



REGION 9

SAN FRANCISCO, CA 94105

September 30, 2025

David Meyer
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Matt Rana, PE
Engineer III
Waste Management
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**RE: Higher Operating Value Variance Request for Approval
USA Waste of California, Inc.; El Sobrante Landfill
Corona, California**

Dear David Meyer and Matt Rana,

The Air Section in the Enforcement and Compliance Assurance Division at U.S. Environmental Protection Agency Region 9 ("EPA") received the Higher Operating Value (HOV) Variance Request for Approval, dated July 19, 2024, and the Site-Wide Corrective Action Plan supplemental information, dated July 30, 2025. USA Waste of California, Inc. ("USA Waste"), submitted both aforementioned documents in support of requests to operate wellheads at El Sobrante Landfill ("ESL") at higher operating value temperatures pursuant to 40 C.F.R. Part 62, Subpart OOO, § 62.16716(c), and 40 C.F.R. Part 63, Subpart AAAA, § 63.1958(c)(2). USA Waste requests higher temperature limits as follows:

- All current and future wells to operate at temperatures up to 145°F
- 160°F for wells operating between 140°F to 150°F
- 170°F for wells operating between 150°F to 160°F
- 180°F for wells operating above 160°F

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 (“CH₄”), carbon dioxide concentrations (“CO₂”), oxygen concentrations (“O₂”), carbon monoxide concentrations (“CO”), balance gas concentrations (100% minus CH₄, CO₂, and O₂ 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 temperatures.

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 anerobic exothermic reaction (“SAR”) are present. SAR events are also known as subsurface elevated temperature or Elevated Temperature Landfill (“ETLF”) 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, CH₄ concentrations, and CH₄ to CO₂ concentration ratios correlated with increase 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 landfill¹. 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

USA Waste provided EPA with data on 314 wells in USA Waste’s HOV Variance Request for Approval, dated July 19, 2024, and Response to EPA’s HOV Data Request, dated July 30, 2025. EPA reviewed the data for each well from at least October 2024 to July 2025 to determine if the demonstration for each well met the criteria for approval.

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

For 109 wells, USA Waste submitted data that were insufficient to determine if the demonstration for each well met the criteria for approval. USA Waste did not provide recent temperature, gas composition, and pressure measurements for these wells.

For 102 wells, EPA found that USA Waste provided non-representative data, and such data indicated potential air intrusion, high liquids, and low vacuum or flow. EPA cannot approve the HOV requests for these wells as the demonstrations provided are insufficient and are likely non-representative of down well conditions. EPA cannot make an accurate assessment of the demonstration without additional information.

For 73 wells, EPA determined that these wells had conditions evident of an SSO and/or SAR event within the ROI. EPA is denying HOVs for these wells as the conditions are indicative of significantly inhibited anaerobic decomposition due to an active SSO or SAR event, or both, within the ROI of each well. Wells experiencing these conditions do not meet the conditions needed for approval.

Attached, as Attachment A, is a map of the wells that, in EPA's determination, exhibits conditions evident of a SSO and/or SAR event. The map area depicting the "reaction area" or "ETLF Event" comprises ROIs of the wells with SSO or SAR conditions, which are marked with red circles. . The reaction area covered by the ROI of these wells is larger than the "area of interest" USA Waste has designated as of August 27, 2025, marked in light blue. Wells marked with yellow circles have likely SSO or SAR conditions, but EPA is unable to further classify these wells without additional data. The circles are for illustrative purposes to identify wells and are not representative of ROIs. EPA is recommending immediate corrective action to augment the ongoing mitigation measures pursuant to WM's Heat Accumulation Prevention program.

EPA found that 22 wells had wellhead temperatures that were below the requested HOV request of 145°F and below or near the operating limit of 131°F, and therefore USA Waste did not make a demonstration at the requested increased temperature. Consequently, EPA denies the HOV request for these wells and recommends that USA Waste continue operation of these wells below the limit of 131°F or take immediate corrective action to bring temperatures below 131°F.

For the remaining 8 wells, EPA is approving a permanent HOV for wellhead temperatures at 145°F, subject to the below conditions. These wells are indicated with black circles on the map in Attachment A.

Attached as Attachment B is a summary of EPA's determinations for each well, including approved HOV temperatures, SSO or SAR conditions, and a summary of the parameters reviewed for the given timeframe. The summary does not tabulate wells with insufficient data. Data summaries for wells with non-representative demonstrations ("NRD") should be reviewed with caution.

