ENVIRONMENTAL DEFENSE FUND
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CERTIFIED MAIL, RETURN RECEIPT REQUESTED

October 23, 2008

Stephen L. Johnson
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Mail Code: 1101A
Washington, D.C. 20460

Re: Notice of Intent to File Suit for: (1) EPA's Failure to Conduct the Mandatory 8-year Review and Revision of the New Source Performance Standards for Municipal Solid Waste Landfills Pursuant to Section 111(b)(1)(B) of the Clean Air Act and (2) Unreasonable Delay in Revising Emission Guidelines for Municipal Solid Waste Landfills Pursuant to Section 111(d) of the Clean Air Act.

Dear Administrator Johnson,

Environmental Defense Fund respectfully calls upon the U.S. Environmental Protection Agency (EPA) to review and revise its New Source Performance Standards and Emissions Guidelines for emissions of air pollution from new and existing solid waste disposal sites, and hereby provides notice pursuant to Section 304 of the Clean Air Act of its intent to sue the agency for failure to satisfy its statutory obligations to review and revise these standards and guidelines in light of current information concerning the environmental harms associated with these emissions.

EPA action to update these standards is statutorily required, and it also represents an enormous opportunity to address a variety of serious environmental hazards while also addressing the nation's urgent need for economic revitalization through expansive reliance on domestic sources of energy. Reviewing and modernizing EPA's outdated standards for landfills will help ensure the nation captures the damaging waste gas leaking from hundreds of landfills across the nation and converts it to a local source of energy. In harnessing this homegrown energy, landfills will reduce emissions of methane, a deleterious pollutant that contributes to ground-level ozone and is a potent greenhouse gas.

In September, the U.S. Climate Change Science Program released the results of a major study finding that reducing methane emissions reflects a "win-win" opportunity because it reduces concentrations of an extremely potent greenhouse gas while also improving local air

quality. Hiram Levy II *et al.*, U.S. CLIMATE CHANGE SCIENCE PROGRAM SYNTHESIS AND ASSESSMENT PRODUCT 3.2, CLIMATE PROJECTIONS BASED ON EMISSIONS SCENARIOS FOR LONG-LIVED AND SHORT-LIVED RADIATIVELY ACTIVE GASES AND AEROSOLS 64 (Sept. 2008) ("[D]ecreases in methane emissions lead to reduced levels of lower atmospheric ozone, thereby improving air quality; and both the direct methane and indirect ozone decreases lead to reduced global warming."). Technologies and processes for capturing and using landfill gas to produce energy have improved markedly since EPA promulgated its standards a dozen years ago, *see infra* pp. 4-5, and the increased cost of natural gas, of which methane is the primary component, has altered the economic calculus upon which EPA's outdated standards are based.

There is no more urgent time to act than today to tap America's potential to protect human health, achieve climate security, and advance energy security – while spurring new jobs and economic revitalization. While Environmental Defense Fund provides notice today of its intent to sue for government action, which has lagged for far too long, we hope that litigation is not necessary, and respectfully request and welcome the opportunity to work – jointly – with EPA, municipal leaders, the waste management industry, clean energy entrepreneurs and other interested parties in complying with these legal imperatives by forging collaborative common-sense solutions that will simultaneously benefit local air quality, the global environment, economic growth, and America's energy security.

Environmental Defense Fund hereby provides notice, pursuant to Section 304 of the Clean Air Act ("CAA"), 42 U.S.C. § 7604, and 40 C.F.R. part 54 of its intent to commence a civil action against the Administrator of the U.S. Environmental Protection Agency for failure to timely review and revise the New Source Performance Standard ("NSPS") for Municipal Solid Waste ("MSW") Landfills, as required by CAA Section 111(b)(1)(B), 42 U.S.C. § 7411(b)(1)(B). The Agency has also failed to carry out its duty to publish required Emissions Guidelines ("EG") for existing MSW Landfills. Environmental Defense Fund hereby provides notice of its intent to sue the agency, pursuant to Section 304(a), for unreasonable delay in meeting EPA's duties under Section 111(d) of the Act, 42 U.S.C. § 7411(d), and implementing regulations. *See* 40 C.F.R. § 60.22.

