



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

April 20, 2022

Ms. Amy Hightower, PE  
Project Manager  
CDM Smith, Inc.  
1701 Highway A-1-A, Suite 301  
Vero Beach, Florida 32963

Dear Ms. Hightower:

This is in response to your letter, dated March 9, 2022, to the U.S. Environmental Protection Agency, which proposed landfill-gas higher operating temperature values (HOTV) for six landfill gas (LFG) extraction wells (wells) located at the St. Lucie Landfill (Landfill) in Ft. Pierce, Florida. The Landfill is subject to Title 40, Code of Federal Regulations (CFR), Part 62, Subpart OOO - Federal Plan Requirements for Municipal Solid Waste Landfills that commenced construction on or before July 17, 2014, and have not been modified or reconstructed since July 17, 2014. We requested additional information from you on March 18, 2022, and received your response on March 25, 2022. Based on the information you provided, and other information available to the EPA, well specific LFG HOTVs are conditionally approved for the six wells identified in your request. Details regarding the basis for our determination are provided in the remainder of this letter.

**Background Information Supporting Request**

In October 2021, during a scheduled monthly monitoring event, the Landfill experienced elevated LFG temperatures at six LFG extraction wells (GW617, GW618, GW619, GW620, GW621, and GW622). As a result of the elevated temperature readings, the Landfill implemented corrective action by increasing the frequency of monitoring at the wells and conducted root cause analyses to determine if additional immediate corrective actions were necessary to resolve potential issues that may be related to protecting the integrity of the landfill and its gas collection and control system. The carbon monoxide (CO) readings observed were well below the 1,000 parts-per-million by volume (ppmv) threshold, which would be indicative of a subsurface fire in the Landfill. Also, the results of the methane concentration levels indicate the higher temperatures are not affecting the methane-producing bacteria and that anerobic activity is uninhibited.

Based on enhanced monitoring conducted since October 2021, the subject wells have consistently produced temperatures above 131 degrees Fahrenheit (°F), and the Landfill continues to evaluate the methane, carbon dioxide, oxygen, and balance gas (assumed to be nitrogen) concentration levels to determine if subsurface fires are present at the landfill and if destruction of methanogen bacteria is occurring. Based on the observed results, the Landfill, as part of the requirement to implement corrective action, is requesting to establish a HOTV of 162 °F for the Landfill gas at the subject wells. The proposed HOTV is based on the highest temperatures recorded during monitoring events, plus a 10°F buffer to account for variability the Landfill may experience as subsurface operational conditions change.

## **EPA's Review of the Relevant Subpart OOO Standards**

Under 40 CFR 62.16716(b), owners/operators are required to operate the collection system with negative pressure at each wellhead except during a subsurface fire or increased well temperature. The owner or operator must record instances when positive pressure occurs in efforts to avoid a fire. These records must be submitted with the annual reports as provided in 40 CFR 62.16724(h)(1).

Under 40 CFR 62.16716(c), the owner/operator must operate each interior wellhead in the collection system with a landfill gas temperature less than 131 °F. Under 40 CFR 62.16720(a)(4), the owner or operator must monitor each well monthly for temperature as provided in 40 CFR 62.16716(c). If a well exceeds the operating parameter for temperature, action must be initiated to correct the exceedance within 5 calendar days. Under 40 CFR 62.16720(a)(4)(i), if a landfill gas temperature less than 131 °F cannot be achieved within 15 calendar days of the first measurement of landfill gas temperature greater than 131 °F, the owner or operator must conduct a root cause analysis and correct the exceedance as soon as practicable, but no later than 60 days after a landfill gas temperature greater than 131 °F was first measured. The owner or operator must keep records according to 40 CFR 62.16726(e)(3). Under 40 CFR 62.16720(a)(4)(ii), if corrective actions cannot be fully implemented within 60 days following the measurement of landfill gas temperature greater than 131 °F for which the root cause analysis was required, the owner or operator must also conduct a corrective action analysis and develop an implementation schedule to complete the corrective action(s) as soon as practicable, but no more than 120 days following the measurement of landfill gas temperature greater than 131 °F.

Under 40 CFR 62.16716(c), an owner/operator may establish a HOTV for an LFG extraction well. A HOTV demonstration must be submitted to the Administrator for approval and must include supporting data demonstrating that the elevated temperature neither causes fires nor destroys anaerobic decomposition by killing methanogens. The demonstration must satisfy both criteria to be approved. For the purposes of Subpart OOO, and until a 111(d) municipal solid waste landfill state plan is approved for the state of Florida, the EPA is the administrator of the Federal Plan in Florida.

## **EPA's Determination**

Subparts OOO specifies standards which determine when an owner/operator may request a HOTV for an interior well. You have requested an overall HOTV of 162 °F for each well represented in the submission, but the EPA is unable to approve the general HOTV as requested. However, based on a statistical analysis of the data presented in the request, the EPA approves well-specific HOTVs as presented below. These values are reflective of well-specific HOTVs based on a 99.9 percent (%) upper confidence level of the data presented in your submission.

Interior Well	HOTV (°F)
GW617	155.4
GW618	136.8
GW619	147.8
GW620	152.1
GW621	155.6
GW622	154.1

If future monthly monitoring event(s) data suggest that these HOTV values may be exceeded, using a well specific 99.9% upper confidence level of the well's monitoring data, the Landfill may apply for revised HOTVs based on the data available at that time if the Landfill demonstrates that subsurface fires are not occurring at the Landfill and the proposed HOTVs will not destroy the methanogens. Additionally, the period for this approval is limited to two years from the date of this letter, but the Landfill may submit a revised request for EPA's review before the expiration date of the approval if data suggests HOTV(s) continuation/revisions are necessary, and the standards of 40 CFR 62.16716(c) are met.


Our conditional approval of the HOTVs for the identified wells is based upon the following factors:

- 1.) You have submitted the request under the provisions of 40 CFR 62.16716(c), which allows owners/operators to request a HOTV for an interior well.
- 2.) You have included monitoring event well-specific temperature and methane, carbon dioxide and balance gas concentration data for each well.
- 3.) You have included the results of the root cause analyses for each well which were conducted with 60 days of the initial LFG extraction well landfill gas temperature exceedance. The results of the analyses indicate that neither subsurface fires nor destruction of the methanogen bacteria are occurring at the wells.
- 4.) Methane concentrations in the wells are greater than 46% methane for each well.
- 5.) CO concentrations in the wells are less than 100 ppmv, much less than a concentration of 1,000 ppmv which would be indicative of the presence of a subsurface fire at the landfill.

The review of your HOTVs request was coordinated with the EPA Region 4 Enforcement and Compliance Assurance Division, the EPA Office of Enforcement and Compliance Assurance, and the EPA Office of Air Quality Planning and Standards. If you have any questions about the response provided in this letter, please contact Mr. Tracy Watson of my staff at (404) 562-8998 or by email at [watson.marion@epa.gov](mailto:watson.marion@epa.gov).

Sincerely,  
**CAROLINE  
FREEMAN**

Caroline Y. Freeman  
Director  
Air and Radiation Division

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cc: John Evans, EPA OAQPS  
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