



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

Improving air quality

EPA Needs to Improve Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills

Report No. 20-P-0236

July 30, 2020



Report Contributors:

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Abbreviations

C.F.R.	Code of Federal Regulations
EG	Emission Guidelines
EPA	U.S. Environmental Protection Agency
Fed. Reg.	Federal Register
MSW	Municipal Solid Waste
NMOC	Nonmethane Organic Compound
NSPS	New Source Performance Standards
OIG	Office of Inspector General

Cover Photo: McCommas Bluff Landfill in Dallas, Texas. (EPA OIG photo)

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At a Glance

Why We Did This Project

We conducted this audit to determine whether active municipal solid waste landfills are operating under the appropriate air quality permit. As waste in an MSW landfill decomposes, it emits methane, carbon dioxide, and nonmethane organic compounds that can cause adverse health and environmental effects. The Clean Air Act and U.S. Environmental Protection Agency regulations require:

- MSW landfills to report their waste capacity to the appropriate state agencies.
- Large MSW landfills to obtain what are commonly called “Title V permits” from their state air permitting authorities.
- Large MSW landfills to calculate whether their emissions will exceed regulatory levels and, if so, install emissions controls.
- States to submit plans to the EPA requesting approval to implement the EPA’s MSW landfill air emissions regulations for existing MSW landfills, as well as annual progress reports.
- The EPA to approve state plans or implement a federal plan.

This report addresses the following:

- *Improving air quality.*

This project addresses these top EPA [management challenges](#):

- *Complying with internal control (data quality).*
- *Overseeing states implementing EPA programs.*

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EPA Needs to Improve Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills

What We Found

We identified 12 active MSW landfills in the two states we audited, Georgia and Texas, that could be operating without the required Title V permits. The Georgia and Texas state agencies responsible for issuing Title V permits to MSW landfills did not always obtain the data needed to verify whether the landfills required a Title V permit and whether landfill emissions exceeded allowable levels. In four instances, the regulatory requirements were misinterpreted.

Effective EPA oversight of state implementation of landfill air emissions requirements helps achieve air quality, public health, and environmental goals set by the Clean Air Act.

The EPA did not identify deficiencies in how Georgia and Texas implemented Clean Air Act regulations to control air emissions from MSW landfills. For example, to oversee state implementation of the 1996 regulations to address emissions from existing MSW landfills, EPA Regions 4 and 6 should have—but did not—verify whether Georgia and Texas submitted (1) complete state plans requesting approval to implement these regulations and (2) the required annual progress reports. EPA review of these documents is necessary to provide assurance that states have an adequate plan for and are effectively implementing and enforcing MSW landfill emissions regulations in accordance with federal requirements.

Without effective state implementation and EPA oversight of Clean Air Act regulations for MSW landfills, these landfills could operate for years without required emissions controls. As a result, MSW landfills could emit more air pollutants than allowed under a Title V permit, and state efforts to meet the EPA’s air quality standards for ozone and fine particulate matter could be hindered. The EPA revised its Clean Air Act regulations for MSW landfills in 2016 and requested that states submit new plans for existing MSW landfills. Implementation of the revised regulations provides the EPA with an opportunity to verify that the new plans are complete, annual progress reports are submitted, and proper oversight is conducted.

Recommendations and Planned Agency Corrective Actions

We recommend that the regional administrators for Regions 4 and 6 require that Georgia and Texas determine whether the MSW landfills identified in this report need to obtain Title V permits and install emissions controls. We also recommend that the EPA develop guidance for Clean Air Act MSW-landfill requirements that addresses the review and oversight of the Title V permitting process, the approval of state plans, the review of annual progress reports, and the periodic review of implementation and enforcement. We consider four of our seven recommendations resolved with corrective actions pending. The remaining three are unresolved.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

July 30, 2020

MEMORANDUM

SUBJECT: EPA Needs to Improve Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills
Report No. 20-P-0236

FROM: Sean W. O'Donnell

A handwritten signature in blue ink that reads "Sean W O'Donnell".

TO: *See Below*

This is our report on the subject audit conducted by the Office of Inspector General of the U.S. Environmental Protection Agency. The project number for this audit was OA&E-FY18-0273. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

In response to OIG Recommendations 1, 2, 3, and 7, the Office of Enforcement and Compliance and EPA Regions 4 and 6 provided acceptable planned corrective actions and estimated milestone dates. In accordance with EPA Manual 2750, these four recommendations are resolved, and no further response is required. However, if you submit a response, it will be posted on the OIG's website, along with our memorandum commenting on your response.

Action Required

The Office of Air and Radiation did not provide acceptable planned corrective actions and estimated milestone dates for Recommendations 4, 5, and 6. This report, therefore, contains three unresolved recommendations. In accordance with EPA Manual 2750, the resolution process begins immediately with the issuance of this report. We are requesting a meeting within 30 days between the assistant administrator for Air and Radiation and the OIG's assistant inspector general for Audit and Evaluation. We also request a written response to the final report within 60 days of this memorandum.

Your response will be posted on the OIG's website, along with our memorandum commenting on your response. Your response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that you do not want to be released to the public; if your response contains such data, you should identify the data for redaction or removal along with corresponding justification. If resolution is still not reached, the Office of Air and Radiation is required to complete and submit a dispute resolution request to the chief financial officer.

We will post this report to our website at www.epa.gov/oig.

Addressees

Susan Parker Bodine, Assistant Administrator for Enforcement and Compliance Assurance

Anne Idsal, Principal Deputy Assistant Administrator for Air and Radiation

Mary S. Walker, Regional Administrator for Region 4

Ken McQueen, Regional Administrator for Region 6

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Chapter 1

Introduction

Purpose

The Office of Inspector General for the U.S. Environmental Protection Agency conducted this audit to determine whether active landfills are operating under the appropriate air quality permit.

Top Management Challenges

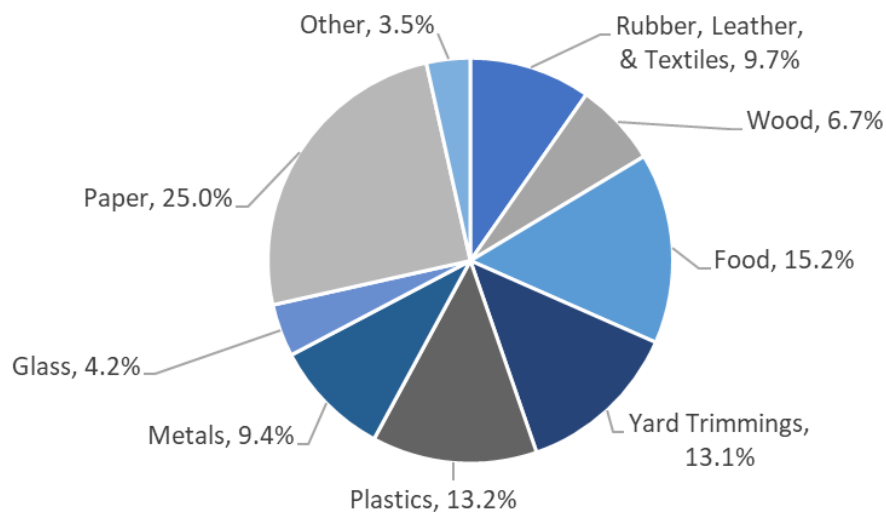
This audit addresses the following top management challenges for the Agency, as identified in OIG Report No. [20-N-0231](#), *EPA's FYs 2020-2021 Top Management Challenges*, issued July 21, 2020:

- Complying with internal control (data quality).
- Overseeing states implementing EPA programs.

Background

Municipal solid waste, or MSW, landfills are discrete areas of land that receive household waste and other types of nonhazardous waste. According to the EPA Landfill Methane Outreach Program, at least 1,220 open—that is, active—MSW landfills are operational and accepting MSW in the United States. In 2017, the United States generated about 268 million tons of MSW, about 4.5 pounds per person per day (Figure 1).

Figure 1: MSW generated in 2017 (267.8 million tons)



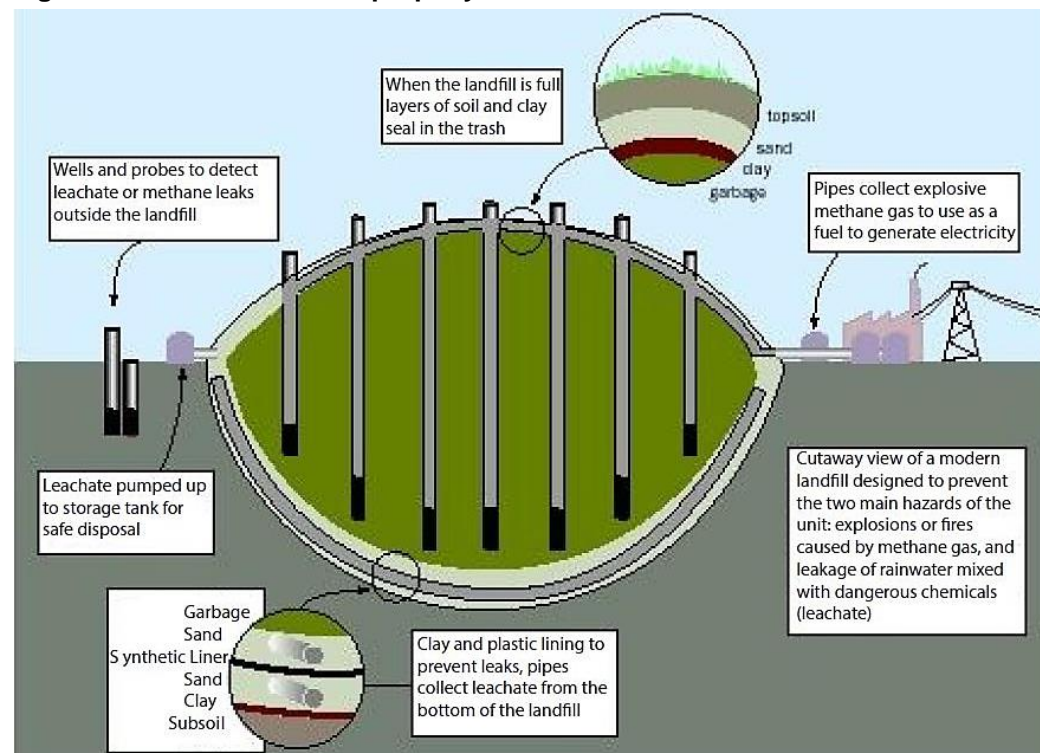
Source: EPA OIG. Derived from the EPA's "National Overview: Facts and Figures on Materials, Wastes and Recycling" webpage.

Composition of an MSW Landfill

The Resource Conservation and Recovery Act regulations under 40 C.F.R. Part 258 provide minimum criteria for all MSW landfills. For example, the MSW landfill design begins with installing a plastic and clay liner to prevent waste from

contaminating outside soil and groundwater. The MSW landfill compacts the daily waste into areas called “cells.” EPA regulations require MSW landfills to then cover this disposed solid waste with at least six inches of earthen material at the end of each operating day or at more frequent intervals.¹ When the capacity of either a section of an MSW landfill or the entire MSW landfill is reached, the waste is sealed into place by a “final cover.” Resource Conservation and Recovery Act regulations require that this final cover system include both a layer of earthen material at least 18 inches thick and a top layer of earthen material at least six inches thick that is capable of sustaining plant growth to prevent erosion of the soil. The MSW landfill is then considered closed and no longer active.² Figure 2 provides an overview of a closed MSW landfill that is no longer accepting MSW.

Figure 2: Cross section of a properly closed MSW landfill



Source: EPA, “Municipal Solid Waste Landfills” webpage.