I. INTRODUCTION

The CAA requires EPA to publish a list of each category of stationary sources that "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare". 42 U.S.C. § 7411(b)(1)(A). For each source category, EPA must publish regulations establishing standards of performance for new and modified sources within the source category (NSPS). *Id.* § 7411(b)(1)(B). These NSPS must reflect "a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." ("Best Demonstrated Technology" or "BDT"). *Id.* § 7411(a)(1). Section 111 requires EPA to review and, if appropriate, revise all NSPS every 8 years. *Id.* § 7411(b)(1)(B). As part of this 8-year

review, EPA must consider any "emissions limitations and percent reductions" achieved in practice that are beyond those required by the current NSPS. *Id.* In addition, EPA must establish emissions guidelines for all existing sources for which it has established a NSPS. *Id.* § 7411(d); 40 C.F.R. § 60.22.

EPA established the current NSPS for new MSW landfills and emission guidelines for existing landfills in 1996.[1] At that time EPA determined that a gas collection and control system which relied on the use of flares constituted BDT for new and existing sources subject to the standard and guidelines.[2]

II. EPA FAILED TO PERFORM ITS MANDATORY DUTY TO REVIEW AND REVISE THE NSPS FOR MSW LANDFILLS UNDER SECTION 111(b)(1)(B).

Section 111 of the Clean Air Act establishes a series of non-discretionary duties relating to EPA's regulation of emissions from new or modified sources. In particular, Section 111(b)(1)(B) imposes a mandatory timetable on the Administrator for reviewing and revising NSPS standards: "The Administrator shall, at least every 8 years, review and, if appropriate, revise such standards following the procedure required by this subsection for promulgation of such standards." 42 U.S.C. § 7411(b)(1)(B).

On March 12, 1996, EPA published the final NSPS for new or modified MSW landfills under authority of section 111.[3] Since that time, EPA has failed to conduct a review of the NSPS for MSW landfills sufficient to satisfy the requirements of section 111(b)(1)(B).[4] Indeed, EPA recently acknowledged that it has not conducted the mandatory 8-year review of the MSW landfill NSPS in response to a Freedom of Information Act request submitted by Environmental Defense Fund.[5] It is well established that when Congress has established a clear deadline for Agency action, such as a mandatory time-table for regulatory review, the Agency may not ignore it. *See American Lung Ass'n v. Reilly*, 962 F.2d 258, 263 (2d Cir. 1992) (citing *Sierra Club v. Thomas*, 828 F.2d 783, 791 (D.C. Cir. 1987)). Accordingly, EPA has violated and continues to violate the CAA.

Section 111(b)(1)(B) provides that EPA need not conduct a review if it determines that "such review is not appropriate in light of readily available information on the efficacy of such standard." 42 U.S.C. § 7411(b)(1)(B). However, EPA has never made such a determination for

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[1] 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).
[2] *Id*. at 9907.
[3] *Id.* at 9905.
[4] Since 1996, EPA has proposed minor clarifying amendments to the landfill NSPS, but those amendments have not been finalized, nor would they satisfy the 8-year review requirement of 111(b)(1)(B) because they do not purport to review or revise the standards in any way. *See, e.g.*, Standards of Performance, Emission Guidelines, and Federal Plan for Municipal Solid Waste Landfills and National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills, 71 Fed. Reg. 53272 (Sept. 8, 2006).
[5] *See* Letter from Stephen D. Page, EPA Office of Air Quality Planning and Standards, to Kevin Lynch, Environmental Defense Fund (Aug. 26, 2008) (Attachment A).

the MSW landfill source category. Nor could EPA lawfully make such a determination today. As the following section demonstrates, there have been numerous improvements in methane gas capture and reuse systems from landfills since 1996 which demonstrate that the current standard no longer reflects BDT.

III. THE CURRENT MSW LANDFILL NSPS IS OUTDATED AND IN NEED OF REVIEW AND REVISION.

A. The Current Standard Does Not Reflect the Best Demonstrated Technology.

The NSPS must meet "a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated." 42 U.S.C. § 7411(a)(1). In the 1996 NSPS, EPA determined that BDT consisted of a gas collection system and control device capable of reducing NMOC emissions in the collected gas by 98 weight-percent.[6] This determination was based on EPA's conclusion that flares represented BDT and that other control devices such as energy recovery systems, were neither economically nor technically available.[7] Technological developments and changes in energy markets, including the price of natural gas, since 1996 have significantly altered the feasibility and economics of landfill gas-to-energy ("LFGTE") projects. As EPA itself has recognized, LFGTE is demonstrably feasible even for smaller landfills. According to the agency, "[m]ore than half of the nation's approximately 300 operating LFGTE projects are small landfills that have captured this untapped energy potential through innovative project design, reaping financial and environmental benefits for the communities they serve."[8] EPA has pointed to a number of compelling success stories for LFGTE projects at small and large landfills. While it is EPA's responsibility to determine BDT based upon a thorough review, we believe the following examples demonstrate that EPA's assumptions regarding the cost and availability of landfill gas capture and reuse technologies are outdated.

