

**THIS POLICY IS NOT LAW**

Engineering Guide #93B – Requirements for Elevated Temperature MSW Landfills to Obtain Higher Operating Temperature Approval

This document is guidance for MSW landfills experiencing elevated temperatures on the requirements for how to submit and obtain approval for higher operating values in accordance with the requirements from 40 CFR Part 60 Subpart XXX, 40 CFR Part 62 Subpart OOO, and/or 40 CFR Part 63 Subpart AAAA.

What is the purpose of this document?

This guidance document describes the mechanisms available for municipal solid waste (MSW) landfills to address elevated landfill gas temperatures as provided in the air pollution control federal rules. The following guidance is applicable to landfills subject to the requirements of 40 CFR Part 60, Subpart XXX (XXX), 40 CFR Part 62, Subpart OOO (OOO) and/or 40 CFR Part 63, Subpart AAAA (AAAA). The main difference between the XXX/OOO and AAAA regulations is the threshold that defines what an elevated temperature is; under subpart XXX/OOO, the temperature threshold is 131°F, and under subpart AAAA, the temperature threshold is 145°F.

Federal Rule Applicability

Landfills that are subject to subpart XXX or subpart OOO shall operate in accordance with the requirements established in that subpart. As an option, landfills subject to subpart XXX or subpart OOO but are not directly subject to AAAA are eligible to opt-in to certain provisions of subpart AAAA to demonstrate compliance with certain provisions of XXX/OOO. Once the landfill starts to comply with the AAAA provisions, they are not able to return to comply with the XXX/OOO provisions.

Landfills that are subject to subpart AAAA must operate in accordance with the requirements established in that subpart.

Existing landfills that were previously subject to 40 CFR Part 60, Subpart WWW (WWW) and/or Ohio Administrative Code 3745-76 (Chapter 76) are now subject to subparts OOO and/or AAAA, as subpart OOO superseded subpart WWW. Chapter 76 rules were rescinded and replaced with a Memorandum of Agreement between Ohio EPA and U.S. EPA to enforce subpart OOO in Ohio.

Higher Operating Values (HOV) for Elevated Well Temperatures

Due to the timing requirements in the federal rules, the landfill owner/operator is required to conduct corrective actions prior to requesting a higher operating value for elevated well temperatures. See separate Engineering Guide #93A for details.

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For a MSW landfill subject only to subpart XXX/000 and not opting into subpart AAAA, a HOV request can be submitted for wellhead temperatures above 131°F. For landfills subject to subpart AAAA (or subject to subpart XXX/000 and opted into subpart AAAA), a HOV request can be submitted for wellhead temperatures above 145°F. The elevated temperatures must not be causing a fire nor significantly inhibiting anaerobic decomposition by killing methanogens.

What information should the landfill owner/operator include in an HOV demonstration/request?

As the landfill gas temperature at a wellhead increases above 131°F/145°F, there is a concern that a fire and/or subsurface oxidation event may be the cause of the higher temperature increases. Higher temperatures may also inhibit anaerobic decomposition by killing methanogens or damage equipment. Furthermore, failure to properly address elevated temperatures can cause the problem to get worse. More information on elevated temperature landfills can be found here: <https://www.epa.gov/land-research/elevated-temperature-landfill>.

To support the position that the elevated temperature is not an indication of an existing subsurface fire, will not cause a landfill fire and will not kill methanogens to the extent that anaerobic decomposition will be significantly inhibited, at a minimum the following information should be submitted in the demonstration/request for each well seeking a HOV:

- The date that the exceedance was initially detected and the highest temperature value recorded;
- The higher operating value being requested (should not exceed the actual measured maximum temperature by more than 10°F rounded to an integer value);
- Map of landfill and well field with the HOV-seeking well identified, any approved HOV wells identified and any approved Corrective Action Analysis and Implementation Timeline (CAIT) wells identified;
- The Root Cause Analysis and Corrective Action Analysis for the elevated temperature;
- A summary of the historical data for the HOV-seeking well including, at a minimum:
 - construction specifications for the well, including material of construction, distance to liner and depth of the well;
 - description of the cover in the area including if there is any cover subsidence or vegetation damage;
 - surface emissions monitoring data from entire duration since the initial temperature exceedance and at least six months prior to the initial exceedance (or since gas extraction well installation if less than six months prior);
 - whether a camera inspection down well was performed and its results;
 - the age, type and depth of waste in the area;
 - well drill logs;
 - acceptance of any exothermically reactive waste (aluminum production waste, ash, calcium oxide or calcium hydroxide);
 - any leachate recirculation activities in the area;
 - liquid level in the well;