A landfill gas collection and control system design can include vertical and horizontal piping that is buried in various locations to collect gases emitted by the decomposing waste, which are either vented, burned, or extracted for use as fuel. Decomposing waste produces gases such as methane, carbon dioxide, and nonmethane organic compounds, also referred to as NMOCs. Although emissions of gases at an MSW landfill typically reach their peak five to seven years after the waste is buried, the waste can continue to emit gases for more than 50 years. The

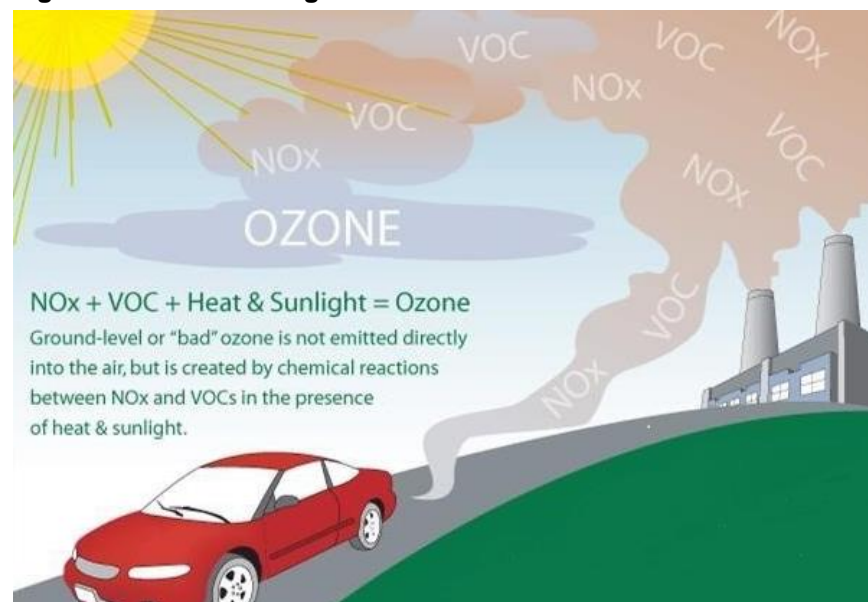
¹ 40 C.F.R. Part 258, Subpart C.

² 40 C.F.R. Part 258, Subpart F.

EPA's Greenhouse Gas inventory system indicates that there were over 89 million metric tons of methane emissions from MSW landfills in 2018. Methane and carbon dioxide are greenhouse gases, which trap heat in the atmosphere. According to the United Nations' Intergovernmental Panel on Climate Change, methane, carbon dioxide, and other greenhouse gases from human activities have been "the most significant driver of observed climate change" since the mid-20th century.³ Methane is also flammable, and high concentrations can result in explosions. Per the EPA's 2017 data in its *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017*, landfills in general were the third-largest source of domestic human-related methane emissions in the United States, behind natural gas and petroleum systems and livestock farming. MSW landfills contributed 95 percent of the total U.S. landfill emissions during that period.

NMOCs include volatile organic compounds, hazardous air pollutants, and odorous compounds. As shown in Figure 3, volatile organic compounds from sources such as MSW landfills react chemically in the presence of sunlight with nitrogen oxides already present in the air to form harmful ground-level ozone. Emissions of volatile organic compounds also lead to the formation of fine particulate matter. In addition, MSW landfills can emit nearly 30 different hazardous air pollutants, including vinyl chloride, ethyl benzene, toluene, and benzene, which can cause adverse health effects depending on the level of exposure. Studies conducted to evaluate the short-term health effects from exposure to MSW landfill gases found that common complaints included eye, throat, and lung irritations; nausea; headaches; and aggravations of asthma.

Figure 3: Formation of ground-level ozone



Source: EPA OIG, derived from the EPA's "Ground-level Ozone Basics" webpage.

Note: NOx = nitrogen oxides; VOC = volatile organic compound.

³ Intergovernmental Panel on Climate Change, 2013, *Climate Change 2013: The physical science basis*. Working Group I contribution to the Fifth Assessment Report. Cambridge, United Kingdom: Cambridge University Press.

Clean Air Act Provisions and EPA Regulations Related to MSW Landfills

Under the Clean Air Act, the EPA has the authority to regulate the emissions of air pollutants from stationary sources of pollution, such as MSW landfills. Section 111 of the Clean Air Act requires the EPA to publish regulations that address emissions of pollutants from new or modified stationary sources of pollution and issue separate regulations to address existing stationary sources of pollution. The Clean Air Act also includes the following state-specific provisions related to stationary sources of pollution:⁴

- Section 111(c) provides a process by which states may obtain the authority from the EPA to implement and enforce standards of performance for new stationary sources of pollution.
- Section 111(d) requires the EPA to establish a procedure under which states are to submit state plans to implement and enforce standards of performance for existing stationary sources of pollution in their state. Expanding upon this provision, EPA regulations require that states submit a letter of “negative declaration” instead of a 111(d) state plan if no stationary source of pollution subject to the regulations exist within the state’s boundaries.⁵ Section 111(d) also authorizes the EPA to issue and enforce a federal plan for those states that fail to submit a satisfactory 111(d) state plan within the regulatory timeframe or enforce an approved 111(d) state plan.⁶

Per Section 111 of the Clean Air Act, the EPA published two categories of regulations to address nonhazardous MSW landfill air emissions.

1. **New Source Performance Standards.** The MSW-landfill NSPS applies to newly constructed, modified, or reconstructed MSW landfills.⁷
2. **Emission Guidelines.** The MSW-landfill EG establishes requirements for regulating landfill gas emissions from existing MSW landfills.⁸ These requirements are then implemented through a state plan or federal plan.

⁴ For the purposes of this report, the term “state” also includes Indian Country communities and any large localities, local agencies, and air districts that have been authorized to implement and enforce the EPA’s Clean Air Act requirements, including the MSW-landfill air emissions regulations promulgated under Section 111(d).

⁵ 40 C.F.R. § 60.23a(b).

⁶ Any “state plan” or “federal plan” mentioned hereafter refers to these 111(d) state and federal plans.

⁷ “Standards of Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills,” 61 Fed. Reg. 9905, (March 12, 1996) (“1996 MSW-Landfill NSPS” and “1996 MSW-Landfill EG”); and “Standards of Performance for Municipal Solid Waste Landfills,” 81 Fed. Reg. 59332 (August 29, 2016) (“2016 MSW-Landfill NSPS”).

⁸ 1996 MSW-Landfill EG; and “Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills,” 81 Fed. Reg. 59276 (August 29, 2016) (“2016 MSW-Landfill EG”).

EPA Air Regulations Require Large MSW Landfills to Obtain Operating Permits

The MSW-landfill NSPS and the MSW-landfill EG, as implemented and enforced through an EPA-approved state plan or federal plan, establish periodic reporting and control requirements for MSW landfills depending on their size and emissions. These regulations identify an MSW landfill as subject to additional regulatory requirements if its capacity is greater than or equal to both a:

- *Mass capacity threshold* of 2.5 million megagrams.
- *Volume capacity threshold* of 2.5 million cubic meters.⁹

In this report, we refer to landfills of this size as “large.” The Clean Air Act MSW-landfill regulations require large MSW landfills to obtain a Clean Air Act operating permit, which is known as a “Title V permit.”¹⁰

According to the EPA’s Enforcement and Compliance History Online website, the EPA classified 769 nonhazardous solid waste landfills in December 2019 as “major emission” landfills with Title V permits. States and their air permitting authorities, which typically are part of the state air agency, have primary responsibility for Title V permitting programs, including reviewing permit applications, issuing permits, and permit enforcement. Title V permits contain monitoring, reporting, and record-keeping provisions so that affected stakeholders, including federal and state regulators, industry, and the public, know the air quality requirements that sources such as MSW landfills must meet to comply with the Clean Air Act. EPA regional offices are responsible for verifying that states properly implement the EPA-approved Title V permitting programs.

EPA Regulations Address NMOC Emissions, Design Capacity

The Clean Air Act MSW-landfill regulations also require large MSW landfills to calculate their NMOC emissions and report the level of emissions to the appropriate implementing agency, typically the state air permitting authority. If an MSW landfill’s calculated NMOC emissions exceed the EPA’s regulatory threshold, the MSW landfill is required to install emissions controls—specifically, a gas-collection-and-control system—to reduce the NMOC emissions. Per the regulations, if an MSW landfill’s calculated NMOC emissions are under the threshold, the MSW landfill does not have to install controls but must annually report its NMOC emissions to the state air permitting authority.¹¹ This annual NMOC emissions report allows the state air permitting authority to monitor whether emissions reach a level requiring the installation of gas-collection-and-control system.

⁹ 40 C.F.R. Part 60, Subparts Cc, Cf, GGG, XXX, and WWW.

¹⁰ 40 C.F.R. §§ 60.752(c), 60.762(b), 60.32c(c), 60.31f(c), and 62.14352(e).

¹¹ 40 C.F.R. §§ 60.752(b), 60.762(b), 60.33c(e), 60.33f(e), and 62.14353(b).

To determine whether an MSW landfill meets the mass and volume capacity thresholds requiring a Title V permit, the Clean Air Act MSW-landfill regulations require that MSW landfills, regardless of size, submit an initial design capacity report to the state, typically to the state air office.¹² Design capacity is the maximum amount of solid waste an MSW landfill can accept, as indicated in the landfill's most recent solid waste permit issued by the state solid waste office, plus any in-place waste—that is, closed areas or “phases” of the landfill—not accounted for in that most recent permit. In addition, states are responsible for managing the design capacity reporting process, which includes collecting data on capacities via design capacity report forms submitted by MSW landfills. States assess and track these capacity levels, which they often record in a solid waste spreadsheet or database. State or federal air permitting authorities use this design capacity to determine whether:

1. A planned new, modified, or reconstructed MSW landfill requires a Title V permit to comply with the MSW-landfill NSPS.¹³
2. An existing MSW landfill must obtain a Title V permit to comply with the MSW-landfill EG.¹⁴

State Implementation of MSW-Landfill NSPS and EG

Per Section 111 of the Clean Air Act, the EPA can delegate states to implement and enforce the Clean Air Act MSW-landfill requirements. A state may request delegation from the EPA to implement and enforce the NSPS for new MSW landfills subject to the regulation.¹⁵ Additionally, each state must request EPA approval of its state plan to implement the EG for existing MSW landfills subject to the regulation.¹⁶ Per 40 C.F.R. Part 60, Subpart B, states submit their requests to the appropriate EPA regional office. In addition, states must update their state plans and submit them for EPA approval each time the MSW-landfill EG is revised.¹⁷ Once the appropriate EPA regional office approves the state plan implementing the MSW-landfill EG, the approved state plan is enforceable by the state and the EPA.

Clean Air Act regulations also require that the EPA issue a federal plan to implement the MSW-landfill EG in any state that does not submit a satisfactory state plan or submit a state plan within the timeframe identified in the regulation.¹⁸ This federal plan is issued by the EPA's Office of Air Quality

¹² 40 C.F.R. §§ 60.752(a), 60.762(a), 60.33c(d), 60.33f(d), and 62.14355.

¹³ 40 C.F.R. §§ 60.752(b) and 60.762(b).

¹⁴ 40 C.F.R. §§ 60.32c(c), 60.31f(c), and 62.14352(e).

¹⁵ Clean Air Act § 111(c).

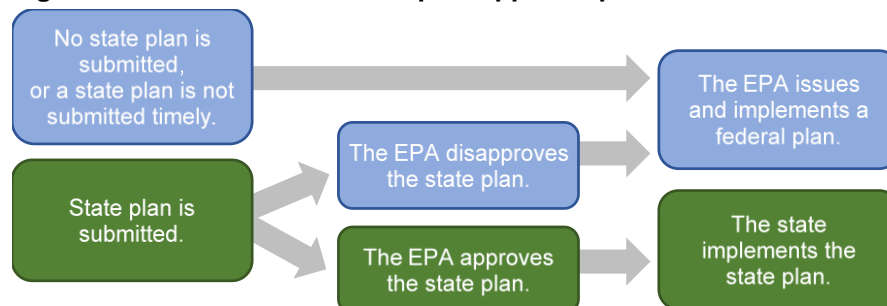
¹⁶ Clean Air Act § 111(d).

¹⁷ 40 C.F.R. § 60.23(a).

¹⁸ Clean Air Act § 111(d); 40 C.F.R. §§ 60.27(c) and (d); “Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction Prior to May 30, 1991 and Have Not Been Modified or Reconstructed Since May 30, 1991,” 64 Fed. Reg. 60689 (November 8, 1999).

Planning and Standards and implemented by the EPA regional offices, as necessary. Figure 4 depicts the state plan approval process.

