphyxiation.

The EPA, which is leading the multiagency effort, has said that, as well as those two chemicals, chloromethane, carbon disulfide, toluene, hexane, tetrachloroethane, styrene and acrylonitrile have been detected at the landfill site. All are considered hazardous, if not toxic.

A South Coast Air Quality Management District (SCAQMD) spokesperson told *Newsweek* that "elevated levels" of hydrogen sulfide and benzene have been detected through sampling in the nearby community, as well as at the landfill site.

Glass said that the emissions would be a concern for workers on the landfill site, and that air monitoring would keep track of the levels around nearby housing, but suggested that residents should watch out for their sense of smell getting used to the odors, which was a person's "first warning sign."

"You can become desensitized to them and fail to smell them or detect them by odor—even when they're there, if you're having a lot of exposure to them—so residents in the area should also be concerned about that," he said.

[\(link\)](#)

From The LA Times, Feb 23, 2024:

Federal officials have ordered operators of Chiquita Canyon landfill to take immediate steps to protect human health and the environment, saying the smoldering Castaic facility poses an imminent danger to nearby communities due to noxious odors and hazardous liquid waste.

The action taken Thursday by the U.S. Environmental Protection Agency comes amid growing calls to shut down the facility.

“This order reflects EPA’s commitment to ensuring landfill operators mitigate noxious odors and comply with federal law to prevent public exposure to hazardous wastes,” said EPA Pacific Southwest Regional Administrator Martha Guzman. “Today’s order is the result of local, state, and federal collaboration to better protect the health of nearby residents as well as the surrounding environment.”

The source of the growing crisis is a heat-generating chemical reaction that probably began deep within the landfill in May of 2022. Extreme heat and growing pressure within the dump have caused piping-hot, contaminated water to spill onto the surface, or occasionally erupt like a geyser.



Sarah Olaguez joins residents of Val Verde and Castaic in Hasley Canyon Park calling for the Chiquita Canyon Landfill to be closed. (Allen J. Schaben/Los Angeles Times)

This polluted water has contained cancer-causing benzene above federal standards, making it liquid hazardous waste, according to environmental regulators. Officials have also raised concerns that toxic fumes are drifting into neighboring communities and polluted water has been discharged into nearby waterways due to heavy rains.

[\(link\)](#)

From Cal Matters, March 14, 2025:

For more than two years, Assemblymember [Pilar Schiavo](#)'s constituents have been complaining to her about the stench and fumes they've been breathing since trash buried at the Chiquita Canyon Landfill in Southern California ignited and never stopped burning.

Schiavo, a Democrat representing the Santa Clarita Valley north of Los Angeles, [decided to spend the night](#) as a guest of one of the [639-acre landfill's](#) closest neighbors. She wanted to experience for herself what life is like for [the hundreds of people who've complained](#) about the noxious fumes since the underground chemical reaction started below the Castaic landfill in May 2022.

It's not known what caused the chemical reaction, but a state official said this week the burn zone had grown underground to an estimated 90 acres. As the landfill belches a stench like rotten milk, residents allege chemical emissions are making them sick. And it could keep burning for years.

When she arrived in Val Verde, it didn't take long before Schiavo got a pounding headache. Her skin felt itchy. When she woke up the following day, she was disturbed to get her first bloody nose in years, she said.

"People are getting sick," Schiavo said [in a video diary](#) taken on her phone during her stay last fall. "People are being barricaded in their homes, and not opening windows and doors and not letting kids come out and play on trampolines because they're afraid of breathing the air. ... We have to get people out of here and keep them safe."

...

In June, the [U.S. EPA also cited](#) the landfill company for violating various regulations intended to safeguard human health. The company is facing potential civil penalties of up to \$59,114 for each day of violation.

"EPA cannot comment on ongoing investigations, including assessment of penalties," EPA spokesperson Joshua Alexander said in an email.

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RISKS OF ELEVATED TEMPERATURES OMITTED FROM APPLICANT'S FIRE REPORT

Republic's Fire Report does not mention the risk of a subsurface fire. It does have a section on gas well fires, which are one of the ways in which subsurface fires get started.

MFA/LFCI = County consultants

SCS = Republic consultant

7. MFA/LFCI Comment: For Gas Well Fires, LFCI recommends preventive monitoring, including monitoring for CO levels, targeted maximum oxygen concentrations, and balancing gas levels to prevent aerobic decomposition. In addition, the Applicant should provide standard operating procedures for handling high-temperature wells and specify operating temperature thresholds.

SCS Response: Current procedures or preventive monitoring to detect developing gas well fires in place now, are extraordinarily robust and more than sufficient to detect and prevent gas well fires. First, the site abides by the U.S. EPA's NSPS regulations. These rules prescribe routine monthly monitoring of all gas wells for pressure, temperature, and oxygen. NSPS sets limits for each of those three parameters as a way to detect early on the potential to develop a gas well fire. Second, the landfill's parent Republic Services has a 205-page SOP document specifically for landfill gas management. Several sections in that SOP address the prevention, detection, and mitigation of gas well fires. Coffin Butte Landfill follows that SOP. Third, all Republic Services landfills including Coffin Butte enter all landfill gas monitoring results into an advanced database system for monitoring and managing landfill gas systems. That software is SCSeTools, and it automatically detects any exceedances of the NSPS Standards on gas well fires, and in fact also spots early trends toward a possible gas well fire before actual exceedances occur, so that mitigation measures can be employed early on.