The 2 million tons-in-place H.O.D. Landfill in Illinois provides a particularly compelling example of a small-scale LFGTE project that employs (a) microturbine technology[9] and (b) a

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[6] 61 Fed. Reg. 9905, 9907.

[7] U.S. EPA, Standards for Performance for New Stationary Sources and Guidelines for Control of Existing Sources: Municipal Solid Waste Landfills; Proposed Rule, 56 Fed. Reg. 24,468, 24,470 (May 30, 1991).

[8] EPA, SMALL LANDFILLS = UNTAPPED ENERGY POTENTIAL (2001), *available at* http://www.epa.gov/lmop/res/pdf/landfills.pdf.

[9] Microturbines, a relatively new distributed generation technology in LFG utilization, have a number of advantages. Individual units range in size from 30 to 100 kW and can be grouped into larger sets. *See* EPA, POWERING MICROTURBINES WITH LANDFILL GAS (2002), *available at* http://www.epa.gov/lmop/res/pdf/pwrng_mcrtrbns.pdf. They can use lower quality LFG, containing 30-35 percent methane. *Id.* They require a smaller footprint, need only minor maintenance because of fewer moving parts, and are quieter than other technologies. *Id.* Plus, they emit about one-tenth of the oxides of nitrogen compared to reciprocating engines and emit less NOx than flaring. *Id.*

combined heat and power System ("CHP").[10] Located adjacent to the Antioch High School, the H.O.D. Landfill installed a new microturbine cogeneration system in 2003. This CHP system produces enough electricity (360 kW) to sell excess energy to Commonwealth Edison, while recovering enough heat from the microturbines to heat the school. The school expects to save $100,000 in energy costs every year. Equally importantly, from application to completion, the project only took 18 months.[11]

The 2.68 million tons-in-place Blackburn Landfill provides an example of a public-private LFGTE project.[12] After realizing that "[o]ne way to prevent landfill gas (LFG) migration is to flare the gas, but a better way is to burn it to produce electricity,"[13] Catawba County formed a partnership with Duke Energy to install a 3 megawatt ("MW") LFGTE project. The project is expected to save $7.1 over 15 years due to electricity savings.[14]

LFGTE projects have been adopted on much larger scales as well. At the 16.6 million tons-in-place Lopez Canyon landfill, the City of Los Angeles's Bureau of Sanitation operates an array of 50 microturbines, each with an output of 30 kilowatts ("kW"), combining for a total of 1.5 MW. This is on top of the Lopez Canyon's first LFGTE project, which generates 5.6 MW of power from engines running on a third of the landfill's available gas. Together, these two LFGTE projects produce 7.1 MW, enough to power 4,500 homes. This project illustrates how old and new technologies can work side-by-side to make LFGTE projects feasible and successful.[15]

The Coffin Butte Landfill in Oregon produces enough methane to generate 5.66 MW and power 4,000 homes per year.[16] To tap this energy, the site installed two new Caterpillar reciprocating G3520Cs. These low-energy fuel generators were modified to burn impure low-BTU landfill gas, foregoing the intermediate step of purifying the landfill gas. This required a few minor changes to the engines, including the installation of corrosive-resistant parts that deliver acceptable component life and maintenance intervals. Moreover, the changes have made the engines considerably more efficient. The G3520Cs now produce approximately twice as much energy as prior models, and are designed as part of a "landfill package" making it easier and more affordable for landfills to install LFGTE projects.

Under the CAA, EPA must consider reductions achieved in practice when revising the NSPS for a particular source category whenever emissions reductions "beyond those required by

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[10] Cogeneration or combined heat and power projects generate both electricity and thermal energy, usually by using waste engine heat to produce steam or hot water. The LMOP Database shows that there are 20 cogeneration LFGTE projects currently operating in the United States, and they range in size from 100 kW to 7 MW. LMOP Database showing cogeneration projects available at http://www.epa.gov/lmop/proj/xls/opprjscogenlmopdata.xls.

[11] Project details available at http://www.epa.gov/lmop/proj/prof/profile/antiochcommunityhighschoo.htm.

[12] Project details available at http://www.epa.gov/lmop/proj/prof/profile/catawbacountylandfillgase.htm.

[13] *Id*.

[14] *Id*.