Figure 4: State MSW-landfill EG plan approval process



Source: OIG review of 40 C.F.R. Part 60, Subpart B.

EPA guidance describes a state’s responsibilities for Clean Air Act MSW-landfill regulation reporting.¹⁹ The guidance recommends that states:

- Develop standard report forms for MSW landfills—such as initial and amended design capacity reports, as well as NMOC emissions reports—to facilitate receipt of the required information in a consistent format.
- Track receipt of MSW-landfill reports to identify which reports are received and expected in the future.
- Verify that each report includes the MSW-landfill NSPS and EG requirements. If a report is not acceptable, the state needs to inform the MSW landfill and arrange for resubmission.

In addition, states with approved state plans or delegated federal plans must submit annual progress reports detailing the plan’s implementation status to the applicable EPA regional office.²⁰ These progress reports must include, among other information, any enforcement actions taken, an update of the inventory of MSW landfills, and other program data.²¹

EPA Delayed Approving State Plans and Implementing 2016 MSW-Landfill EG

The EPA originally promulgated the Clean Air Act MSW-landfill regulations in 1996 and revised them in 2016. States were required to submit state plans for implementing the 2016 MSW-landfill EG for existing landfills by May 30,

¹⁹ Municipal Solid Waste Landfills, Volume 1: Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills (February 1999); Volume 2: Summary of the Requirements for Section 111(d) State Plans for Implementing the Municipal Solid Waste Landfill Emission Guidelines (November 1998).

²⁰ 40 C.F.R. §§ 60.25(e) and (f).

²¹ 40 C.F.R. § 60.25(f).

2017.²² However, after consulting the Office of Enforcement and Compliance Assurance, the Office of Air and Radiation sent an October 2017 email to the EPA regions stating that the Agency was reconsidering several issues regarding the regulation and therefore would not prioritize the review of state plans or issue a federal plan. As a result, the federal plan implementing the 1996 regulations was still effective. The email also said that “states that fail to submit state plans are not subject to sanctions (e.g. loss of federal highway funds). Therefore, states should not be concerned regarding any sanction.”

Some states that had already submitted their 2016 MSW-landfill EG state plans sued the EPA for failing to act on the submitted state plans. In a May 2019 decision, a U.S. district court ordered the EPA to review and either approve or disapprove by September 6, 2019, the state plans that it had received to date.²³ The EPA then amended its 2016 MSW-landfill EG to update the submittal deadline for state plans from May 30, 2017, to August 29, 2019.²⁴ In a separate 2019 regulatory action, the EPA also established that it would determine the completeness of state plan submissions within 60 days.²⁵ If the EPA does not make a completeness determination within six months of a state’s submission, the state plan would automatically be deemed as complete. Further, the EPA would either approve or disapprove any state plans within 12 months of the completeness determination.

As of March 2020, the EPA had approved the 2016 MSW-landfill EG state plans for Arizona, Delaware, New Mexico, Virginia, West Virginia, Albuquerque-Bernalillo County in New Mexico, and Pinal County in Arizona. The Agency also provided partial approval of California’s state plan and is reviewing the state plans for New York, Oregon, and South Dakota. Further, three locations submitted negative declaration letters certifying that no existing MSW landfills subject to the Clean Air Act MSW-landfill regulations applied to them: Vermont; Washington, D.C.; and Philadelphia, Pennsylvania. The EPA also issued a finding on March 6, 2020, identifying 42 states and territories that failed to submit their 2016 MSW-landfill EG state plans.²⁶

The May 2019 court decision also ordered the EPA to issue a federal plan implementing the 2016 regulations by November 6, 2019. On August 22, 2019, the EPA proposed, but did not issue, a federal plan. The EPA appealed the district court’s decision to the U.S. Court of Appeals for the Ninth Circuit. As of

²² “Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills,” 81 Fed. Reg. 59276, 59313 (August 29, 2016).

²³ Order Granting in Part and Den. in Part Pls.’ Mot. for Summ. J. and Den. Defs.’ Mot. for Summ. J., *California v. United States Environmental Protection Agency*, No. 4:18CV03237 at *16 (N.D. Cal. May 6, 2019).

²⁴ “Adopting Requirements in Emission Guidelines for Municipal Solid Waste Landfills,” 84 Fed. Reg. 44547, 44555 (August 26, 2019); 40 C.F.R. § 60.30f(b).

²⁵ “Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations,” 84 FR 32520, 32578 (July 8, 2019); 40 C.F.R. § 60.27a (b).

²⁶ 85 Fed. Reg. 14474 (March 12, 2020).

June 2020, the case remained on appeal, with the district court's order stayed pending the outcome of the appeal. As a result, it remains unclear when the EPA will issue a federal plan.

Until the EPA issues a final federal plan for implementing the 2016 MSW-landfill EG, the state plans and federal plan for implementing the 1996 MSW-landfill EG are still in effect, unless the state has an EPA-approved plan under the 2016 MSW-landfill EG.

Responsible Offices

The EPA's Office of Air Quality Planning and Standards, within the Office of Air and Radiation, develops regulations to limit and reduce air pollution and assists states and local agencies with monitoring and controlling air pollution.

The EPA's Office of Enforcement and Compliance Assurance works with the EPA regional offices and state, local, and tribal agencies to address pollution problems that impact communities through enforcement. The Office of Enforcement and Compliance Assurance also partners with EPA regional offices to enforce environmental laws.

The EPA regional offices oversee and monitor states' implementation and enforcement of the EPA's Clean Air Act MSW-landfill regulations. In addition, the regional offices approve state plans implementing the MSW-landfill EG and approve delegations of federal plans to the states.

Scope and Methodology

We conducted this performance audit from September 2018 through March 2020 in accordance with generally accepted government auditing standards. Those standards require that we obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our objective. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

We sought to determine whether active MSW landfills are operating under the appropriate air quality permit. To obtain an understanding of the air emissions laws and regulations that impact MSW landfills, we reviewed Clean Air Act provisions, including those regarding obtaining Title V permits, and EPA regulations for controlling air emissions from stationary sources, such as MSW landfills. We also reviewed the EPA's guidance documents for implementing the Clean Air Act MSW-landfill regulations. To identify the intent behind the MSW landfill air regulations and the oversight roles of EPA headquarters versus EPA regional offices, we interviewed staff from the EPA's Office of Air Quality Planning and Standards and conducted a survey of all ten EPA regional offices. We also interviewed staff from the Office of Enforcement and Compliance

Assurance to obtain information regarding enforcement efforts related to MSW-landfill air emissions.

To determine which states we would review, we used a purposeful nonprobability sampling technique, using the U.S. Department of Homeland Security’s Federal Emergency Management Agency’s National Fire Incident Reporting System to compare the states with the largest number of landfill fires for all types of landfills against ozone nonattainment areas under the EPA’s National Ambient Air Quality Standards.²⁷ These two criteria are significant because:

- Landfill fires can occur when proper control of landfill gases is absent. We hypothesized that states with a large number of landfill fires may have less stringent oversight.
- The ozone nonattainment areas relate to gases emitted by landfills, specifically methane and volatile organic compounds, which are precursors to ground-level ozone.

Sampling Methodology

Auditing often involves analyzing a limited number (also known as a *sample*) of the entire population of the subject being audited. *Nonprobability sampling* does not involve random selection of the sample, while *probability sampling* does. With a probability sample, the results of the sample tested likely apply to the entire population. Nonprobability samples may or may not represent the entire population.

Purposeful sampling is a type of nonprobability sampling in which auditors use their professional judgment and knowledge of the population to identify a sampling strategy and criteria related to the audit objective to choose the audit samples.

Because we could not identify a complete and accurate list of U.S. MSW landfills, we were unable to develop a probability-based sample of MSW landfills and states. We therefore used a purposeful nonprobability sampling technique to determine our audit sample.

We identified Georgia, which is located in EPA Region 4, and Texas, which is located in EPA Region 6, for further analysis. Although our audit sample comprises just two states, Region 4 and 6 oversee a combined 13 states and 72 tribal nations, which account for almost 99.5 million people and represent over 30 percent of the U.S. population:

- Region 4 oversees eight states and six tribal nations. Based on 2010 census data, Region 4 comprises more than 61 million residents.
- Region 6 oversees five states and 66 tribal nations. Based on 2010 census data, Region 6 comprises more than 38 million residents. Of note, Texas’s population of more than 25 million people makes it the second-most populous state after California.

²⁷ The Clean Air Act requires the EPA to set National Ambient Air Quality Standards for six common air pollutants. If the air quality in a geographic area does not meet the national standard for any of these pollutants, those areas are called “nonattainment areas.”

Because Georgia and Texas did not submit state plans for implementing the 2016 MSW-landfill EG and the EPA did not issue a federal plan for the 2016 MSW-landfill EG during our audit fieldwork, we used the criteria in the 1996 MSW-landfill EG regulations to analyze the MSW landfills in our audit scope. Since we selected a purposeful nonprobability sample of two states and two associated EPA regional offices, our results cannot be projected to other states that implement the Clean Air Act MSW-landfill regulations or to the EPA regions that oversee those states. However, we determined that the selection of these states was appropriate for our design and objective, would generate valid and reliable evidence to support our work, and would provide useful insight into the level of understanding and experiences of MSW landfills.

To obtain information on how Regions 4 and 6 oversee Clean Air Act MSW-landfill regulations, we obtained state-related documents and interviewed air permitting, air enforcement, and solid waste staff. To assess state implementation of air emissions regulations for MSW landfills in Georgia and Texas, we reviewed state regulations and MSW-landfill policies and procedures. We interviewed staff from Georgia's Environmental Protection Division and the Texas Commission on Environmental Quality. We also interviewed Georgia and Texas state inspectors and EPA regional inspectors to understand the MSW-landfill inspection process in Georgia and Texas.

To determine compliance with the Clean Air Act MSW-landfill regulations, we took two samples: the first to test compliance with design capacity reporting requirements and the second to test compliance with Title V permit requirements. To test Georgia's and Texas's compliance with MSW landfill design capacity reporting requirements, we reviewed a sample of 75 MSW landfills: 30 of 51 (59 percent) from Georgia and 45 of 143 (31 percent) from Texas. Because air permitting authorities in Georgia and Texas did not maintain design capacity information for MSW landfills, we obtained these data from each state's solid waste office. State solid waste offices typically use the landfill design capacity information to issue solid waste disposal permits under the Resource Conservation and Recovery Act. Clean Air Act MSW-landfill regulations also generally require that landfill owners and operators keep records, including design capacity reports, on site for not less than five years.

To test compliance with Title V permit requirements, we reviewed the design capacity information for the 30 Georgia MSW landfills identified in our sample and all of the 143 MSW landfills in Texas to identify MSW landfills that had capacities over or near either the mass or volume capacity threshold but did not have Title V permits, according to EPA and state records. See Appendix A for additional details regarding this sample.

From this effort, we identified 17 MSW landfills: five from Georgia and 12 from Texas. Of these 17 MSW landfills, two had reported volume capacities just under the 2.5 million cubic meters threshold. We then sought to determine whether these

17 MSW landfills had valid reasons for not obtaining a Title V permit. We visited five of these 17 MSW landfills to confirm their operating status and reported design capacity and to determine why they had not obtained a Title V permit. Of the 17 MSW landfills, we determined that five did not require a Title V permit at the time of our audit. Two of the MSW landfill's had design capacities that were under the volume capacity threshold when adjusted to remove the volume of material used as final cover from the design capacity calculation; two MSW landfills had not yet begun construction on expansions that would increase their volume capacity over the volume capacity threshold for obtaining a Title V permit, and one MSW landfill's volume capacity was incorrectly entered into the solid waste database.

See Appendix A for additional details regarding our scope and methodology.