APPROVALS AND CONDITIONS

EPA approves Wellhead Temperature HOVs of 145°F for the following 8 wells, subject to the conditions below: EW1908², EW2081D, EW1762D, EW1763S, EW1764D, EW2263, EW2261, EW1110D.

1. USA Waste shall monitor CO at EW1908, EW2081D, EW1762D, EW1763S, EW1764D, EW2263, EW2261, and EW1110D at least monthly according to the procedure in 40 C.F.R. § 63.1961(a)(5)(vi): EPA Method 10 of appendix A-4 to part 60 of this chapter, or an equivalent method with a detection limit of at least 100 ppmv of carbon monoxide in high concentrations of methane.
2. If the wellhead temperature of EW1908, EW2081D, EW1762D, EW1763S, EW1764D, EW2263, EW2261, or EW1110D increases to greater than 145°F, USA Waste shall monitor the well according to the procedure in 40 C.F.R. § 63.1961(a)(5). If the wellhead temperature of the well subsequently decreases to below the approved HOV limit of 145°F, USA Waste shall monitor the well in accordance with Condition 1 of this HOV approval.

RECOMMENDED CORRECTIVE ACTIONS FOR WELLS WITH SSO OR SAR CONDITIONS

EPA recommends the following corrective actions to address elevated temperatures when an area or well(s) exhibit some or all symptoms of a SSO or SAR event described above that may manifest as elevated wellhead temperatures (>145°F).¹

1. Conduct down well temperature monitoring and characterize and speciate unknown high levels of balance gas (>20%) at least monthly to track reaction conditions.
2. Increase vacuum and flow at affected or surrounding wells to increase heat and pressure removal.
3. Address liquids in the well with a pump or other leachate collection system improvements. SARs are likely to increase leachate production in the waste mass.
4. Install additional well density within and surrounding the area to allow for increase heat and pressure removal.
5. Improve cover integrity at affected or surrounding wells to allow for increased vacuum and flow without introducing air intrusion and an increased risk of SSO or surface fire.
6. Re-evaluate well casing materials to ensure they can withstand the increased temperatures at affected wells.

EPA recognizes the extensive efforts of USA Waste to implement various corrective actions within the reaction area, including increased well density and temperature monitoring within the waste mass, and looks forward to continued discussions of corrective actions to both remedy temperature exceedances of the temperature limits and mitigate the impacts of the

² USA Waste generally uses an 8-character well name system, taking the form of ELSW#### or ELS####A/B or D/S (horizontal collector wellhead ends, or deep or shallow), but occasionally uses a standard EW#### naming convention. For the purposes of this document and its attachments, EPA standardized the naming convention to be EW#### or EW####A/B or D/S (if applicable).

reaction at ESL pursuant to 40 C.F.R. §§ 62.16720(a)(4) and 63.1960(a)(4)(i). These corrective action plans should, at a minimum, include the recommended actions above.

EPA holds that the monitoring, corrective action, and other applicable temperature related provisions of 40 C.F.R. Part 62 Subpart OOO and Part 63 Subpart AAAAA still apply to the approved HOV wells, except that the HOV for temperature at the approved wells under 40 C.F.R. § 62.16716(c) is approved to be 145°F, as listed above and in Attachment B. Any alternative monitoring request to the monitoring provisions should be made to EPA Region 9 Enforcement and Compliance Assurance Division.

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. Per 40 C.F.R. § 63.1960(a)(4)(i).

If you have any questions regarding these determinations, please reach out to Tyler Holybee at holybee.tyler@epa.gov.

Sincerely,

**ROSHNI
BRAHMBHATT**

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Roshni Brahmbhatt
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Attachments:

- A. (EPA Edited) ESL HOV Request Wellfield Map
- B. HOV Demonstrations and Determinations Tables

cc: Terrance Mann, Deputy Executive Officer, South Coast Air Quality Management District
Heather Quiros, Enforcement Division Chief, California Air Resources Board
Alana Mathews, Deputy Secretary, California Environmental Protection Agency
Mark De Bie, Deputy Director, CalRecycle
Mandy Bane, Deputy Director, California Department of Toxic Substances Control
Eric Lindberg, Executive Officer, Santa Ana Regional Water Quality Control Board
Brent Casey, Deputy Director, Riverside County Department of Environmental Health

ATTACHMENT A – (EPA EDITED) ESL HOV REQUEST WELLFIELD MAP

ATTACHMENT B - WELL HOV DEMONSTRATION AND DETERMINATION TABLES