

## **Memorandum**

TO: Docket for rulemaking, “National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors: Residual Risk and Technology Review” (EPA-HQ-OAR-2004-0022)

DATE: May 2026

SUBJECT: Economic and Small Entity Impact Analysis for the Final National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors Risk and Technology Review

### **1. Introduction**

This document addresses the potential economic impacts of the final National Emission Standards for Hazardous Air Pollutants (NESHAP) for Hazardous Waste Combustors (HWC) Risk and Technology Review (RTR). In this action, in which the EPA is reviewing the current NESHAP promulgated in 2008, for sources covered by 40 CFR part 63, subpart EEE, the Agency is finalizing emission limits and work practice standards for hydrogen fluoride (HF) and hydrogen cyanide (HCN) emissions from HWC that are incinerators, cement kilns, solid fuel boilers, and liquid fuel boilers. The EPA is also eliminating the startup, shutdown, and malfunction (SSM) exemption, adding a work practice standard for periods of SSM, adding electronic reporting procedures and requirements, allowing title V permitting authorities to choose to exempt area sources not otherwise subject to title V permitting requirements, and making other clarifications and corrections.

The EPA anticipates that this final action will have no substantial environmental impacts. However, this action will result in improved implementation, codify existing industry practices, and provide additional flexibility for some regulated entities.

### **2. Industry Profile**

Hazardous waste management facilities receive hazardous waste for treatment, storage, or disposal. Consequently, these facilities are often referred to as treatment, storage, and disposal facilities. One common process for treating hazardous waste is incineration, which greatly reduces the amount of hazardous waste. The combustion devices, known as HWCs, are enclosed devices that use controlled flame combustion for the thermal treatment of hazardous waste. When performed properly, this process destroys toxic organic constituents in hazardous waste and reduces the volume of waste that needs to be disposed.

The EPA has identified 163 HWCs at 92 facilities owned by 57 parent corporate entities and the Federal government. Of these, 62 are incinerators, 61 are liquid fuel boilers, 17 are hydrochloric acid (HCl) production furnaces, 14 are cement kilns, 7 are solid fuel boilers, and 2

are lightweight aggregate kilns. Based on industry information, the EPA estimates that three new HWCs will begin operations within the next three years after promulgation. Additionally, there is discussion but uncertainty surrounding a fourth. The industry information includes press releases from active firms as well as trade magazine articles.<sup>12</sup> The industries that may have facilities affected by this final rule are listed by North American Industrial Classification (NAICS) code in Table 1.

**Table 1. Industries and NAICS that are Potentially Affected by This Final Action**

Industry	NAICS Code
Petroleum and coal products manufacturing	324
Chemical manufacturing	325
Cement and concrete product manufacturing	327
Other nonmetallic mineral product manufacturing	327
Hazardous waste treatment and disposal	562
Remediation and other waste management services	562

### 3. Compliance Cost Analysis

The EPA draws cost estimates for this EIA from the memorandum “Hazardous Waste Combustors (HWC) NESHAP – Cost Impacts of Final Amendments” and associated workbooks prepared for this rulemaking (the “cost memo”).<sup>3</sup> This cost memo presents incremental monitoring, reporting, and recordkeeping (MRR) cost estimates relative to baseline regulatory compliance costs associated with complying with current HWC NESHAP requirements. The cost memo presents cost estimates for the first three years of compliance with the rule, or 2027 to 2029, as the first year of most compliance activities is 2027. The cost memo and workbook can be found in the docket.

For the 92 affected existing facilities, the EPA estimates that the incremental cost of compliance per facility in year one (2027) is about \$3,500 per facility. The annual costs are estimated to be approximately \$2,400 per facility for each of the following two years (2028 and 2029). As will follow for new facilities, these incremental costs are measured relative to a baseline that represents the state of the world without the rulemaking. The baseline for this analysis includes the regulatory compliance costs associated with complying with the current HWC NESHAP requirements. Specifically, that baseline consists of full compliance with the 2008 reconsideration and any additional facility improvements and technological advancements

<sup>1</sup> Waste Dive (2024). *Clean Harbors Idles California Oil Re-Refinery, Plans to Open Nebraska Incinerator Soon*. Available at <https://www.wastedive.com/news/clean-harbors-q3-2024-rerefinery-idling-kimball-incinerator/731447/>. Accessed September 8, 2025.