Chapter 2

EPA Needs Additional Oversight of Clean Air Act MSW-Landfill Requirements

The EPA did not verify that Georgia and Texas effectively implemented the EPA's air emissions regulations for MSW landfills. For example, these states were not collecting all the required data to determine whether large landfills should obtain Title V operating permits. We identified ten MSW landfills where the site exceeded either the mass or volume capacity thresholds for requiring a Title V permit, but the states did not have data on the other capacity threshold to determine whether permit requirements applied. In addition, MSW-landfill operators and state air permitting authorities sometimes misinterpreted the EPA's Title V permit requirements. We found two MSW landfills that should have obtained a Title V permit, but the state or landfill personnel mistakenly concluded that one was not needed. When large MSW landfills do not obtain Title V permits, they do not have to provide the state or public with NMOC emissions reports, which the air permitting authorities use to determine whether emissions controls are needed. In addition, the public can use these NMOC reports as a means of holding MSW landfills accountable for air quality requirements. Failure to control NMOC emissions from large MSW landfills could impede a state's efforts to reduce harmful ground-level ozone and fine particulate matter to safe levels that meet national air quality standards.

Georgia and Texas Did Not Collect All Data Needed to Determine Whether Some Large MSW Landfills Required Title V Permits

Based on our initial review of landfill capacity data maintained at state agencies for our sample of 30 MSW landfills in Georgia and all 143 MSW landfills in Texas, we identified 17 MSW landfills that exceeded or nearly exceeded the volume capacity threshold of 2.5 million cubic meters but did not have Title V permits. As discussed previously, the Clean Air Act MSW landfill regulations require that MSW landfills with a design capacity greater than or equal to 2.5 million megagrams by mass and 2.5 million cubic meters by volume obtain a Title V permit and report NMOC emissions. After conducting a more extensive review of the available data, we determined that 12 of the 17 landfills exceeded the volume threshold based on the landfill's design capacity report, information in the state's solid waste permit records, or both. We therefore determined that five of the 17 MSW landfills did not need a Title V permit at this time.

Georgia and Texas state agencies could only locate initial design capacity reports for two of the 12 MSW landfills that exceeded the volume threshold. For one of those two landfills, the design capacity report showed that the landfill also exceeded the mass capacity threshold of 2.5 million megagrams. This landfill thus should have obtained a Title V operating permit. The other landfill initially

reported a design capacity in 1998 that was just under the mass capacity threshold. As required by Clean Air Act MSW-landfill regulations, this landfill should have recalculated its mass capacity annually to continue to demonstrate that it did not need to obtain a Title V permit.²⁸ Although Clean Air Act MSW-landfill regulations do not require that the recalculations be sent to the state agency, Resource Conservation and Recovery Act regulations require that landfills notify the state when new documents are added to their operating record.²⁹ As the annual mass capacity calculations would have become part of the MSW landfill’s operating record, this information would have been available to the state to monitor whether a Title V permit was necessary. However, there is no record that the MSW landfill did these calculations as required.

Georgia and Texas were unable to provide us with the initial design capacity report for the remaining ten landfills. Since the states’ solid waste data did not include landfill capacity by mass, we were unable to determine whether these ten landfills met both the volume and mass capacity criteria for obtaining a Title V permit. Table 1 provides the results of our analyses for the 12 MSW landfills that exceeded the volume capacity threshold for obtaining a Title V permit.

As illustrated in Table 1, the available volume capacity data indicate that each of these landfills could need a Title V operating permit and six of these MSW landfills may have been operating for over 20 years without the required permit. The appropriate state agencies in Georgia and Texas should obtain mass capacity data for these landfills to determine whether they need to obtain a Title V permit. If both mass and volume capacity thresholds are exceeded and a permit is required, these MSW landfills would also be required to report their NMOC emissions so that the state could determine whether a gas-collection-and-control system must be installed.

Table 1: Twelve landfills that exceeded 2.5 million cubic meter volume capacity thresholds for Title V permits

MSW landfill	Capacity based on the initial design capacity report		Volume capacity based on solid waste permit records (cubic yards)	Volume capacity converted to cubic meters ^a
	Volume (cubic meters) ^a	Mass (megagrams)		
Texas				
McCommas Bluff ^b	122,090,000	66,480,000	156,130,000	119,465,912
City of Dumas Landfill	5,382,935	^c 2,441,658	8,281,438	6,336,704
City of Monahans ^b	not located	not located	5,759,600	4,407,070
Hardin County Landfill	not located	not located	5,740,000	4,392,073
Altair Disposal Services LLC Landfill	not located	not located	5,156,816	3,945,838
City of Carrizo Springs Landfill	not located	not located	4,246,134	3,249,012
Perryton Municipal Solid Waste Landfill	not located	not located	4,228,000	3,235,137

²⁸ 40 C.F.R. § 60.758(f).

²⁹ 40 C.F.R. § 258.29(b).

MSW landfill	Capacity based on the initial design capacity report		Volume capacity based on solid waste permit records (cubic yards)	Volume capacity converted to cubic meters ^a
	Volume (cubic meters) ^a	Mass (megagrams)		
City of Levelland	not located	not located	3,860,313	2,953,794
City of Crane Landfill	not located	not located	3,800,000	2,907,644
City of Alpine Landfill	not located	not located	3,749,000	2,868,620
Sierra Blanca Landfill	not located	not located	3,369,600	2,578,315
Georgia				
Toombs County ^b	not located	not located	3,678,000	2,814,293

Source: OIG analysis of design capacity data received from Georgia and Texas solid waste staff and documents.

^a Solid waste volume capacity is typically reported in cubic yards, while the Clean Air Act MSW-landfill capacity threshold for volume is expressed in cubic meters. To determine whether landfill volumes exceeded the regulatory threshold for a Title V permit, we converted the reported capacities in each state's solid waste records from cubic yards to cubic meters using the EPA's conversion formula provided in the MSW-landfill NSPS and EG.

^b MSW landfill visited by the OIG.

^c The mass calculation was from a 1998 design capacity report. If a landfill uses a mass calculation to conclude that a Title V permit is not required, the EPA requires that the landfill update its calculation annually to demonstrate that it has not subsequently exceeded the mass capacity threshold.

Weaknesses in Program Implementation and Oversight Increase Risk That Large MSW Landfills Operate Without Title V Permits

We identified weaknesses in the state implementation of the Clean Air Act MSW-landfill regulations in Regions 4 and 6, as well as weaknesses in the EPA oversight of these state programs. These weaknesses could allow large MSW landfills to operate without Title V permits and not report NMOC emissions to their state air permitting authority. State implementation weaknesses included:

- EPA regulations were misinterpreted by state agencies or MSW landfill operators.
- Georgia and Texas did not properly implement or manage the reporting process for MSW-landfill initial design capacity reports.
- EPA did not meet its oversight responsibilities for state plans for MSW-landfill EG implementation. Specifically, Regions 4 and 6 approved incomplete state plans for Georgia and Texas and did not require states to submit annual progress reports. Region 6 did not implement a federal plan for one of its states that did not have an approved state plan.

These weaknesses increase the risk that large MSW landfills are operating or could operate in the future without obtaining a Title V permit and installing required emissions controls.

EPA Regulations Were Misinterpreted

We found four instances where Clean Air Act MSW-landfill regulations were misinterpreted or not fully understood by the state permitting authority or the MSW landfill operator:

- The Texas Commission on Environmental Quality sent a letter to one MSW landfill stating that, unless the landfill decided to modify its capacity, it did not require a Title V permit because it obtained its operating permit in 1975, prior to the applicability of the MSW-landfill NSPS. The letter did not address the applicability of the 1996 MSW-landfill EG for existing MSW landfills, as implemented under Texas’s 1999 EPA-approved state plan. Since the landfill’s original design capacity was over 47 times the volume capacity threshold and over 26 times the mass capacity threshold, the landfill should have obtained a Title V permit. We confirmed, however, that the landfill had installed a gas-collection-and-control system, even though it did not have a Title V permit.
- Another MSW landfill sent a letter to the Texas Commission on Environmental Quality saying that it was “not subject to the EG rules” based on total disposal capacity, that the 1996 MSW-landfill NSPS was not applicable because the MSW landfill obtained its operating permit in 1977, and that no modifications had occurred since 1991. However, the landfill did not consider the EPA’s 1996 MSW-landfill EG’s requirements for existing MSW landfills, as implemented under Texas’s 1999 EPA-approved state plan. Because this MSW landfill was an existing landfill, it was subject to Texas’s state plan implementing the 1996 MSW-landfill EG. Further, since the landfill’s capacity was approximately two times the volume capacity threshold, it should have provided a calculation of capacity by mass to the state to determine whether it should apply for a Title V permit.
- At a third site, MSW-landfill staff told us that they did not know that their 2018 request to the Texas Commission on Environmental Quality for an expansion could trigger the requirement to apply for a Title V permit after



Top to bottom: Texas MSW-landfill site visit with staff from the Texas Commission on Environmental Quality and city officials. Active portion of an MSW landfill. (OIG photos)

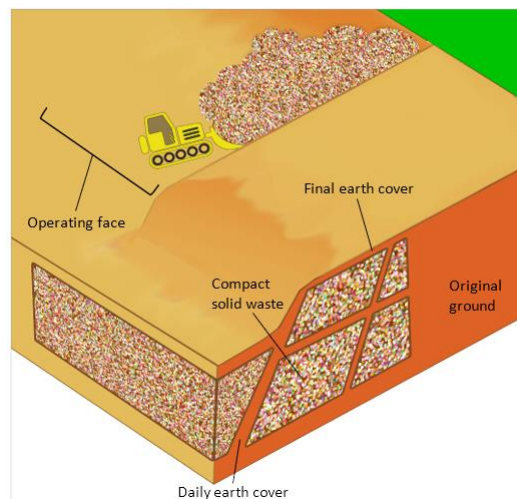
expansion construction started. Further, since the landfill's capacity was approximately two times the volume capacity threshold, it should have provided a calculation of capacity by mass to the state to determine whether it should apply for a Title V permit. Landfill staff also did not know that closed phases of the landfill should be included when calculating the landfill's maximum capacity. As of July 2020, construction had begun on the MSW-landfill expansion. As a result of our audit, the landfill submitted the required Title V permit application to the Texas Commission on Environmental Quality in June 2020, along with its application for a standard permit. When the Commission approved the standard permit in July 2020, it did not provide a status regarding the review or approval of the Title V permit application.

- Landfill staff at a fourth MSW landfill did not know that (1) they were required to submit a design capacity report to the state and (2) closed phases of the landfill should be included when calculating the landfill's maximum capacity, as required by Clean Air Act MSW-landfill regulations. MSW landfill staff could not provide us with capacity information for the closed phases of the MSW landfill. To determine the landfill's total capacity, we obtained design capacity information from all solid waste permits issued for the MSW landfill, including portions now closed. After including the capacity from the closed areas, we calculated that the MSW landfill's total volume capacity was approximately 2.8 million cubic meters. Thus, the landfill should have calculated its capacity for mass to determine whether it should apply for a Title V permit.

The above examples indicate a lack of awareness of the EPA's Clean Air Act requirements pertaining to existing MSW landfills, as well as requirements for new MSW landfill construction and modifications. Our findings at these four landfills and the results of our interviews with EPA regions, states, and landfill staff provide insights that could be useful to state and federal air permitting authorities and MSW landfills across the United States. Specifically, a lack of awareness of Clean Air Act MSW-landfill regulations could result in large MSW landfills operating without required Title V permits.

We also found two instances where MSW landfills did not calculate volume capacity in accordance with state policy for treating landfill cover in design capacity calculations. The EPA allows states to choose whether landfills need to include the volume of the material used for daily and final landfill cover in the design capacity calculation for the Clean Air Act MSW-landfill regulations. Although unstated in formal policy documents or state regulations, Georgia's Air Protection Branch staff told us that their policy is to exclude all cover in design capacity calculations. Texas's Waste Permits Division staff said that their policy is to include the volume of the material used as *daily cover*, but not the volume of material used as *final cover* in the design capacity calculation. The reported design capacities of two landfills in our sample were found to be under the

Figure 5: Operations of MSW landfills using daily and final cover



Source: OIG-created based upon content from the Encyclopedia Britannica.

volume capacity threshold when adjusted to remove the volume of material used as final cover from the design capacity calculation. If the MSW landfills had followed the state policy of excluding final cover in their design capacity calculations, these landfills would not have been identified in our review as exceeding the volume threshold. Figure 5 illustrates how daily and final cover is applied to an MSW landfill.

