



## REGION 9

SAN FRANCISCO, CA 94105

July 7, 2026

### *SENT VIA ELECTRONIC MAIL*

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**RE: CHANGE OF PERMIT CONDITIONS REQUEST, TEMPERATURE HIGHER OPERATING  
VALUE REQUEST FOR LANDFILL GAS EXTRACTION WELLS AT THE MID-VALLEY  
SANITARY LANDFILL (FACILITY ID NO. 50299), SAN BERNARDINO COUNTY**

Dear Johnny D. Gayman and Mathew Helo,

The Air Section in the Enforcement and Compliance Assurance Division at U.S. Environmental Protection Agency Region 9 ("EPA") received your request for Higher Operating Values for Temperature ("HOV") at Wells at Mid-Valley Sanitary Landfill ("Mid-Valley" or "the Landfill"), dated August 29, 2025. San Bernardino Solid Waste Management Division ("SWMD") submitted the aforementioned request to South Coast Air Quality Management District and EPA in support of requests to operate wellheads at Mid-Valley at higher operating value temperatures pursuant to 40 C.F.R. Part 62, Subpart OOO, § 62.16716(c), and Part 63, Subpart AAAA, § 63.1958(c)(2). EPA responded to this request by email on December 11, 2025, asking for additional information to be submitted. On December 12, 2025, Tetra Tech, on behalf of SWMD, submitted an updated data set for the HOV requested wells to be operated at 145°F, aligned with the default temperature in 63.1958(c)(2). The requested well IDs are listed below.

Well IDs for Temperature HOV: MVH0130W, MVV03021, MVV03024, MVV03031, MVV03032, MVV1411A, MVV1415A, MVV1440D, MVV1442D, MVV1444D, MVV3004D, MVV3005D, MVV3015D and MVV3017.

### **HOV FOR TEMPERATURE BACKGROUND**

Pursuant to 40 C.F.R. §§ 62.16716(c) and 63.1958(c)(2),

The owner or operator may establish a higher operating temperature value at a particular well. A higher operating value demonstration must be submitted to the

Administrator for approval and must include supporting data demonstrating that the elevated parameter neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved (*i.e.*, neither causing fires nor killing methanogens is acceptable).

As stated, an HOV demonstration may be submitted to the Administrator for approval for a higher operating temperature value at a particular well. EPA must review submitted demonstrations on a well-by-well basis. The demonstration must show that the elevated temperature neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria in order to be approved, meaning conditions are neither causing fires nor killing methanogens.

EPA may consider the following data to demonstrate approvable conditions: wellhead temperatures, down well temperatures, methane concentrations (“CH<sub>4</sub>”), carbon dioxide concentrations (“CO<sub>2</sub>”), oxygen concentrations (“O<sub>2</sub>”), carbon monoxide concentrations (“CO”), balance gas concentrations (100% minus CH<sub>4</sub>, CO<sub>2</sub>, and O<sub>2</sub> concentrations), liquids (known as leachate) levels relative to well depth, and wellhead pressure readings to assess the anaerobic activity and risk of causing a surface fire or subsurface oxidation at the requested temperature.

Additionally, EPA reviews the data to determine whether the temperatures and gas compositions were representative of down well conditions. If conditions such as positive, or near positive, pressure, air intrusion or other factors would render the data unrepresentative, then the demonstration for establishment of an HOV would be insufficient. A lack of recent data would also be considered an insufficient demonstration.