<sup>2</sup> Lynch, Kevin (2024). *South BMore: Clean Harbors Spends \$15.5 Million on South Baltimore Facility, Second Chance Inc. Subdivides Property*. Available at <https://www.southbmore.com/2024/04/03/clean-harbors-spends-15-5-million-on-south-baltimore-facility-second-chance-inc-subdivides-property/>, Accessed September 8, 2025.

<sup>3</sup> Docket ID No. EPA-HQ-OAR-2004-0022. *Hazardous Waste Combustors (HWC) NESHAP – Cost Impacts of Final Amendments*.

currently adopted and observed at the facility level for the existing facilities. The compliance costs are associated with initial and periodic emissions performance testing, electronic reporting, and reviewing the revised provisions. The EPA anticipates that all facilities can comply with the final rule without the installation of any new air pollution control devices. Furthermore, the EPA expects that compliance testing for new emission limits will coincide with currently required emissions testing, requiring minimal extra costs. For existing facilities, the EPA estimates that the aggregate, cumulative cost of this action over the first three years is about \$760,000 (an average three-year cost of approximately \$4,690 per facility). Note that all dollar figures in this report are 2024 dollars.

The EPA chose 2027 as the start year for the stream of compliance costs as the final rule has a court-ordered signature deadline of May 29, 2026, and the Agency expects that compliance with most aspects of the rule will begin in 2027. Based on an assessment of planned openings announced by entities within the sector, the analysis for this rule also assumes that three new facilities will come into operation within three years of promulgation. The EPA assumes that one unit will begin operation in each of the first three years after promulgation, and the Agency assumes that no additional units will come into operation thereafter.

The EPA expects each new unit to experience incremental cost reductions relative to baseline requirements due to compliance testing under this final rule. Primarily, the EPA projects that each new unit will experience capital and ongoing cost reductions requirements resulting from the removal of particulate matter continuous emissions monitoring system (PM CEMS) requirements for new facilities. The compliance cost savings of this rule (relative to the baseline) would be approximately \$180,000 to \$190,000 for each facility as it comes online, one per year from 2027 to 2029. The capital cost savings from no longer having to install and operate PM CEMS account for most of the cost savings for these new facilities. For the projected new facilities, the EPA estimates that the cumulative cost reduction of this action over the first three years is about \$560,000.

The EPA anticipates that reductions in regulatory costs to new sources combined with the incremental costs for existing sources will total an incremental cost to HWC facilities of \$203,000 over the first three years, or an average annual cost over the three years of about \$65,000 per year. These costs do not account for the incremental change in the cost burden to the EPA. After accounting for EPA burden reduction from reduced testing and monitoring, the EPA estimates the total annual cost of this action, averaged over the first three years, at about \$65,000 per year. These initial period costs are not indicative of the costs in subsequent years. As the EPA does not assume that any new units will come into operation in any year beyond the third, the EPA expects the sum of compliance costs in each of the subsequent years to be greater than in any of the first three years. Table 2, below, summarizes the costs over the three-year initial period.

The EPA averaged the costs for existing facilities in Table 2 over a constant set of 92 existing facilities. However, as more facilities begin operation, the EPA averaged the new facility costs and the cost per facility for the entire inventory of existing and new units over an increasing number of facilities (increasing from one to three and 93 to 95, respectively).

**Table 2. Projected Incremental Regulatory Costs in Initial Period (3 Years) After Promulgation (2024 Dollars)<sup>a</sup>**

Year	2026	2027	2028	Total
Existing Facilities	330,000	220,000	220,000	780,000
New Facilities	-190,000	-190,000	-180,000	-560,000
All Facilities	150,000	35,000	37,000	220,000
Cost per Existing Facility	3,600	2,400	2,400	8,400
Cost per New Facility <sup>b</sup>	-190,000	-93,000	-61,000	-190,000
Cost per Facility <sup>b</sup>	1,500	370	390	2,300

<sup>a</sup> Figures are rounded to two significant digits. Sums may not total due to independent rounding.

<sup>b</sup> Averaging of costs for new and all facilities do not sum horizontally as the unit count increases over time, with one new unit coming online in each of the first three years.