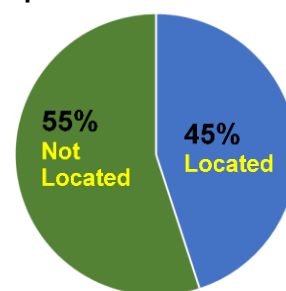
State Implementation of MSW-Landfill Design Capacity Reporting Process Needs Improvement

Georgia and Texas air permitting authorities could improve the implementation and management of the reporting process for obtaining MSW landfill capacities. For example, initial design capacity reports

could not be located for over half of the 75 MSW landfills we sampled (Figure 6). In addition, the states’ agency-developed design capacity forms did not request all regulatorily required information.

We requested copies of initial design capacity reports for 75 MSW landfills: 30 in Georgia and 45 in Texas. As shown in Figure 6, the states were able to provide us with 34 (45 percent) of the 75 initial design capacity reports we requested, but they could not locate reports for the remaining 41 (55 percent) landfills. Among these 41 landfills were ten of the 12 landfills listed in Table 1. As shown in Table 1, all ten of these MSW landfills had volume capacities over the regulatory threshold based on information in the states’ solid waste databases and permit files.

Figure 6: Ability to locate initial design capacity reports



Source: OIG analysis.

In addition to missing reports, we found that Georgia and Texas used state design capacity forms that did not specifically require MSW landfills to report “waste in place” (that is, closed portions of the landfill) in design capacity calculations. This is a specified requirement in the EPA regulations and guidance.³⁰ We also found that Georgia’s and Texas’s state design capacity report forms did not collect information that, while not required, would facilitate an effective reporting and Title V permitting process. For example, neither state’s design capacity report form provides information regarding:

³⁰ 40 C.F.R. §§ 60.751, 60.761, and 62.14351. Municipal Solid Waste Landfills, Volume 1: Summary of Requirements for New Source Performance Standards and Emission Guidelines for Solid Waste Landfills (February 1999).

- Whether MSW landfills should include the volume of material used in daily and final cover in the design capacity calculation.
- What mass and volume thresholds trigger an MSW landfill’s obligation to apply for a Title V permit and calculate NMOC emissions.

Although state design capacity report forms are not specifically required to provide information on cover material or Title V requirements, this information could reduce the risk that landfills misinterpret the Clean Air Act MSW-landfill regulations and fail to apply for a Title V permit when their design capacity exceeds the regulatory capacity thresholds.



Daily (top) and final (bottom) covers at Georgia landfills. (OIG photos)

EPA Oversight of State Plans Was Inadequate

Regions 4 and 6 approved state plans for implementing the 1996 MSW-landfill EG that were incomplete, did not compel states with approved plans to submit annual progress reports, and did not implement a federal plan for states lacking an approved plan. Specifically:

- **Georgia and Texas state plans did not include certain required information.** State plans must include procedures that require existing stationary sources, such as existing MSW landfills, to maintain records, report emissions, and provide information to determine compliance with the state plan.³¹ Clean Air Act MSW-landfill regulations also require that procedures for periodic inspections of sources, as well as provisions to make certain that MSW-landfill compliance information is made available to the public, be “specifically identified” in state plans.³² However, we found that neither Georgia nor Texas included all the necessary information regarding these requirements in their state plans.

Georgia’s state plan did not identify which office would conduct periodic MSW landfill inspections after the program’s first year of implementation and did not identify how the state would select landfills for inspection. Texas’s state plan did not identify the office responsible for compliance

³¹ 40 C.F.R. § 60.25(b)(1).

³² 40 C.F.R. §§ 60.25(b)(2), (c), and (d).

monitoring and MSW landfill inspections. Instead, Texas’s plan said that Texas would monitor MSW landfills using existing source surveillance procedures, which “allows for the periodic inspection of all sources with the potential for emitting in excess of 100 tons per year of any regulated pollutant.” Both states’ air staff told us that they only inspect MSW landfills with Title V permits. Thus, their Clean Air Act MSW-landfill programs did not identify large MSW landfills that required a Title V permit but did not have one.

Since states were still, as of March 2020, in the process of submitting their state plans to implement the 2016 MSW-landfill EG, the EPA has an opportunity to verify that any plans submitted contain all required elements. This oversight should provide better assurance that states will effectively implement the 2016 MSW-landfill EG.

- **Regions 4 and 6 did not compel states to submit required progress reports for most years of implementation.** Neither EPA region had collected progress reports from their states for most of the two decades that the states were responsible for implementing the 1996 MSW-landfill EG through their approved state plans. In addition to identifying the status of the state plan’s implementation, these progress reports should provide an up-to-date inventory of MSW landfills within each state.³³ A current inventory of a state’s MSW landfills provides necessary information to EPA regions to perform effective Clean Air Act program oversight and to the Office of Air Quality Planning and Standards to develop updates to the Clean Air Act MSW-landfill regulations.

Although Georgia’s state plan for implementing the 1996 MSW-landfill EG was approved in calendar year 1999 and its first annual progress report was due in calendar year 2000, Region 4 staff said that their states had not submitted annual progress reports prior to 2017. Once Region 4 staff realized that the states were not submitting these reports, they focused their efforts to ensure compliance. When we reviewed Georgia’s 2017 and 2018 annual progress reports, we found that the reports included a count of enforcement actions against MSW landfills and identified the number of new MSW landfills. The reports also provided background and details regarding the actions taken against specific MSW landfills. However, the reports did not identify closed MSW landfills, did not provide emissions inventory data, and did not include data needed to update the original inventory of MSW landfills, as required.³⁴

Texas’s state plan for implementing the 1996 MSW-landfill EG was also approved in calendar year 1999, and Texas’s first annual progress report should have also been submitted in calendar year 2000. However, Region 6

³³ 40 C.F.R. § 60.25(e).

³⁴ 40 C.F.R. § 60.25(f).

staff were unable to provide copies of any annual progress reports for Texas. Texas said that it does not submit these reports.

- **Federal plan not implemented when state plan not approved.** According to Region 6, Arkansas was the only state in the region that submitted a state plan for implementing the 1996 MSW-landfill EG on December 1, 1999, but Region 6 never acted on the submittal “due to perceived deficiencies.” While the EPA did develop a federal plan for implementing the 1996 MSW-landfill EG, Region 6 did not implement this federal plan in Arkansas, even though the Clean Air Act and implementing regulations require the EPA to implement and enforce the federal plan for existing MSW landfills located in a state without an approved state plan.³⁵

Conclusion

The EPA can more thoroughly review state plans and related annual progress reports to better assess whether states effectively implement Clean Air Act regulations for existing MSW landfills. When state plans are not effectively implemented, large MSW landfills that require but do not have Title V permits can go undetected, and their NMOC emissions can go unreported. Without obtaining a Title V permit and submitting NMOC emission reports, these landfills could emit excess pollutants for years, including those that contribute to ground-level ozone and fine particulate matter that are harmful to human health. A lack of emissions controls is particularly important in areas where ozone levels exceed the national air quality standards, since these controls could help bring those areas into compliance.

As the EPA and the states implement the revised 2016 Clean Air Act MSW-landfill regulations, the EPA has an opportunity to update guidance to clarify regulatory requirements, verify that state plans are adequate, and increase state compliance with the annual progress reporting requirement. These actions would help achieve more effective state implementation of these regulations.

Recommendations

We recommend that the regional administrator for Region 4:

1. Require the Georgia Environmental Protection Division to determine whether the municipal solid waste landfill identified by the OIG as having a design capacity exceeding the Title V permit regulatory capacity threshold should apply for a Title V permit and install emissions controls. If a permit is required, verify with the Georgia Environmental Protection Division whether the municipal solid waste landfill applied for a permit.

³⁵ Clean Air Act § 111 and 40 C.F.R. §§ 60.27(c) and (d).

We recommend that the regional administrator for Region 6:

2. Require the Texas Commission on Environmental Quality to determine whether the 11 municipal solid waste landfills identified by the OIG as having design capacities exceeding the Title V permit regulatory capacity threshold should apply for a Title V permit and install emissions controls. If permits are required, verify with the Texas Commission on Environmental Quality whether the municipal solid waste landfills applied for a permit.
3. Assist the State of Arkansas in developing and submitting a state plan to implement the 2016 municipal solid waste landfill Emission Guidelines. If Arkansas does not submit a state plan, implement the federal plan for the 2016 municipal solid waste landfill Emission Guidelines once the federal plan is effective.

We recommend that the assistant administrator for Air and Radiation:

4. Develop and implement a process for the periodic review of municipal solid waste landfill design capacity information and Title V permit lists to identify municipal solid waste landfills with design capacities over the applicable threshold that have not applied for a Title V permit.
5. Update guidance to clarify the requirements for municipal solid waste landfills to submit initial design capacity reports, including how to:
 - a. Address closed municipal solid waste landfill areas and the soil used in municipal solid waste landfill daily and final covers when calculating design capacity.
 - b. Determine whether a municipal solid waste landfill is subject to Title V permit and nonmethane organic compound emissions reporting requirements.
6. Develop and implement a process to confirm that state plans approved for delegation of the 2016 municipal solid waste landfill Emission Guidelines contain all required program elements and provisions for submitting annual progress reports.

We recommend that the assistant administrator for Enforcement and Compliance Assurance:

7. Develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source

Performance Standards to provide assurance that states are effectively implementing these regulations.

Agency Response and OIG Assessment

The Agency concurred with Recommendations 1, 2, and 7 and provided acceptable planned corrective actions and estimated completion dates. For Recommendation 3, Region 6 provided an alternative recommendation. We agreed with Region 6's proposed recommendation to assist the State of Arkansas, and we updated Recommendation 3 accordingly. We consider Recommendations 1, 2, 3, and 7 resolved with corrective actions pending.

Recommendations 4, 5, and 6 are unresolved:

- The Office of Air and Radiation disagreed with Recommendation 4. The Agency proposed to address Recommendation 4 by including language in the Clean Air Act MSW-landfill federal plan emphasizing “the importance of landfill reporting obligations and their link to Title V permitting obligations.” However, this proposed alternative does not address the need for state air permitting authorities to periodically conduct reviews of existing solid waste data to determine whether there are MSW landfills with volume and mass capacities that exceed the regulatory thresholds but do not have a Title V permit.
- For Recommendation 5, the Office of Air and Radiation disagreed with our recommendation and proposed addressing the recommendation through existing guidance and the development of the Agency's web-based “Regulation Navigation” [tool](#). Our analysis of this tool, however, found that it does not include information to address the types of misinterpretations of the regulations identified in our audit.
- The Office of Air and Radiation agreed with Recommendation 6 and provided a corrective action. However, we disagreed that the corrective action completely addressed the recommendation.

The Agency's responses to our draft report and our additional assessments are in Appendix B. The Agency also provided specific technical suggestions for our consideration, and we revised the report as appropriate.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Potential Monetary Benefits (in \$000s)
1	21	Require the Georgia Environmental Protection Division to determine whether the municipal solid waste landfill identified by the OIG as having a design capacity exceeding the Title V permit regulatory capacity threshold should apply for a Title V permit and install emissions controls. If a permit is required, verify with the Georgia Environmental Protection Division whether the municipal solid waste landfill applied for a permit.	R	Regional Administrator for Region 4	9/30/20	
2	22	Require the Texas Commission on Environmental Quality to determine whether the 11 municipal solid waste landfills identified by the OIG as having design capacities exceeding the Title V permit regulatory capacity threshold should apply for a Title V permit and install emissions controls. If permits are required, verify with the Texas Commission on Environmental Quality whether the municipal solid waste landfills applied for a permit.	R	Regional Administrator for Region 6	12/31/20	
3	22	Assist the State of Arkansas in developing and submitting a state plan to implement the 2016 municipal solid waste landfill Emission Guidelines. If Arkansas does not submit a state plan, implement the federal plan for the 2016 municipal solid waste landfill Emission Guidelines once the federal plan is effective.	R	Regional Administrator, Region 6	6/30/22	
4	22	Develop and implement a process for the periodic review of municipal solid waste landfill design capacity information and Title V permit lists to identify municipal solid waste landfills with design capacities over the applicable threshold that have not applied for a Title V permit.	U	Assistant Administrator for Air and Radiation		
5	22	Update guidance to clarify the requirements for municipal solid waste landfills to submit initial design capacity reports, including how to: <ul style="list-style-type: none"> a. Address closed municipal solid waste landfill areas and the soil used in municipal solid waste landfill daily and final covers when calculating design capacity. b. Determine whether a municipal solid waste landfill is subject to Title V permit and nonmethane organic compound emissions reporting requirements. 	U	Assistant Administrator for Air and Radiation		
6	22	Develop and implement a process to confirm that state plans approved for delegation of the 2016 municipal solid waste landfill Emission Guidelines contain all required program elements and provisions for submitting annual progress reports.	U	Assistant Administrator for Air and Radiation		
7	23	Develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations.	R	Assistant Administrator for Enforcement and Compliance Assurance	1/30/21	

¹ C = Corrective action completed.