EPA reviewed the data to determine if conditions of a subsurface oxidation (“SSO”) or subsurface anoxic exothermic reaction (“SAR”) are present. SAR events are also known as subsurface elevated temperature or elevated temperature landfill events. A SAR is not dependent on oxygen, occurs deep in the landfill waste mass, and is exothermic and self-propagating in nature. One of the impacts of a SAR is significantly decreased methanogenesis activity. Decreased methanogenesis activity can be observed by measuring CO concentrations, CH<sub>4</sub> concentrations, and CH<sub>4</sub> to CO<sub>2</sub> concentration ratios correlated with increased down well or wellhead temperatures. SARs increase the risk of shallow, subsurface oxidation and landfill fires, especially when associated with air intrusion into the shallow portion of the landfill<sup>1</sup>. A well’s radius of influence (“ROI”) may include areas and depths of the waste mass that are undergoing SSO, SAR, and/or air intrusion, which further complicate the assessment of conditions at the wellhead.

## **SUMMARY OF DETERMINATIONS**

EPA reviewed the available data for each requested well which contained inputs from January to November 2025 to determine if the demonstration for each well met the criteria for approval.

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<sup>1</sup> <https://www.epa.gov/land-research/elevated-temperature-landfill>  
<https://www.epa.gov/land-research/citations-elevated-temperature-landfill-research>

Recent conditions at the HOV requested wells were averaged across available data from November 2024 to December 2025 are summarized as follows.

| Well ID  | Gas Temperature (°F) | CH <sub>4</sub> :CO <sub>2</sub> Ratio | Balance (% by volume) | EPA Determination |
|----------|----------------------|----------------------------------------|-----------------------|-------------------|
| MVH0130W | 139.6                | 0.9                                    | 6.9                   | Approved to 145°F |
| MVV03021 | 128.8                | 1.2                                    | 6.2                   | Denied            |
| MVV03024 | 128.6                | 1.1                                    | 8.6                   | Denied            |
| MVV03031 | 128.7                | 0.9                                    | 6.4                   | Denied            |
| MVV03032 | 126.9                | 1.1                                    | 9.1                   | Denied            |
| MVV1411A | 126.1                | 1.1                                    | 3.2                   | Denied            |
| MVV1415A | 123.1                | 0.8                                    | 14.9                  | Denied            |
| MVV1440D | 129.2                | 0.8                                    | 8.5                   | Denied            |
| MVV1442D | 133.1                | 1.0                                    | 2.9                   | Denied            |
| MVV1444D | 139.8                | 1.1                                    | 2.5                   | Approved to 145°F |
| MVV3004D | 111.8                | 1.2                                    | 0.7                   | Denied            |
| MVV3005D | 123.7                | 1.2                                    | 0.1                   | Denied            |
| MVV3015D | 129.4                | 1.1                                    | 0.3                   | Denied            |
| MVV3017D | 128.8                | 1.1                                    | 1.4                   | Denied            |

Based on the limited data provided, EPA did not identify any potential SSOs or SARs within the radii of influence of the reviewed wells for the duration reviewed. However, elevated temperatures above 131°F warrant additional ongoing review by SWMD. While these wells are not actively exhibiting symptoms of SSOs or SARs, all wells with elevated wellhead temperatures are at a higher risk of developing a SSO or SAR.

## DENIALS

EPA determined that the demonstrations for wells MVV03021, MVV03024, MVV03031, MVV03032, MVV1411A, MVV1415A, MVV1440D, MVV1442D, MVV3004D, MVV3005D, MVV3015D and MVV3017D were not made at the elevated temperature requested. EPA cannot approve HOVs without a sufficient and representative demonstration at or near the elevated temperature. EPA recommends that SWMD continue operation of these wells below the limit of 131°F or take immediate corrective action to bring temperatures below 131°F pursuant to 62.16720(a)(4).

## APPROVALS

EPA approves Wellhead Temperature HOVs of 145°F for well MVH0130W and MVV1444D. This HOV approval is not an approval or endorsement, in any way, of the proposed permit language in the August 29, 2025 HOV request. SWMD may pursue appropriate permit changes according to this and any future HOV determinations with the South Coast Air Quality Management District (SCAQMD).