All highlighting mine.

the site abides Via a Section 114 Information Request by EPA Enforcement, the EPA is currently auditing the dump operator for cause, to determine whether or not the dump operator indeed abides by EPA regulations. Until the results of that audit are made public, we must question whether this assertion by SCS is true. A consultant may believe that their client abides by regulations, but not actually know if they do.

follows that SOP As documented elsewhere, during the Planning Commission hearings, Republic Services walked back key assertions they had made in early testimony regarding standard operating procedures at the landfill. Key among these: Republic “corrected the record” regarding their claim that they restricted the size of the landfill’s working face to one-half acre. They were forced to admit that in fact the working face of the landfill was usually 1.5 to 2 acres, after testimony by Beyond Toxics, an air and water quality nonprofit, submitted a GIS survey of the landfill that showed the true extent of the working face from aerial photos.

follows that SOP As documented elsewhere, Republic employees discovered a fire on the working face, covered it with dirt, and then went home, leaving the site unmonitored. This is not only against the SOP, it is against the clear directives I receive as a homeowner who may burn a yard pile. Smoke from that fire was spotted by a passerby on Highway 99 just in the nick of time, because night was falling. If it had not been spotted, the fire would have continued to burn – perhaps all night long. Since it was a Saturday evening, it could conceivably have burned for 30 hours before Republic was back on the scene. In that amount of time, the fire could have spread deep into the landfill.

The volunteers at Adair Rural Fire responded to that call and put out that fire, which had spread in the trash pile into Republic equipment, setting the hydraulic system on one of its truck tippers on fire. Photographs taken by the firefighters show that the garbage on the scene was not covered by dirt, as Republic claimed later, but (inadequately) by tarps, which do not protect against tarps. Again, a consultant may believe that their client abides by regulations or follows procedures, but not actually know that they do.

advanced database system As documented elsewhere, the EPA’s Air Enforcement Officer for this Region, during an inspection of the landfill in 2024, discovered a gas well that was completely uncapped. This would have been introducing a large amount of oxygen into the interior of the landfill. Republic’s landfill operator at the time stated that the gas collection system showed normal conditions. It’s not known how long the well had been uncapped, but it is clear that the system that is being cited here failed to detect this extreme event in any timely way. One thing that’s conspicuous by its absence: Republic has not brought forth any monitoring logs showing that the uncapping was a recent event. So it’s reasonable to assume that either (a) it was not a recent event, or (b) the software doesn’t actually detect events like this, or (c) both.

I’ll also note that I have been looking at the dump’s monthly monitoring reports for years now, and pressure/temperature are not regularly reported in them.

PRIOR HISTORY

As documented in the Applicant’s materials submitted to the Planning Commission, Coffin Butte has a history that includes elevated temperatures. About 10 years ago, Republic informed DEQ that elevated temperatures were occurring in a series of gas wells.

LEACHATE AS HAZARDOUS WASTE

If Coffin Butte Landfill were to again experience elevated temperatures, the most immediate effect may be a crisis in leachate disposal. A recurrence of elevated temperatures at the landfill is likely to negatively alter the chemistry of leachate, especially with benzene pollution. Once the pollutants climb to new levels, the leachate is now classified as “hazardous waste” which requires an entirely new level of care in extracting, storing, transporting and disposing of the leachate. Since Coffin Butte Landfill generated *40 million gallons* of leachate last year, and will continue generating leachate for the foreseeable future, it’s a major concern.

SUMMARY

Subsurface fires (“exothermic chemical reactions”) are a significant fire risk at Coffin Butte Landfill, which has many of the currently known major risk factors. The applicant does not address subsurface fires but rather seems resistant to any question of its current protocols. The onset of a subsurface fire would likely be of severe impact to the surrounding area. The onset of elevated temperatures would likely induce a crisis for leachate disposal. A landfill expansion would increase the surface area of the landfill (fire entry points, leachate generation) by about 35%, the intake volume (fire entry point) by 68%, and waste-in-place (ignition source, fuel) by 20%, increasing this undocumented risk. The applicant has not met its Burden of Proof regarding the subsurface fire risks at Coffin Butte Landfill.

Please deny LU-24-027, the application to expand Coffin Butte Landfill.

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October 16, 2025

Read all the Explainers! Because I'm doing my best to pass on what I've learned in a clear, concise, readable narrative form.

Performance-testing the landfill gas flare: ODEQ's struggle to obtain compliance from Republic

DEQ made a rule in late 2021 and Coffin Butte Landfill complied with it in late 2024. Why did it take so long, and what about that Class 1 Notice of Violation from DEQ?

Explainer - DEQ gas flare compliance.pdf ○

Carbon Mapper and landfill gas: an explainer

An award-winning, innovative third-party source sharing data with us about the landfill's performance.

Explainer - Carbon Mapper and methane detection.pdf ○

EPA Enforcement: a timeline and explainer

The EPA is investigating Coffin Butte Landfill – why? Is it serious? How did that start and what's happening with it?

Explainer - Coffin Butte and EPA Enforcement.pdf ○

Climate Damage and the Land Use Criteria

Evidence shows that Coffin Butte Landfill is large-scale producer of greenhouse gas emissions. How do the impacts from that relate to the land use criteria for LU-24-027?

Explainer - Climate Damage and land use criteria.pdf ○

Gas Wells At Coffin Butte: Why So Many?

Republic asserts that all those gas wells are a sign of environmental commitment. What's the true reason?

Explainer - Why so many landfill gas wells at Coffin Butte.pdf ○

Elevated Temperatures, Subsurface Landfill Fires

The way Coffin Butte Landfill is operated creates more risk of a dire event.

Explainer - elevated temperatures at Coffin Butte.pdf ✓

Avoiding Compliance: six narratives

How Republic avoids monitoring at Coffin Butte Landfill: the paper trails.

Explainer - avoiding compliance at Coffin Butte 1.pdf ○

How to Find Things in the LU-24-027 Public Record

It's not easy, but here are some tips that may help.

Explainer - How to find things in Public Record.pdf ○