#### 4. Present and Equivalent Annual Values

The EPA also presents the projected costs of this final rule in present value (PV) and equivalent annualized value (EAV) terms in adherence to Circular A-4, a document that provides guidance on how to implement Executive Order 12866. With no anticipated direct costs to entities other than the regulated facilities or the regulating body, these costs are meant to represent social costs, with compliance costs serving as a proxy for social costs, as advised by Chapter 8 of the EPA Guidelines for Preparing Economic Analyses.<sup>4</sup> If it were expected that the pass-through of these facility costs to consumers would be greater than one-to-one, or that facilities would add a markup on these compliance costs, the compliance costs would understate the social costs of this rule. Compliance costs are in 2024 dollars and are discounted at 3 and 7 percent rates over a 15-year period with costs starting in 2027 and discounted to 2026.

The EPA chose to project regulatory costs over a 15-year time period which is consistent with the analysis period presented in EIAs for similar rules, such as the Other Solid Waste Incinerators New Source Performance Standards and Emissions Guidelines.<sup>5</sup> Annual costs will vary over the course of this 15-year analysis period as a function of cyclical timing of title V permitting and compliance testing, both of which are required every five years. New units must comply with the final standards immediately upon startup and must demonstrate compliance within six months.

<sup>4</sup> Docket ID No. EPA-240-R-24-001. *Guidelines for Preparing Economic Analyses: Third Edition.*

<sup>5</sup> Docket ID No. EPA-HQ-OAR-2003-0156. *Economic Impact Analysis for the Final Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Other Solid Waste Incineration Units*

The EPA estimates the total estimated compliance costs for the period 2027–2041 period in terms of their present value (PV) as well as their equivalent annualized value (EAV), which represents a flow of constant annual values that, had they occurred in each year, would yield a sum equivalent to PV. The EPA provides these estimates using both 3 percent and 7 percent discount rates. Appendix Tables A-1, A-2, and A-3 present the undiscounted, PV, and EAV estimates. The PV of the final rule is \$2.4 million at a 3 percent discount rate and \$1.8million at a 7 percent discount rate. The EAV of the final rule is \$200,000 at a 3 percent discount rate and \$200,000 at a 7 percent discount rate. Table A-2 provides the PV and EAV at a 3 percent discount rate for the final rule costs over the defined 15-year period, and Table A-3 provides the same type of estimates at a 7 percent discount rate. The positive costs are made up of MRR, operations and maintenance (O&M), and testing, according to the detailed cost analysis in the cost memo. The only estimated capital costs are negative and reflect the capital cost savings for new units that no longer need to install or use CEMS. These results are included in an Excel spreadsheet prepared by the EPA, which is in the docket for this final rule.<sup>6</sup>

The EPA anticipates that all facilities can comply with the final rule without the installation of any new air pollution control devices. The EPA does not anticipate any emission control costs or emission reductions associated with this rule. Analysis of the data collected indicates that all subject sources are achieving the final emission limits for HF and HCN, and so the final amendments would not increase costs. In addition, the EPA based the work practice standards for SSM on practices already utilized by industry and thereby do not affect the practical stringency of standards. Finally, the EPA expects that compliance testing for new emission limits will coincide with currently required emissions testing, requiring minimal extra costs. This final action simplifies reporting by owners and operators of HWCs and enhances the availability of data to the EPA and the public. As there are no emission reductions associated with this rule, the EPA does not anticipate any health or environmental impacts as a result of the final requirements. The EPA estimated that the costs of this final rule are small relative to the estimated revenue of the hazardous waste treatment and disposal industry, approximately \$9 billion in 2021.<sup>7</sup>

## 5. Section 14192 Regulatory Accounting

Tables A-1, A-2, and A-3 present the PV and EAV based on a 15-year analytic timeframe (2027 to 2041) using a 2026 present value year and beginning-of-period discounting. For E.O. 14192 regulatory accounting purposes, the EPA has prepared an alternative analysis that estimates costs in perpetuity. This requires the EPA to extrapolate costs beyond the 15-year analytic timeframe. For this rule, the EPA projects that the annual operating costs repeat

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<sup>6</sup> Docket ID No. EPA-HQ-OAR-2004-0022. *Proposal EIA Supporting Spreadsheet: U. S. EPA. HWC Proposal\_2025\_Cost Impacts\_PVandEAV\_vf.xlsx*.