[15] Project details available at http://www.epa.gov/lmop/proj/prof/profile/lopezcanyonlandfillgasene.htm.

[16] Peter Hildenbrandt, *A Growing Fuel Source*, MSW MANAGEMENT, July-August 2008, *available at* http://www.mswmanagement.com/july-august-2008/growing-fuel-source.aspx.

the standards…are achieved in practice." 42 U.S.C. § 7411(b)(1)(B). As the foregoing examples demonstrate, numerous gas capture and reuse technologies are available today that produce significantly greater methane emission reductions than produced by flaring and are economical for a larger number of landfill operators. Accordingly, the NSPS no longer reflects BDT.

As part of its mandatory 8-year review, the Administrator must thoroughly examine BDT for MSW landfills and ensure that the NSPS for MSW landfills reflects current BDT. 42 U.S.C. § 7411(a)(1). Such a review should include a thorough examination of all currently available technologies for capturing and reusing landfill methane gas, such as those described above, as well as all others that have been developed or improved since 1996.

B. The Existing 50 mg/yr Emissions Rate Cutoff is too Low.

As part of its review of the MSW landfill NSPS, EPA should revise the current 50 Mg/yr emissions threshold and the 2.5 million Mg design capacity exemption. The threshold covers a very small percentage of landfills. *See* 61 Fed. Reg. 9905, 9914 (the NSPS and EG covered less than 5% of all landfills at the time EPA promulgated the current standard and guidelines). EPA based this threshold primarily on cost-effectiveness calculations that relied on the use of flares.[17] The underlying assumptions, in particular the capital costs of installing LFGTE projects, the amount of methane saved, and the profits realized through the sale or use of the captured gas, have changed considerably over the last decade. The wider availability of cost-effective LFGTE projects, especially to smaller landfills, indicates EPA must revise the emission threshold to take account of current information, and cover the greater percentage of new and existing MSW landfills for which collection and control is both available and cost-effective.[18]

IV. AS PART OF ITS REVEW, EPA MUST CONSIDER REDUCING METHANE EMISSIONS FROM MSW LANDFILLS.

Numerous scientific and policy reports document the harmful public health and welfare impacts that result from climate change caused by the emissions of greenhouse gases such as methane. A body of science also demonstrates that these same methane emissions contribute to the formation of ground-level ozone-a harmful air pollutant that continues to threaten the health of millions of Americans. Solid waste landfills, such as the ones regulated by the current NSPS, are a significant source of these emissions. Indeed, they are the second largest anthropogenic

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[17] 61 Fed. Reg. 9905, 9911, 9915-9916, tbl. 4; 56 Fed. Reg. 24,468, 24,478-24,480.

[18] EPA considered lower design capacity thresholds, down to 1 million Mg, but for the emissions rate cutoff 50 Mg/yr was on the low end of what EPA evaluated. *See* 61 Fed. Reg. 9905, 9914-16 tbls. 3-6. Recent experience has shown that smaller landfills still present a large opportunity to reduce methane emissions. For example, the Deer Track Park Landfill in Wisconsin has just over 300,000 tons of waste in place, yet a LFGTE project has reduced emissions by 137,000 tons CO_2 equivalent per year. LMOP Database, Project Id 1741, *available at* http://www.epa.gov/lmop/proj/xls/opprjslmopdata.xls. While we recognize that landfill emissions can vary significantly according to factors beyond the design capacity, we believe that this example demonstrates the need for EPA to consider lowering the design capacity and emissions rate thresholds to include more landfills where significant emissions reductions are achievable.

source of methane emissions in the U.S.—accounting for 22.6% of all U.S. methane emissions in 2006[19] and have ranked in the top five categories of methane emissions over the last several years.[20] For these reasons, EPA must strengthen the existing NSPS to reduce methane emissions from this significant source.

Yet, there is another, equally compelling, policy rationale. As documented in a recent scientific report by the U.S. Climate Change Science Program, methane reductions accomplish the dual goal of combating climate change and ozone-pollution. *See* Hiram Levy II *et al.*, U.S. CLIMATE CHANGE SCIENCE PROGRAM SYNTHESIS AND ASSESSMENT PRODUCT 3.2, CLIMATE PROJECTIONS BASED ON EMISSIONS SCENARIOS FOR LONG-LIVED AND SHORT-LIVED RADIATIVELY ACTIVE GASES AND AEROSOLS 64 (2008) (finding that reducing methane emissions "improve[s] air quality" and "lead[s] to reduced global warming"). Indeed, one study on the relationship of methane emissions to ground-level ozone levels concludes that "tropospheric O_3 [Ozone] responds approximately linearly to changes in CH_4 [methane] emissions over a range of anthropogenic emissions…"[21] Another found that reducing global anthropogenic methane emissions by 20% beginning in 2010 would result in a decrease in maximum daily surface ozone concentrations by 1 part per billion (ppb), over an 8-hour average.[22] The study predicted, based on epidemiological studies, that this reduction in maximum ozone concentrations would prevent about 30,000 premature deaths from all causes in 2030 and approximately 370,000 premature deaths between 2010 and 2030.[23]