R = Recommendation resolved with corrective action pending.

U = Recommendation unresolved with resolution efforts in progress.

Detailed Scope and Methodology

We conducted our audit to determine whether active MSW landfills are operating under the appropriate air quality permit. The EPA’s 1996 MSW-landfill NSPS applies to new MSW landfills that commenced construction, reconstruction, or modification or began accepting waste on or after May 30, 1991. The EPA’s 1996 MSW-landfill EG applies to existing MSW landfills that commenced construction before May 30, 1991. The MSW-landfill NSPS and EG do not regulate other types of nonhazardous solid waste landfills, such as construction and demolition landfills and industrial waste landfills.

To obtain an understanding of the air emissions laws and regulations that impact MSW landfills, we reviewed Clean Air Act provisions that cover the control of pollutants from stationary sources, such as MSW landfills. We reviewed regulations under 40 C.F.R. Part 60, including 40 C.F.R. Part 60, Subpart B, Adoption and Submittal of State Plans for Designated Facilities. We also reviewed the Clean Air Act Title V provisions and regulations. We reviewed the 1996 and 1999 regulations specific to MSW-landfill air emissions; the 2003 National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills regulations under 40 C.F.R. Part 63, Subpart AAAA; and EPA guidance documents and resources that aid in implementation of the federal MSW landfill air emissions regulations, including:

- 40 C.F.R. Part 60, Subpart WWW, Standards of Performance for Municipal Solid Waste Landfills.
- 40 C.F.R. Part 60, Subpart Cc, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills.
- 40 C.F.R. Part 62, Subpart GGG, Federal Plan Requirements for Municipal Solid Waste Landfills That Commenced Construction Prior to May 30, 1991 and Have Not Been Modified or Reconstructed Since May 30, 1991.
- EPA Office of Air Quality Planning and Standards, *Municipal Solid Waste Landfills, Volume 1: Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills*, February 1999.
- EPA Office of Air Quality Planning and Standards, *Municipal Solid Waste Landfills, Volume 2: Summary of Requirements for Section 111(d) State Plans for Implementing the Municipal Solid Waste Landfill Emission Guidelines*, November 1998.
- EPA Office of Air Quality Planning and Standards, *Municipal Solid Waste Landfill New Source Performance Standards (NSPS) And Emission Guidelines (EG)—Questions and Answers, Revised*, November 1998.
- EPA, Applicability Determination Index webpage database.³⁶

³⁶ For national consistency in implementing the MSW-landfill EG, the MSW-landfill NSPS, and the National Emission Standards for Hazardous Air Pollutants programs, the EPA maintains requests under 40 C.F.R. Parts 60 and 61, which allow a source owner or operator to request a determination from the EPA of whether a rule applies to them. This is known as an “applicability determination.” The EPA maintains these requests in a searchable “Applicability Determination Index” [database](#).

We reviewed the following regulations associated with the 2016 update to the Clean Air Act MSW-landfill regulations, including:

- 40 C.F.R. Part 60, Subpart XXX, Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification After July 17, 2014 (2016 New Source Performance Standards).
- 40 C.F.R. Part 60, Subpart Cf, Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills (2016 Emission Guidelines).
- Proposed federal plan: 84 Fed. Reg. 43745, August 22, 2019.

To identify the intent behind the MSW-landfill air emissions regulations and the oversight roles of EPA headquarters versus EPA regional offices, we interviewed staff from the EPA's Office of Air Quality Planning and Standards and conducted a survey of all ten EPA regional offices. We also interviewed staff from the Office of Enforcement and Compliance Assurance to obtain information regarding MSW landfill air emissions enforcement efforts.

Universe of MSW Landfills in the United States and State Sample Selection

We first sought to determine a universe of MSW landfills in the United States. We requested information from staff in the Office of Land and Emergency Management regarding any EPA-maintained national list of MSW landfills. The Office of Land and Emergency Management did not possess a list of MSW landfills and referred us to the Office of Air and Radiation's Landfill Methane Outreach Program and greenhouse gas reporting program databases. We reviewed information in these databases and in the EPA's Enforcement and Compliance History Online database. We also reviewed the data the Office of Air Quality Planning and Standards used to develop the 2016 MSW-landfill NSPS and EG. Because of the limitations of and the large variation in the total number of MSW landfills listed in each of the EPA databases, the OIG purchased the 2018 nationwide directory of all landfills from the *Waste Business Journal*.³⁷ The *Waste Business Journal* list included more MSW landfills than the EPA's databases, but like the EPA databases, it did not include data on each landfill's maximum volume and mass capacities, which are the federal criteria used to determine whether a landfill should obtain a Title V operating permit.

State Sample Selection

During our literature review, we found that the Department of Homeland Security's Federal Emergency Management Agency's U.S. Fire Administration maintains a National Fires Incident Reporting System that collects information on fires by state and local districts annually, including fires at dumps and landfills. Landfill fires can occur when gases are not properly controlled. We hypothesized that state oversight of MSW landfills could be less stringent in areas with the largest number of landfill fires. To select the specific states for our audit, we used reported data from the 2016 National Fires Incident Reporting System and identified the states

³⁷ The *Waste Business Journal* is a research and consulting firm that provides business research and analysis for the waste management industry. It has produced its directory for over 20 years. The journal's researchers contact a variety of waste processing and disposal operations in the United States to gather data about waste facility operations.

with the highest number of landfill fires per year (Table A-1). We used a nongeneralizable sample to select our states for review using landfill fire data reported in 2016. Our findings therefore cannot be used to make broad inferences about implementation of the MSW landfill air regulations in other states. However, we determined that the selection of these states using the purposeful nonprobability sample method was appropriate for our design and objective and that the selections would generate valid and reliable evidence to support our work.

We then compared the states with the largest number of “dump/landfill” fires against ozone nonattainment areas under the EPA’s National Ambient Air Quality Standards from the EPA’s August 3, 2018 area designations, because emissions of methane and volatile organic compounds are precursors to ground-level ozone. Using these factors, we identified Georgia, which is in Region 4, and Texas, which is in Region 6, for further review.

Table A-1: Top five states for landfill fires in 2016

State	Number of “dump/landfill” fires	EPA region	Ozone nonattainment areas?
North Dakota	185	8	No
Georgia	181	4	Yes
Texas	158	6	Yes
Florida	123	4	No
Louisiana	122	6	No

Source: OIG analysis of dump/sanitary landfill fire data reported to Department of Homeland Security’s Federal Emergency Management Agency’s U.S. Fire Administration’s 2016 National Fires Incident Reporting System and the EPA’s 2015 8-hour ozone attainment area data.

To obtain information on how the two regions oversee states and MSW landfills, we interviewed air permitting, air enforcement, and solid waste staff in Regions 4 and 6. We requested and received information from these regions regarding:

- Georgia’s and Texas’s approved state plans.
- Georgia’s and Texas’s approved compliance monitoring strategies.
- Georgia’s and Texas’s air planning agreements or grant commitment documents.
- Allocation of grant funds for each state within the region.

We requested lists of all MSW landfills in Georgia and Texas from Regions 4 and 6. Region 6 provided the OIG with a copy of Texas’s listing that is made available on Texas’s public website, but Region 4 was unable to provide a list for Georgia and referred us to the state.

State Review Methodology

To assess state implementation of air emissions regulations for MSW landfills, we interviewed staff from Georgia’s Environmental Protection Division and the Texas Commission on Environmental Quality. We interviewed the Georgia Environmental Protection Division’s and Texas Commission on Environmental Quality’s air and solid waste permitting and enforcement staff to obtain information about how air and solid waste staff coordinate to identify MSW landfills in need of a Title V permit and enforce compliance with the Clean Air Act MSW-landfill regulations. We also interviewed Georgia and Texas state inspectors and EPA regional

inspectors to understand the MSW-landfill inspection process in each state, including any steps used to determine compliance with federal air regulations. We reviewed state regulations and state MSW-landfill policies and procedures.

To determine the universe of MSW landfills in Georgia and Texas, we requested a list of MSW landfills, including information regarding design capacity and Title V permit status. Each state provided us with a list of MSW landfills with solid waste permits, which provided a permitted design capacity value in cubic yards for each MSW landfill. However, the MSW-landfill NSPS and EG use cubic meters and megagrams to determine the need for an MSW landfill to obtain a Title V permit and calculate NMOC emissions. Using the cubic yard values, we used a conversion formula provided by the EPA in the MSW-landfill NSPS and EG regulations to convert cubic yard values to cubic meters. We could not calculate each MSW landfills' capacity for mass to compare with the megagrams capacity threshold because the solid waste lists did not provide data on the other factors needed to calculate MSW landfill mass, such as waste density values and compaction practices. Each state also provided us a separate list of MSW landfills with Title V permits.

Of the 51 MSW landfills with solid waste permits identified in Georgia, we selected a sample of 30 for further analysis. We selected our sample to obtain a variety of MSW-landfill types and sizes, such as MSW landfills just under the regulatory volume capacity threshold, Title V-permitted MSW landfills, and MSW landfills for which Georgia reported information that was incomplete or inconsistent with data in the *Waste Business Journal* and the EPA's air databases. We also requested initial design capacity reports for all 30 MSW landfills in our Georgia sample to determine compliance with this regulatory requirement.

Based on knowledge gained during our work in Georgia, we adjusted our sampling technique for Texas. We focused on MSW landfills (1) without Title V permits that were over the mass or volume capacity threshold and (2) for which no design capacity information was available. We also compared Texas's list of MSW landfills with solid waste permits against data in the *Waste Business Journal* and the EPA's air databases to identify inconsistencies and additional information regarding Texas's MSW landfills. Of the 143 MSW landfills identified in Texas, we identified 24 landfills that met one of the two criteria, including 12 MSW landfills without Title V permits with volume capacity over the regulatory capacity threshold and 12 MSW landfills for which Texas had no design capacity value listed. We requested initial design capacity reports from a total of 45 MSW landfills in Texas: the 12 MSW landfills that exceeded the volume capacity threshold but had no Title V permit, as well as an additional 33 MSW landfills with Title V permits.

From our Georgia and Texas samples, we selected two MSW landfills in Georgia and three MSW landfills in Texas for site visits, in consideration of the following risk factors:

- Design capacity volume in cubic meters.
- Located in nonattainment area for ozone.

- Located in counties with reported open dump and landfill fires in the Federal Emergency Management Agency's 2016 National Fires Incident Reporting System.
- Located in areas that were geographically diverse.³⁸

For the MSW landfills we selected for site visits, we requested copies of the original solid waste permits, initial design capacity reports; three years of state inspections, from calendar years 2016 through 2018; and MSW landfill design information. We interviewed the MSW landfill owners and operators, state air permitting staff, and state solid waste inspectors. During the site visits, we observed conditions at each site and conducted a review of the solid waste inspections to determine compliance with the solid waste requirements.

³⁸ To select MSW landfills for site visits in Texas, we also considered whether the MSW landfill was located in a region with multiple MSW landfills without design capacity values or with multiple MSW landfills over the regulatory volume capacity threshold.

Agency Responses to Draft Report

We received separate responses from each entity to which we directed recommendations. Each response is copied below in order of recommendation applicability.