<sup>7</sup> U.S. Census Bureau. (2022). *Service Annual Survey, Table 1. Estimated Revenue for Employer and Nonemployer Firms: 2013 Through 2022*. Available at <https://www2.census.gov/programs-surveys/sas/tables/time-series/sas-latest/Table1.xlsx>. Accessed August 14, 2025.

indefinitely and uniformly. When using an infinite time horizon, the EPA estimates that the present value of the costs of this rule is \$2.5 million and the annualized value of the costs of this rule is \$180,000 using a seven percent discount rate (2024\$, discounted to 2026).<sup>8</sup> This accounting is consistent with guidance published by OMB.

## 6. Small Entity Analysis

The small entity impact analysis for this final rule employs a “sales test”, which determines annualized compliance costs as a share of annual sales for each impacted parent company. The “sales test” is the impact methodology the EPA generally employs in economic impact analysis such as this one as opposed to a “profits test,” in which annualized compliance costs are calculated as a share of profits. This is because revenues or sales data are commonly available data for entities normally impacted by EPA regulations, and profits data normally made available are often accounting profits but not the true economic profits earned by firms due to accounting and tax considerations.<sup>9</sup> In addition, the EPA would need to invoke further assumptions about cost pass through for both sales and profit tests. This is consistent with guidance published by the U.S. Small Business Administration Office of Advocacy, which suggests that cost as a percentage of total revenues is a metric for evaluating cost impacts on small entities relative to large entities.<sup>10</sup> More information on sales and profit tests can be found in Final Guidance for EPA Rulewriters.<sup>11</sup>

For impacts at the entity level, of the 57 parent entities, the EPA identified eight entities (14 percent) as small according to Small Business Administration (SBA) size standards.<sup>12</sup> For these small entities, the EPA expects the incremental costs of this rule to be less than 0.16 percent of revenues each year. In fact, the EPA estimates that two of the eight parent entities will have cost savings associated with the proposal. These impacts are included in a docketed spreadsheet supporting this EIA that provides details on these cost-to-sales estimates and the applicable SBA size standards.<sup>13</sup>

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<sup>8</sup> To generate this cost estimate, incremental costs of the rule are detailed annually from the effective date of the rule through the year 2100, and those costs are analyzed as characterizing an infinite cost sequence for the rule amendments.

<sup>9</sup> U.S. EPA. Guidelines for Preparing Economic Analyses. December 2024. p. 9-20. Available at [https://www.epa.gov/system/files/documents/2024-12/chapter-9-guidelines-for-preparing-economic-analyses\\_final\\_508-compliant.pdf](https://www.epa.gov/system/files/documents/2024-12/chapter-9-guidelines-for-preparing-economic-analyses_final_508-compliant.pdf). Accessed August 14, 2025.

<sup>10</sup> U.S. SBA, Office of Advocacy. 2017. *A Guide for Government Agencies, How to Comply with the Regulatory Flexibility Act*. Available at <https://advocacy.sba.gov/wp-content/uploads/2019/07/How-to-Comply-with-the-RFA-WEB.pdf>. Accessed August 14, 2025.

<sup>11</sup> U.S. EPA. 2006. *Final Guidance for EPA Rulewriters: Regulatory Flexibility Act as Amended by the Small Business and Regulatory Enforcement Fairness Act*. Available at <https://www.epa.gov/system/files/documents/2021-07/guidance-regflexact.pdf>. Accessed August 14, 2025.

<sup>12</sup> U.S. Small Business Administration. *Table of Small Business Size Standards*. Available at: <https://www.sba.gov/document/support-table-size-standards>. Accessed August 14, 2025.

<sup>13</sup> Docket ID No. EPA-HQ-OAR-2004-0022. *Proposal EIA Supporting Spreadsheet: Economic and Small Entity Impact Analysis Spreadsheet for Proposed HWC RTR*.

Based on these relatively small estimates of cost per annual revenues and the relatively small fraction of affected parent entities that are small according to SBA size standards, the EPA expects that this action will not have a significant economic impact on the affected entities. Therefore, the EPA can certify that this regulation is not expected to have a significant impact on a substantial number of small entities (or SISNOSE) according to the Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act. In addition, there are no impacts sufficient to warrant analysis or action as required by the Unfunded Mandates Reform Act. Finally, in adherence to section 321(a) of the Clean Air Act, the EPA has determined that minimal to no impacts on employment are expected given the minimal economic impact of the action on the affected firms.

