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September 13, 2016

The Honorable Jim Inhofe
Chairman
The Honorable Barbara Boxer
Ranking Member
Committee on Environment and Public Works
United States Senate

The Honorable Fred Upton
Chairman
The Honorable Frank Pallone, Jr.
Ranking Member
Committee on Energy and Commerce
House of Representatives

Subject: *Environmental Protection Agency: Standards of Performance for Municipal Solid Waste Landfills*

Pursuant to section 801(a)(2)(A) of title 5, United States Code, this is our report on a major rule promulgated by the Environmental Protection Agency (EPA) entitled "Standards of Performance for Municipal Solid Waste Landfills" (RIN: 2060-AM08). We received the rule on July 22, 2016. It was published in the *Federal Register* as a final rule on August 29, 2016. 81 Fed. Reg. 59,332.

The final rule promulgates a new subpart that updates the Standards of Performance for Municipal Solid Waste Landfills. EPA states that under section 111 of the Clean Air Act, it must review, and, if appropriate, revise standards of performance at least every 8 years. EPA's review of the standards for municipal solid waste landfills considered landfills that commence construction, reconstruction, or modification after July 17, 2014. The final standards also reflect changes to the population of landfills and an analysis of the timing and methods for reducing emissions. According to EPA, this action will achieve additional reductions in emissions of landfill gas and its components, including methane, by lowering the emissions threshold at which a landfill must install controls. This action also incorporates new data and information received in response to the proposed rulemaking and addresses other regulatory issues including surface emissions monitoring, wellhead monitoring, and the definition of landfill gas treatment system.

According to EPA, the new subpart will reduce emissions of landfill gas, which contains both nonmethane organic compounds and methane. EPA states that these avoided emissions will improve air quality and reduce the potential for public health and welfare effects associated with exposure to landfill gas emissions.

Enclosed is our assessment of EPA's compliance with the procedural steps required by section 801(a)(1)(B)(i) through (iv) of title 5 with respect to the rule. Our review of the procedural steps taken indicates that EPA complied with the applicable requirements.

If you have any questions about this report or wish to contact GAO officials responsible for the evaluation work relating to the subject matter of the rule, please contact Shirley A. Jones, Assistant General Counsel, at (202) 512-8156.

signed

Robert J. Cramer
Managing Associate General Counsel

Enclosure

cc: Nicole Owens
Environmental Protection Agency

REPORT UNDER 5 U.S.C. § 801(a)(2)(A) ON A MAJOR RULE
ISSUED BY THE
ENVIRONMENTAL PROTECTION AGENCY
ENTITLED
“STANDARDS OF PERFORMANCE FOR
MUNICIPAL SOLID WASTE LANDFILLS”
(RIN: 2060-AM08)

(i) Cost-benefit analysis

The Environmental Protection Agency (EPA) prepared an analysis of the potential costs and benefits associated with the final rule. EPA states that the final new source performance standards (NSPS) are expected to significantly reduce emissions of landfill gas (LFG) and its components, which include methane, volatile organic compounds (VOC), and hazardous air pollutants (HAP). EPA states further that landfills are a significant source of methane emissions, and in 2014 landfills represented the third largest source of human-related methane emissions in the U.S. This rulemaking applies to landfills that commence construction, modification, or reconstruction after July 17, 2014. In the 5 years following July 17, 2014, the EPA estimates that 14 landfills will commence construction and 123 landfills will modify. To comply with the emissions limits in the final rule, owners or operators of new or modified MSW landfills are expected to install the least-cost control for collecting and treating or combusting LFG. The annualized net cost for the final NSPS is estimated to be \$6.0 million (in 2012 dollars) in 2025, when using a 7 percent discount rate. The annualized costs represent the costs compared to no changes to the current NSPS (i.e., baseline) and include \$11 million to install and operate a gas collection and control system (GCCS), as well as \$0.08 million to complete the corresponding testing and monitoring. These control costs are offset by \$5.1 million in revenue from electricity sales, which is incorporated into the net control costs for certain landfills that are expected to generate revenue by using the LFG to produce electricity.

According to EPA, installation of a GCCS to comply with the 34 Mg/yr (megagram per year) nonmethane organic compound (NMOC) emissions threshold at new or modified landfills would achieve reductions of 281 Mg/yr NMOC and 44,300 Mg/yr methane (about 1.1 million metric tons of carbon dioxide equivalent per year) beyond the baseline in year 2025. In addition, the final rule is expected to result in the net reduction of 26,000 megagrams of carbon dioxide (CO₂), due to reduced demand by landfills for electricity from the grid as landfills generate electricity from LFG. The NMOC portion of LFG can contain a variety of air pollutants, including VOC and various organic HAP. VOC emissions are precursors to both fine particulate matter (PM_{2.5}) and ozone formation. These pollutants, along with methane, are associated with substantial health effects, welfare effects, and climate effects. EPA expects that the reduced emissions will result in improvements in air quality and lessen the potential for health effects associated with exposure to air pollution related emissions and result in climate benefits due to reductions of the methane component of LFG.

EPA estimates that the final rule's estimated methane emission reductions and secondary CO₂ emission reductions in the year 2025 would yield global monetized climate benefits of \$31 million to approximately \$180 million, depending on the discount rate. Using the mean social cost of methane (SC-CH₄) and social cost of CO₂ (SC-CO₂), at a 3 percent discount rate, results in an estimate of about \$68 million in 2025 (in 2012 dollars). The SC-CH₄ and SC-CO₂ are the

monetary values of impacts associated with marginal changes in methane and CO₂ emissions, respectively, in a given year. Each metric includes a wide range of anticipated climate impacts, such as net changes in agricultural productivity, property damage from increased flood risk, and changes in energy system costs, such as reduced costs for heating and increased costs for air conditioning. With the data available, EPA states that it is unable to provide quantified health benefit estimates for the reduction in exposure to HAP, ozone, and PM_{2.5} for the final rule. EPA states that this is not to imply that there are no such benefits of the rule; rather, it is a reflection of the difficulties in modeling the direct and indirect impacts of the reductions in emissions for this sector with the data currently available. Based on the monetized benefits and costs, the annual net benefits of the standards are estimated to be \$62 million (in 2012 dollars) in 2025, based on the average SC-CH₄ at a 3 percent discount rate, average SC-CO₂ at a 3 percent discount rate, and costs at a 7 percent discount rate.