EPA holds that the monitoring, corrective action, and other applicable temperature related provisions of the Title V Permit, 40 CFR Part 62 Subpart OOO, and Part 63 Subpart AAAA still apply to this well, except that the HOV for temperature at HC-13 under 40 CFR § 62.16716(c) is approved to be 145°F. Any alternative monitoring request to the monitoring provisions should be made to EPA Region 9 Enforcement and Compliance Assurance Division.

## **CORRECTIVE ACTIONS**

Generally, EPA recommends the following corrective actions to be included in corrective action plans under 40 CFR 62.16720(a)(4) or 40 CFR 63.1960(a)(4) to address elevated temperatures, especially when operators identify an area exhibiting some or all symptoms of SARs that manifest as elevated wellhead temperatures.<sup>1</sup>

1. Distinguishing between SSOs and SARs to inform appropriate corrective action by reviewing CO, downwell temperature, gas and liquid characterization, and other data.
2. Temporarily restricting vacuum/flow at SSO to extinguish subsurface fires or smoldering.
  - a. Improving cover thickness and density to prevent future air intrusion during collection upon returning the well to service as soon as practicable.
3. Increasing vacuum/flow at affected or surrounding wells to increase heat and pressure removal and prevent heat accumulation for SARs.
4. Addressing any liquids in the well via a pump or other leachate collection improvement.
  - a. SARs are likely to significantly increase leachate production.
  - b. SSOs may be caused by air intrusion because of occluded perforations in the well without sufficient vacuum tuning or inadequate cover.
5. Improving cover integrity at affected or surrounding wells to allow for consistent or increased vacuum/flow without introducing air intrusion during increased heat removal.
6. Installing additional well density within and surrounding the area to allow for increased heat removal without overpulling from fewer wells.
7. Re-evaluation of well-casing materials to ensure they can withstand the increased temperatures at affected wells.
  - a. Down well temperature and camera monitoring are necessary to determine the integrity of the entire well to avoid below-grade perforation melting, pinching and decreased collection efficiency.
  - b. Consideration may also be needed for wellhead materials.

Note that any attempted corrective measures must not cause exceedances of other operational or performance standards, including abandoning or otherwise ceasing supply of vacuum to the well such that collection in the area covered by the well is eliminated, pursuant to 40 C.F.R. § 63.1960(a)(4)(i).

In the HOV request, SWMD proposed that:

If a well has an initial CO reading greater than 100 ppmv, the well will be immediately disconnected or turned off (removing any vacuum applied to the well) to minimize any potential SSOs and actions to protect environmental and human health shall be taken. CO readings will be obtained weekly (within 7 days) at the well until the CO levels drop below 100 ppmv and the temperature at the well remains less than 145°F for four (4)

consecutive weeks. LFG extraction wells that were disconnected will be reconnected to the vacuum system once the CO readings are below 100 ppmv and will follow the standard procedure as outlined above.

EPA recognizes that taking wells offline may be appropriate to prevent or extinguish an ongoing fire, smolder, or SSO event. However, a single CO measurement above 100ppm is insufficient to warrant such an action that will cease collection in the area previously serviced by the well, absent other compelling evidence that the CO is a result of a fire, smolder, or SSO. Such evidence may include smoke, smoldering ash, or other visual evidence of an SSO.

Additionally, elevated temperature and/or CO readings may be leading evidence of the development of a SAR that warrants the opposite corrective actions: more vacuum in the area. Increasing vacuum will allow for heat and pressure extraction from the SAR, which will prevent heat accumulation and spread of the SAR. EPA recommends SWMD revise their standard practice for evaluating the cause of and appropriate corrective actions for elevated temperatures and CO. It is important to distinguish between SSOs and SARs to avoid corrective actions that may be appropriate for one and exacerbating for the other.

If you have any questions regarding these determinations, please reach out to Tyler Holybee at [holybee.tyler@epa.gov](mailto:holybee.tyler@epa.gov).

Sincerely,

**MATTHEW  
SALAZAR**

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