Region 4 Response




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

MAY 1 2020

MEMORANDUM

SUBJECT: Draft Report: Environmental Protection Agency Needs to Improve Its Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills Project No. OA&E-FY18-0273

FROM: Mary Walker, Regional Administrator 
EPA Region 4

TO: James L. Hatfield, Director
Air Directorate, Office of Audit and Evaluation
EPA Office of the Inspector General

This memorandum is in response to your memo dated March 31, 2020, requesting a written response to the findings and recommendations in the subject draft report within 30 days of the date of the report (March 31, 2020). In your memo, you note that the response should:

1. Address the factual accuracy of the draft report and Indicate concurrence/nonconcurrence with each finding and recommendation. (**ACTION 1**)
2. Indicate planned completion dates for all recommendations. (**ACTION 2**)
 - a. Provide any alternative actions to be considered for the final report, in the event of nonconcurrence with a recommendation. (**ACTION 2.a**)
3. Identify any corrective actions already initiated or planned. (**ACTION 3**)

Each of these action items is addressed below. Supplementary information is provided in the attachment. Please let me know if you need further information.

ACTION 1

The EPA Region 4 generally agrees with the factual accuracy of the draft report, concurs with the findings in the report related to Region 4-related issues, and concurs with the Region 4-related recommendation (Recommendation 1) with the following additions/caveats:

- The draft report acknowledges on Page 5 that the need for a title V permit is predicated on two criteria (volumetric and mass thresholds), but then appears to go on to focus on just the volumetric criterion.
- In working with the Georgia Environmental Protection Division (GA EPD), as recommended by the OIG (Recommendation 1), to determine whether the Toombs County landfill needs a title V permit (or has applied for one), we will confirm that the landfill meets both the volumetric and mass thresholds for holding a permit.
- The language of the draft report should be edited to clarify the difference between requirements under RCRA versus the Clean Air Act (CAA). As written, the report is ambiguous in multiple places as to which law is being discussed. The appendix to this memo provides recommended edits to clarify this point.
- We have added some suggested edits to the section “Anatomy of an MSW Landfill.”

ACTION 2

The EPA Region 4 intends to complete its work on Recommendation 1 within two months of the finalization of this report.

OIG Response 1: Region 4 agreed with the recommendation and provided acceptable planned corrective actions and estimated completion date. Recommendation 1 is resolved with corrective actions pending.

ACTION 2.a

No alternate actions provided.

ACTION 3

Corrective actions already initiated or planned:

- Region 4 has reemphasized the requirement for its state and local air agencies to provide a yearly report on their implementation and enforcement of the CAA MSW activities in their jurisdiction. We are reviewing the reports and following up on any identified deficiencies.
- Region 4 is working with the states to update their existing state plans pursuant to the amended August 2016 emission guidelines and intends to use the opportunity to take a broad look at the landfill program in each state to help ensure an up-to-date, functioning program.

Attachment

cc: OAR AA

OECA AA

EPA Region 6 RA

Region 6 Response



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1201 ELM STREET, SUITE 500
DALLAS, TEXAS 75270

Office of the Regional Administrator

April 30, 2020

MEMORANDUM

SUBJECT: Response to Office of Inspector General Draft Report No. OA&E-FY18-0273
"EPA Needs to Improve Its Oversight of How States Implement Air Emissions
Regulations for Municipal Solid waste Landfills," dated March 31, 2020

FROM: Ken McQueen *Ken McQueen*
Regional Administrator, Region 6

TO: James Hatfield, Director
Air Directorate, Office of Audit and Evaluation
Office of Inspector General

Thank you for the opportunity to respond to the issues and recommendations in the subject draft audit report. A summary of the Region's overall position, along with its position on each of the draft report recommendations related to EPA Region 6, is provided below. For those report recommendations with which the Region agrees, we have provided proposed corrective actions and estimated completion dates. For those draft report recommendations with which the Region does not agree, we have explained our position and proposed alternatives to those recommendations. For your consideration, we have included technical comments and edits as attachments to our response.

OVERALL POSITION OF REGION 6

EPA Region 6 agrees that the draft report has identified Region 6's oversight role in certain state implementation issues related to the standards of performance for municipal solid waste (MSW) landfills, regulated under Section 111 of the Clean Air Act. Region 6 recognizes its overall role in ensuring that applicable standards of performance have been met by the regulated MSW landfills. Follow-up discussions with our Region 6 state partners will provide additional information to facilitate implementation of the proposed corrective actions. Corrective measures and anticipated timeframes for completion are provided below. In addition, technical comments on the draft report are attached, and specific comments and suggested language changes to the draft report have been transmitted to your project lead. Please note that the COVID-19 pandemic may affect the completion timeframes below if resources are impacted.

No.	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by Quarter and FY
2	Require the Texas Commission on Environmental Quality to determine whether the eleven municipal solid waste landfills identified by the OIG as having design capacities exceeding the Title V permit regulatory capacity threshold should apply for a title V permit and install emissions controls. If permits are required, verify with the Texas Commission on Environmental Quality whether the municipal solid waste landfills applied for a permit.	1.1 TCEQ to determine if any of the eleven municipal solid waste landfills identified by OIG require a title V permit.	4 th Quarter FY 2020
		1.2 TCEQ to develop a timeline to permit the municipal solid waste landfills that are determined to need a title V permit. TCEQ to document basis in determining which municipal solid waste landfills do not need title V permits.	1 st Quarter FY 2021
		1.3 Submit annual progress report	1 st Quarter FY 2021, and 2022;

OIG Response 2: Region 6 concurred with the recommendation and provided acceptable planned corrective actions and estimated completion dates. Recommendation 2 is resolved with corrective actions pending.

No.	Recommendation	High-Level Intended Corrective Action(s)	Estimated Completion by Quarter and FY
3	Determine whether the state of Arkansas plans to submit a state plan and seek delegation to implement the 2016 municipal solid waste landfill Emission Guidelines. If not, implement the federal municipal solid waste landfill Emission Guidelines plan in Arkansas. <i>(Please see the table under "Further Comments on Recommendations" on updating this recommendation and clarifying this language.)</i>	1.1 Determine Arkansas course of action. (DONE)	3 rd Quarter FY 2020
		1.2 Work with Arkansas to develop their submittal.	3 rd Quarter FY 2020
		1.3 Review and take action on Arkansas's submittal once received.	3 rd Quarter FY 2020 - 3 rd Quarter FY 2022
		1.4 If no state plan or federal plan delegation request is submitted, or until EPA approves Arkansas's submittal, implement the federal plan for the 2016 MSW landfills	3 rd Quarter FY 2022

		emission guidelines when it becomes effective.	
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Further Comments on Recommendations

No.	Recommendation	Agency Explanation/Response	Proposed Alternative
3	Determine whether the state of Arkansas plans to submit a state plan and seek delegation to implement the 2016 municipal solid waste landfill Emission Guidelines. If not, implement the federal municipal solid waste landfill Emission Guidelines plan in Arkansas.	Region 6 has confirmed with Arkansas that they intend to submit a state plan for the 2016 MSW Landfills EG. For clarity, we also suggest that the language in this recommendation be revised to that in the Proposed Alternative. Currently, Arkansas does not have any designated facilities covered by the 1996 MSW landfills emission guidelines found at 40 CFR part 60, subpart Cc. The deadline for EPA’s promulgation of the federal plan for MSW landfills is March 2022, unless an earlier date is established by the court as a result of current litigation. Currently, the only finalized federal plan for existing MSW landfills is the federal plan for the 1996 MSW landfills emission guidelines found at 40 CFR part 62, subpart GGG.	Work with Arkansas to develop their submittal for the 2016 municipal solid waste landfills Emission Guidelines. If Arkansas does not submit a state plan or until EPA approves the State’s submittal, implement the federal plan for the 2016 municipal solid waste landfill Emission Guidelines in Arkansas once the federal plan is effective.

OIG Response 3: Region 6 agreed with the recommendation and provided planned corrective actions and estimated completion dates. Because the Agency completed our draft report's original recommendation to determine whether the State of Arkansas planned to submit a state plan to implement the 2016 MSW-landfill EG, Region 6 proposed a revision to update Recommendation 3, which we adopted with minor edits for clarity. The recommendation now reads:

Assist the State of Arkansas in developing and submitting a state plan to implement the 2016 municipal solid waste landfills Emission Guidelines. If Arkansas does not submit a state plan, implement the federal plan for the 2016 municipal solid waste landfill Emission Guidelines once the federal plan is effective.

This recommendation is resolved with corrective actions pending.

CONTACT INFORMATION

If you have any questions regarding this response, please contact Jeff Robinson, Chief of the Air Permits, Monitoring & Grants Branch in the Air and Radiation Division at Region 6 at (214) 665-6435.

Attachment

cc: Gabrielle Fekete, Project Lead, OIG

Office of Air and Radiation Response



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

April 30, 2020

OFFICE OF
AIR AND RADIATION

MEMORANDUM

SUBJECT: EPA Comments on Draft Report: "EPA Needs to Improve Its Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills"
Project No. OA&E-FY18-0273, March 31, 2020

FROM: Anne L. Idsal
Principal Deputy Assistant Administrator

A handwritten signature in black ink, appearing to read "Anne L. Idsal", is written over the printed name and title.

TO: Kathlene Butler
Acting Assistant Inspector General
Office of Audit and Evaluation
Office of the Inspector General

The Office of Air and Radiation (OAR) welcomes the opportunity to review and comment on the Office of the Inspector General's (OIG) report titled *EPA Needs to Improve Its Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills* (Draft Report).

We appreciate the OIG audit team's investigation of smaller landfills in Georgia and Texas to see if these landfills are operating under the correct permit and discern if a gas collection and control system (GCCS) is needed. While we agree that effective state implementation of the Municipal Solid Waste Landfills (MSWL) New Source Performance Standards (NSPS) and Emission Guidelines (EG) regulations ("MSWL NSPS/EG") is vital, we feel that enhanced implementation of current processes accomplishes the goals of OIG's recommendations. Of note, the report's conclusions related to Title V permits rely on one of two metrics (volume of landfill waste) for determining permit applicability and the need for emission controls. However, to require a Title V permit, a landfill must meet or exceed both metrics (volume and weight thresholds). From OIG's investigation, it seems that some landfills in Georgia and Texas are potentially not submitting their initial design capacity reports. Such reports inform the states about whether a Title V permit, and further non-methane organic compound (NMOC) testing would be required. Or, the landfills' reports may have been submitted but the state is unable to locate their submittals from years past.

We agree that design capacity is critical information, but it is also necessary to draw conclusions on Title V permit applicability. The initial design capacity report required by the rule tells the landfill to report if either the weight or the volume is below the threshold. If their volume is over, the rule speaks on how to convert from volume to weight to compare to that threshold

utilizing site specific density. This report does show that there are potential implementation missteps that need to be corrected regarding design capacity reports and information, which we thank the OIG audit team for identifying.

Our responses to the OIG's specific recommendations for OAR are as follows:

Recommendation 4: Develop and implement a process to periodically review municipal solid waste land- fill design capacity information and Title V permit lists to identify municipal solid waste landfills with design capacities over the applicable threshold that have not applied for a Title V permit.

Response 4: While OAR disagrees with the proposed recommendation as written, we are addressing the intent as follows.

The MSWL NSPS/EG require all landfills that have accepted waste since November 8, 1987, to submit an initial design capacity report and an amended capacity report, if initially below the "exemption" threshold for other requirements. This design capacity reporting brings awareness to the landfill and permitting authority of the need for a Title V permit application and to check the NMOC emission rate. A landfill at the 2.5 million cubic meter (m³) and 2.5 million megagram (Mg) thresholds on their initial design capacity report, or the amended design capacity report, becomes subject to NMOC emission rate checks and Title V permitting. The rules lay out both the design capacity report requirement and Title V requirements and the link between them. EPA previously provided guidance for the 1996 MSWL NSPS/EG on Title V permitting and design capacity calculations. A landfill becomes subject to the Title V program 90 days after modification or promulgation of a NSPS or state/federal plan implementing an EG, and their Title V application is due one year from that date. This guidance continues to apply because this portion of the rule is unchanged in the new 2016 MSWL NSPS/EG. Additionally, OAR has a framework for the EPA Regional Offices to use in their ongoing evaluation of state permitting programs to ensure that they are being implemented and enforced in accordance with the requirements of Title V and Clean Air Act Part 70 regulations for the programs.¹ Oversight of the rules is a function of the states and Regions while tracking implementation is a function of EPA's Office of Enforcement and Compliance Assurance (OECA). Thus, review of design capacity reports and Title V permits is handled by the states, Regions and/or OECA.