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- Liquid extraction pump information (installation date, operating status, etc). If no pump is installed, provide reason there is no pump, if installing a pump is feasible, and if there are plans to install a pump;
 - any other information pertinent to the well;
- A narrative discussion of the steps taken to correct the exceedance since the initial temperature exceedance, including any prior temperature exceedances that received a CAIT and/or HOV approval;
- A narrative discussion of a physical or visual evaluation performed to determine evidence of fire or subsurface oxidation event within the radius of influence of the well or the distance to the nearest well, whichever is greater. This could include, but is not limited to, flames, embers, smoke, steam, smoldering ash, odors, melted or destroyed well equipment, rapid settlement of waste, char or ash in the gas collection system, etc.;
- A narrative discussion of the mitigation practices in-place to control temperature and/or spread to other well sites including dewatering, well replacement, installation of additional wells in the area, etc.
- A narrative discussion of the enhanced monitoring techniques in-place to monitor the conditions that impact temperature. These can be similar to the enhanced monitoring specified in AAAA or alternative monitoring.
- A demonstration that all well field equipment/components in place are designed to withstand the elevated operating temperatures or on an implementation schedule to replace equipment/components when damaged or with heat resistant components.
- A list and trend graph of the following wellhead parameter readings for the entire duration since the initial temperature exceedance and at least six months prior to the initial exceedance (or since gas extraction well installation if less than six months prior):
 - temperature;
 - pressure;
 - percent methane (CH₄), oxygen (O₂), carbon dioxide (CO₂), balance gas;
 - well flow;
 - if applicable, enhanced monitoring data collected per subpart AAAA [40 CFR 63.1961(a)(5)];
 - if applicable, downwell temperature monitoring data collected per subpart AAAA [40 CFR 63.1961(a)(6)];
 - the concentration (in ppmv) of CO using a method with a detection limit no greater than 30 ppmv (e.g., using a flame ionization detector);
 - If CO data has not been previously collected for the well, at least one sample must be collected and results included in the HOV demonstration.
- A discussion supporting the position that the elevated temperature does not cause or contribute to a fire, is not the result of a fire and whether operating under the HOV will significantly inhibit anaerobic decomposition by killing methanogens.

How should the HOV demonstration/request be submitted?

HOV demonstrations/requests for temperature exceedances must be submitted to the appropriate Ohio EPA DAPC DO/LAA as a notification (other compliance report under the category of “Landfill HOV/CAIT Request” category)

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through the eBusiness Center via AirServices for Ohio EPA DAPC approval and must include supporting data demonstrating that the elevated temperature neither causes fires nor significantly inhibits anaerobic decomposition by killing methanogens.

How will these HOV demonstrations/requests be evaluated by Ohio EPA DAPC?

The appropriate Ohio EPA DAPC DO/LAA will review the information submitted. All demonstrations will need to show that the owner/operator has made appropriate efforts to correct the exceedance prior to submitting the demonstration and that the higher operating value will not cause fire or significantly inhibit anaerobic decomposition by killing methanogens. For wells that are approved for an HOV, the Ohio EPA DAPC DO/LAA will provide an HOV approval letter to the facility. The HOV approval letter does not have an expiration date, but it does have conditions that may prompt re-evaluation. The HOV is not in effect for the well until the date of the Ohio EPA DAPC DO/LAA HOV approval letter.

HOV approval letters will contain additional monitoring, corrective action, recordkeeping, and reporting requirements to maintain the HOV approval in addition to the applicable federal rule requirements.

For any wells that are not approvable for an HOV, the Ohio EPA DO/LAA representative will contact the facility to discuss alternative solutions, which may include applying for a CAIT as described in Engineering Guide #93A.

What will be required once Ohio EPA DAPC has approved the HOV demonstration/request?

Since landfill conditions may change, as a condition of its concurrence, Ohio EPA DAPC will require the owner/operator to monitor and report the landfill gas at the affected wellhead regularly as part of the conditions in the HOV approval letter. Should any of the condition parameters fall outside of the acceptable range as described in the approval letter, the owner/operator should initiate corrective action and notify the appropriate Ohio EPA DAPC DO/LAA as specified in the HOV approval letter. Based on the reported data, Ohio EPA DAPC may reconsider the HOV and request the owner/operator submit a new demonstration, submit a CAIT, and/or other alternative solutions.

If a well returns to the operating range allowed by the applicable federal rule, the owner or operator may choose to discontinue the HOV for that well. If the owner or operator makes this choice, they shall notify the appropriate Ohio EPA DAPC DO/LAA through the eBusiness Center via AirServices. Upon discontinuing the HOV, the owner or operator would no longer need to perform the additional monitoring for the well specified in the HOV approval letter. However, if the well(s) begin to experience higher operating levels again, a new HOV demonstration would need to be submitted as described above.

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If AAAA is applicable to the landfill, the owner/operator is no longer required to perform enhanced monitoring requirements in 40 CFR 63.1961(a)(5) once they receive their HOV approval from Ohio EPA DAPC. For these landfills, if the approved HOV temperature is exceeded, then the enhanced monitoring requirements apply at that time per AAAA until the temperature returns to compliance with the approved HOV temperature or a new HOV temperature is approved.

For additional information regarding this document, please contact your Ohio EPA DAPC DO/LAA representative.

Revision History

This guidance was originally issued June 16, 2026.