(ii) Agency actions relevant to the Regulatory Flexibility Act (RFA), 5 U.S.C. §§ 603-605, 607, and 609

EPA certified that the final rule will not have a significant economic impact on a substantial number of small entities under RFA. The small entities subject to the requirements of this final rule may include private small businesses and small governmental jurisdictions that own or operate landfills. EPA states that although not required by the RFA to convene a Small Business Advocacy Review Panel because EPA has now determined that the final NSPS would not have a significant economic impact on a substantial number of small entities, EPA originally convened a panel to obtain advice and recommendations from small entity representatives potentially subject to the final rule's requirements.

(iii) Agency actions relevant to sections 202-205 of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. §§ 1532-1535

EPA states that this action does not contain any unfunded mandate of \$100 million or more as described in UMRA. The final NSPS applies to landfills that commence construction, reconstruction, or modification after July 17, 2014. Impacts resulting from the final NSPS are far below the applicable threshold. Thus, the final NSPS is not subject to the requirements of sections 202 or 205 of UMRA. However, in developing the final NSPS, EPA consulted with small governments pursuant to a plan established under section 203 of UMRA to address impacts of regulatory requirements in the rule that might significantly or uniquely affect small governments.

(iv) Other relevant information or requirements under acts and executive orders

Administrative Procedure Act, 5 U.S.C. §§ 551 et seq.

On July 17, 2014, EPA published a proposed new NSPS subpart (40 C.F.R. part 60, subpart XXX) in the *Federal Register*, based on its ongoing review of the municipal solid waste (MSW) Landfills NSPS (40 C.F.R. part 60, subpart WWW). 79 Fed. Reg. 41,796. On August 27, 2015, EPA issued a supplemental proposal to achieve additional reductions of LFG and its components, including methane, through a lower emission threshold at which MSW landfills must install and operate a GCCS. 80 Fed. Reg. 52,162. On August 27, 2015, EPA issued a concurrent proposal for revised Emission Guidelines for existing MSW Landfills. 80 Fed. Reg. 52,100. EPA states that it considered information it received in response to an Advanced Notice of Proposed Rulemaking (ANPRM) for the MSW landfills Emission Guidelines (79 Fed. Reg. 41,772) and a Notice of Proposed Rulemaking for existing landfills (80 Fed. Reg. 52,100),

in addition to the Notice of Proposed Rulemaking for new landfills (79 Fed. Reg. 41,796), in evaluating the final provisions for new sources. EPA states that it is not required to respond to comments received on the July 17, 2014, ANPRM (79 Fed. Reg. 41,772) for the MSW landfills Emission Guidelines or comments it received on the concurrent proposal for revised Emission Guidelines for existing MSW landfills, but it summarized several comments it received to provide a framework and support the rationale for the final revisions to the NSPS.

Paperwork Reduction Act (PRA), 44 U.S.C. §§ 3501-3520

According to the EPA, the Office of Management and Budget (OMB) has approved the information collection activities contained in this rule under PRA and has assigned OMB control number 2060-0697. The Information Collection Request (ICR) document that EPA prepared for the final NSPS has been assigned EPA ICR number 2498.03. EPA states that the information required to be collected is necessary to identify the regulated entities subject to the final rule and to ensure their compliance with the final NSPS. The recordkeeping and reporting requirements are mandatory and are being established under authority of CAA section 114 (42 U.S.C. § 7414). All information other than emissions data submitted as part of a report to the agency for which a claim of confidentiality is made will be safeguarded according to CAA section 111(c) and EPA's implementing regulations at 40 C.F.R. part 2, subpart B. EPA estimated that the number of respondents is 133 MSW landfills (per year) that commence construction, reconstruction, or modification after July 17, 2014. EPA estimated the total estimated cost is \$6,130,652 (per year), which includes annualized capital or operation and maintenance costs, for the responding facilities and \$169,978 (per year) for the agency. These are estimates for the average annual cost for the first 3 years after the rule is final. EPA estimated that the total estimated burden is 91,087 hours (per year) for the responding facilities and 2,634 hours (per year) for the agency. EPA explained that these are estimates for the average annual burden for the first 3 years after the rule is final.

Statutory authorization for the rule

The final rule was promulgated under the authority of sections 111(b)(1)(B) and 111(a)(1) of the Clean Air Act CAA section, 42 U.S.C. § 7411(b)(1)(B); 42 U.S.C. § 7411(a)(1).

Executive Order No. 12,866 (Regulatory Planning and Review)

EPA states that the final rule is an economically significant regulatory action that was submitted to OMB for review. Any changes made in response to OMB recommendations have been documented in the docket.

Executive Order No. 13,132 (Federalism)

EPA concluded that the final NSPS does not have federalism implications. The final NSPS does not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in the Order. The final rule does not have impacts of \$25 million or more in any one year. Thus, Executive Order 13,132 does not apply to the final NSPS. EPA states that although section 6 of the Order does not apply to the final NSPS, EPA states that it consulted with state and local officials and representatives of state and local governments early in the process of developing the final rules for MSW landfills (both the NSPS and Emission Guidelines) to permit them to have meaningful and timely input into its development.