**Appendix A: Present Value and Equivalent Annual Value Compliance Cost Calculations**

**Table A-1: Undiscounted Incremental Costs of the Final Rule, 2027-2041 (Thousands of 2024 Dollars)**

<b>Year</b>	<b>Capital</b>	<b>Annual O&amp;M</b>	<b>Testing/MRR</b>	<b>Total</b>
2027	-\$190	\$270	\$57	\$130
2028	-\$190	\$220	\$5.9	\$35
2029	-\$190	\$220	\$6.0	\$37
2030	\$0	\$220	\$6.0	\$230
2031	\$0	\$220	\$6.0	\$230
2032	\$0	\$270	\$57	\$330
2033	\$0	\$220	\$5.9	\$230
2034	\$0	\$220	\$5.9	\$230
2035	\$0	\$220	\$6.0	\$230
2036	\$0	\$220	\$6.0	\$230
2037	\$0	\$270	\$57	\$330
2038	\$0	\$220	\$5.9	\$230
2039	\$0	\$220	\$5.9	\$230
2040	\$0	\$220	\$5.9	\$230
2041	\$0	\$220	\$6.0	\$230

Note: Figures are rounded to two significant digits. Sums may not total due to independent rounding. Testing is for performance. MRR = monitoring, recordkeeping, and reporting.

**Table A-2: Discounted Incremental Costs of the Final Rule, Present Value (PV) and Equivalent Annual Value (EAV) under 3 Percent Discount Rate, Discounted to 2025 2026 (Thousands of 2024 Dollars)**

<b>Year</b>	<b>Capital</b>	<b>Annual O&amp;M</b>	<b>Testing/MRR</b>	<b>Total</b>
2027	-\$190	\$260	\$56	\$130
2028	-\$180	\$210	\$5.6	\$33
2029	-\$180	\$210	\$5.7	\$35
2030	\$0	\$200	\$5.3	\$200
2031	\$0	\$190	\$5.2	\$200
2032	\$0	\$230	\$48	\$280
2033	\$0	\$180	\$4.8	\$190
2034	\$0	\$180	\$4.7	\$180
2035	\$0	\$170	\$4.6	\$180
2036	\$0	\$170	\$4.5	\$170
2037	\$0	\$200	\$41	\$240
2038	\$0	\$160	\$4.2	\$160
2039	\$0	\$160	\$4.2	\$160
2040	\$0	\$150	\$3.9	\$150
2041	\$0	\$140	\$3.9	\$150
<b>PV</b>	<b>-\$550</b>	<b>\$2,800</b>	<b>\$200</b>	<b>\$2,400</b>
<b>EAV</b>	<b>-\$46</b>	<b>\$230</b>	<b>\$17</b>	<b>\$200</b>

Note: Figures are rounded to two significant digits. Sums may not total due to independent rounding. Testing is for performance. MRR = monitoring, recordkeeping, and reporting.

**Table A-3: Discounted Incremental Costs of the Final Amendments, Present Value (PV) and Equivalent Annual Value (EAV) under 7 Percent Discount Rate, Discounted to 2025 2026 (Thousands of 2024 Dollars)**

<b>Year</b>	<b>Capital</b>	<b>Annual O&amp;M</b>	<b>Testing/MRR</b>	<b>Total</b>
2027	-\$190	\$260	\$56	\$120
2028	-\$180	\$210	\$5.6	\$30
2029	-\$180	\$210	\$5.7	\$30
2030	\$0	\$200	\$5.3	\$170
2031	\$0	\$190	\$5.2	\$160
2032	\$0	\$230	\$48	\$220
2033	\$0	\$180	\$4.8	\$140
2034	\$0	\$180	\$4.7	\$130
2035	\$0	\$170	\$4.6	\$120
2036	\$0	\$170	\$4.5	\$120
2037	\$0	\$200	\$41	\$160
2038	\$0	\$160	\$4.2	\$100
2039	\$0	\$160	\$4.2	\$96
2040	\$0	\$150	\$3.9	\$89
2041	\$0	\$140	\$3.9	\$83
<b>PV</b>	<b>-\$550</b>	<b>\$2,800</b>	<b>\$200</b>	<b>\$1,800</b>
<b>EAV</b>	<b>-\$46</b>	<b>\$230</b>	<b>\$17</b>	<b>\$200</b>

Note: Estimates rounded to two significant digits. Sums may not total due to independent rounding.