As an alternative to the proposed recommendation, OAR proposes to emphasize the importance of the landfill reporting obligations and their link to the NMOC emission rate checks and Title V permitting obligations when we issue the final federal plan. The recently published notice issuing EPA's finding of states that had failed to submit a state plan to satisfy the 2016 MSWL EG establishes a two-year deadline for EPA to promulgate a federal plan for these states, which would be March 2022. However, this date is subject to change pending ongoing litigation.

OIG Response 4: The Office of Air and Radiation disagreed with the recommendation as written. The Office proposed addressing Recommendation 4 by including language “to emphasize the importance of landfill reporting obligations and their link to Title V permitting obligations” in its federal plan. This federal plan will be used to implement the MSW-landfill EG in states without approved state plans.

However, this proposed corrective action does not address the need for state air permitting authorities to conduct periodic reviews of existing solid waste data to determine whether there are MSW landfills with capacities that exceed the Title V permit capacity thresholds but without Title V permits. We recognize that the review of design capacity reports and Title V permits is handled by the states, EPA regions, and the Office of Enforcement and Compliance Assurance. Our intent was not to recommend that the Office of Air and Radiation conduct these periodic reviews. Rather, we recommend that the Office work with the EPA regions to develop a process whereby states and regions compare MSW-landfill design capacity information and Title V permit lists to identify MSW landfills with design capacities over the applicable capacity thresholds but without Title V permits. This recommendation is unresolved.

Planned Completion Date: FY 2022, Quarter 2 (pending litigation).

Recommendation 5: Update guidance to clarify the requirements for submitting an initial design capacity report to include how to:

- a. Address closed municipal solid waste landfill areas and the soil used in municipal solid waste landfill daily and final covers when calculating design capacity.
- b. Determine whether a municipal solid waste landfill is subject to Title V permit and nonmethane organic compound requirements.

Response 5: While OAR disagrees with the proposed recommendation as written, we believe we are addressing the intent as follows.

Guidance provided on the 1996 MSWL NSPS/EG includes how to calculate design capacity based on the definition included in the rules, including an example design capacity report form. Design capacity is the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the state, local, or tribal agency responsible for regulating the landfill, plus any in- place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million Mg or 2.5 million m³, the calculation must include a site-specific density and must be recalculated annually. Since design capacity refers to solid waste, soil used for daily or final cover would not be included in the calculation. Additionally, the definition notes in-place waste not accounted for in the most recent permit, which would include closed areas, needs to be included. Furthermore, the guidance notes that the rules apply to the entire landfill including active areas, closed areas and areas that could accept refuse in the future. This guidance also provides information regarding Title V and its applicability and relationship to the design capacity, as well as when NMOC testing is required. This guidance continues to apply to the 2016 MSWL NSPS/EG since the definition of design capacity and its relationship to Title V and NMOC testing and calculations has not changed. With

this guidance in place and the rules laying out the link between design capacity, Title V and NMOC reporting, OAR believes these issues are fully addressed.

As an alternative to the proposed recommendation, OAR proposes to develop a tool that clarifies MSWL NSPS/EG regulatory requirements for landfill owners and operators. OAR is currently developing and updating a ‘Regulation Navigation’ tool that provides the user a series of questions about their landfill and returns information confirming which rule applies to their landfill and what their specific requirements are within that rule. This tool is currently active for the 1996 MSWL NSPS/EG, as well as the 2016 MSWL NSPS/EG (prior to the revisions made to these rules in March 2020). The tool will be updated later this year to include MSWL NESHAP requirements and the March 2020 revisions to the 2016 MSWL NSPS/EG.

Planned Completion Date: FY 2021, Quarter 2

OIG Response 5: The Office of Air and Radiation disagreed with the recommendation as written and proposed an alternative corrective action to “develop a tool that clarifies MSWL NSPS/EG regulatory requirements for landfill owners and operators.” However, our analysis of the EPA’s web-based “Regulation Navigation” tool found that it does not provide users with guidance on design capacity reports and the regulatory requirements for existing landfills to comply with the 1996 and 2016 MSW-landfill EGs, as implemented and enforced through an EPA-approved state or federal plan. Therefore, the tool does not include information to address the types of misinterpretations of the regulations as identified in our audit.

Further, our intent was not to recommend that the EPA update all guidance related to the Clean Air Act MSW-landfill regulations. Rather, our intent was to recommend that the EPA update guidance *specific* to design capacity reports to alert MSW-landfill owners and operators as to what information the MSW-landfill regulations require in design capacity calculations and to the capacity thresholds that trigger Title V permit and NMOC testing requirements. This recommendation is unresolved.

Recommendation 6: Develop and implement a process to confirm state plans approved for delegation of the 2016 municipal solid waste landfill Emission Guidelines contain all required program elements and provisions for submitting annual progress reports.

Response 6: OAR agrees with the intent of this recommendation and believes we have addressed it as follows.

In August 2019, EPA adopted into the 2016 MSWL EG timing requirements and completeness criteria from the new implementing regulations for emission guidelines promulgated in Subpart Ba to Part 60 of the Clean Air Act (Subpart Ba). Subpart Ba was developed to align the state/federal plan development process of section 111(d) regulations with the state/federal implementation plan development process of 110 regulations to make it easier for states to understand what is required of them and for Regions to better understand the review process due to the greater degree of experience with plans under the section 110 program. State plans submitted after August 2019 to implement the 2016 MSWL EG are currently being reviewed at the Regional level using the new Subpart Ba criteria. So far, eight state plans have been approved, while three additional state plans

are currently under review. These state plans must first meet a completeness check based on Subpart Ba requirements and are then reviewed for acceptability. We are also anticipating submission of an additional seven state plans for review. We recently promulgated a 'Finding of Failure to Submit' identifying 42 states and territories that failed to submit for review and approval state plans to implement the 2016 MSWL EG. As noted above, a federal plan will be promulgated two years after the 'Finding of Failure to Submit' for this group of 42 states and territories. OAR believes the Subpart Ba process currently in place addresses the intent of this recommendation.

Planned Completion Date: None – Completed FY 2020, Quarter 2.

OIG Response 6: The Office of Air and Radiation agreed with Recommendation 6, specified a planned corrective action, and identified the corrective action as completed. We recognize that the Office's action enables the EPA to verify that state plans include some of the administrative and technical criteria required under 40 C.F.R. Part 60. However, we disagree that the action completely addresses the recommendation. Specifically, the action would not address the state plans that omit the following requirements under 40 C.F.R. Part 60.25:

- Procedures for periodic inspections of MSW landfills.
- Provisions for making MSW-landfill compliance data available to the public.

Our analysis of three of the state plans approved by the EPA to implement the 2016 MSW-landfill EG found that these plans also did not provide specific details about compliance monitoring procedures including periodic inspections of landfills or provisions for making landfill compliance data available to the public. This recommendation is unresolved.

[Joint OAR/OECA] Recommendation 7: Develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations.

Response 7: OAR supports the intent of this recommendation but believes the appropriate action official is the OECA Assistant Administrator.

Developing and implementing a process to provide assurance that states are implementing the regulations falls under OECA's purview. We will continue to partner with OECA on various sector issues, and are happy to work with them to consider refining the current process to ensure states are implementing and enforcing the 2016 MSWL NSPS/EG correctly, especially to make sure landfill owners and operators are submitting the required design capacity information that would inform Title V applicability.

Planned Completion Date: N/A - OECA's response to this recommendation and proposed corrective action is provided in a separate response.

OIG Response 7: The Office of Air and Radiation agreed with the recommendation but identified the assistant administrator for Enforcement and Compliance Assurance as the appropriate action official. The Office of Enforcement and Compliance Assurance agreed to implement the recommendation. See the Office’s response letter and OIG Response 8 below.

If you have any questions regarding this response, please contact Mike Jones, OAQPS/OAR Audit Liaison, at (919) 541-0528.

cc: James Hatfield
Betsy Shaw
Peter Tsirigotis
Mike Koerber
Robin Dunkins
Andy Sheppard
Allison Costa
Marc Vincent
Mike Jones
Penny Lassiter
Juan Santiago
Cheryl Vetter
Grecia Castro

Office of Enforcement and Compliance Assurance Response



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

ASSISTANT ADMINISTRATOR
FOR ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Response to Office of Inspector General Draft Report: EPA Needs to Improve Its Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills; Project No. OA&E-FY18-0273, March 31, 2020

FROM: Susan Parker Bodine SUSAN BODINE (Digitally signed by SUSAN BODINE Date: 2020.05.01 11:42:20 -04'00')

TO: James Hatfield, Director Air Directorate, Office of Audit and Evaluation

EPA’s Office of Enforcement and Compliance Assurance (OECA) appreciates the opportunity to respond to the draft findings and recommendations presented in the Office of the Inspector General (OIG) draft report, “EPA Needs to Improve Its Oversight of How States Implement Air Emissions Regulations for Municipal Solid Waste Landfills.” We agree on the importance of effective EPA oversight of state implementation of landfill air emissions requirements in achieving air quality, public health, and environmental goals set by the Clean Air Act.

As acknowledged by the OIG, OECA works in partnership with our regional offices and state local, and tribal agencies to address pollution problems impacting communities through enforcement as well through compliance monitoring and assistance activities. OECA and EPA regions have shared accountability in protecting human health and the environment and value state, local and tribal agencies as important partners. As the principal compliance monitoring and enforcement agencies, state local and tribal agencies have primary responsibility for implementing their delegated programs. Consistent with cooperative federalism principles, OECA is responsible for federal oversight to ensure adequate program implementation. Thus, we appreciate the OIG’s observations emphasizing the significance of effective state implementation and EPA oversight of emissions controls for municipal solid waste landfills, and the importance of helping states meet air quality standards for ozone and fine particulate matter.

We agree that implementation of OIG Recommendation #7 – directed to both the Office of Air and Radiation (OAR) and OECA – would be beneficial, and we and OAR have coordinated our responses. As OECA ensures compliance with the regulations through a variety of means, including compliance monitoring, compliance assistance, and enforcement, we provide below the corrective action to address the recommendation along with an estimated timeframe for completion.

OIG Recommendation 7

Develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations.

EPA Response to OIG Recommendation 7

OECA will develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations. In doing so, we will work with the EPA regions to assess all existing tools currently available to implement the regulations. In evaluating our current compliance monitoring and enforcement program regarding the regulations that are the subject of the OIG draft report, we will review the various methods and processes available to ensure effective rule implementation and oversight. Our appraisal will include looking at our targeting, inspection, and oversight activities as well as our coordination with our delegated state and local air agencies.

In addition, our effort to develop and implement a process for reviewing implementation of the 2016 municipal solid waste rules will be informed through discussion and feedback received from various forums. Opportunities for receiving input include our regular meetings with the regional Air Enforcement Managers, discussions with multi-jurisdictional organizations such as the Northeast States for Coordinated Air Use Management (NESCAUM) and the Mid-Atlantic Regional Air Management Association (MARAMA), as well as the ongoing collaboration with our partner state and local agencies. As we undertake this effort, we will also assess training needs to determine if our regional offices and state/local agencies would benefit from additional inspector courses and/or compliance assistance materials.

OECA commits to developing and finalizing a plan that establishes a process to review implementation of the 2016 municipal solid waste landfill Emissions Guidelines and New Source Performance Standards by January 30, 2021. Once the plan is finalized, OECA will implement the plan.

Recommendation	Corrective Action	Date
7. Develop and implement a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations.	OECA agrees to develop and implement a plan that establishes a process to review implementation of the 2016 municipal solid waste landfill Emission Guidelines and New Source Performance Standards to provide assurance that states are effectively implementing these regulations.	Finalize Plan and begin implementation by 1/30/2021

OIG Response 8: The Office of Enforcement and Compliance Assurance concurred with the recommendation and provided acceptable planned corrective actions and an estimated completion date. Recommendation 7 is resolved with corrective actions pending.

Contact Information

If you have any questions regarding this response, please contact Gwendolyn Spriggs, OECA Audit Liaison, at (202) 564-2439.

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