A. EPA Has Determined that Methane Emissions Threaten Public Health and Welfare.

EPA must regulate a "category of sources" if it "contributes significantly" to "air pollution which may reasonably be anticipated to endanger public health and welfare." 42 U.S.C. § 7411(b)(1)(A). EPA has already determined – in the 1996 rulemaking – that municipal solid waste landfills are such a category and EPA's standards of performance for this source category must meet the requirements of section 111(a)(1) and (b)(1).

Furthermore, during the rulemaking proceeding governing the adoption of the current standards of performance, EPA determined that methane presented a threat to public health and welfare.[24] EPA specifically referred to methane as one of "the emissions of concern" that the Administrator considered when determining that landfills "contribute significantly" to "air

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[19] EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2006, at ES-10 (Apr. 15, 2008).
[20] *Id*. at ES-5, Table ES-2.
[21] West, J. Jason *et al.*, *Global Health Benefits of Mitigating Ozone Pollution with Methane Emissions Controls*, PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, Vol. 103, at 3988-3993 (Mar. 14, 2006); Arlene M. Fiore, *et al.*, *Characterizing the Tropospheric Ozone Response to Methane Emission Controls and the Benefits to Climate and Air Quality*, 113 J. OF GEOPHYSICAL RES. 1 (2008); Climate Change Division, Office of Atmospheric Programs, U.S. EPA, TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, Sixth Order Draft, 73 (June 21, 2008).
[22] West, *supra* note 21, at 3988.
[23] *Id.* at 3992.
[24] 61 Fed. Reg. 9905.

pollution which may reasonably be anticipated to endanger public health and welfare."[25] EPA listed methane's contribution to climate change as one of the "specific health and welfare effects of LFG emissions"[26] and acknowledged that methane is a "major greenhouse gas"[27] that "contributes more to climate change on a weight basis than CO_2."[28] In a technical document prepared for the 1991 proposed landfill gas rulemaking, EPA recognized that methane "is more potent than CO_2" and that "[M]olecule-for-molecule methane traps 20-30 times more infrared energy in the atmosphere. Therefore even a small increase in the methane concentration in the atmosphere is a concern to scientists trying to predict the warming of the climate."[29] This document also recognized the dangers to human health and welfare posed by the "highly explosive" property of methane.[30] According to EPA "methane can migrate off-site from the landfill and possibly collect in basements and crawl spaces of nearby structures."[31] EPA cited to specific instances where migrating methane caused explosions that resulted in serious injuries and even death at neighboring properties.[32] When reviewing the benefits of the new rule, EPA noted that "the reduction of methane emissions is expected to have a positive impact on global climate change"[33] and that "[t]his rulemaking presents considerable potential for methane reductions, resulting in benefits such as the abatement of global warming...").[34] EPA further recognized that "methane emissions present a well-documented danger of fire and explosion on-site and off-site" and that there have been "many cases of acute injury and death caused by explosions and fires related to municipal landfill gas emissions".[35]

EPA has since only reiterated the health and welfare dangers associated with methane. In a recent rulemaking discussing in detail the harms greenhouse gases such as methane pose to human health and welfare, EPA reiterated its statement made in the NSPS rulemaking that "CH_4 is more than 20 times as effective as CO_2 at trapping heat in the atmosphere."[36] EPA also recognized that high concentrations of methane could cause serious injuries such as adverse physiological effects and even death by strangulation.[37] Accordingly, in both the rulemaking for the current landfill NSPS, as well as subsequent rulemakings concerning ozone pollution and climate change, EPA has determined that methane endangers human health and welfare.

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[25] *Id.*
[26] *Id.* at 9906.
[27] *Id*. at 9917.
[28] *Id*.
[29] U.S. EPA, Office of Air Quality, Planning and Standards, AIR EMISSIONS FROM MUNICIPAL SOLID WASTE LANDFILLS-BACKGROUND AND INFORMATION FOR PROPOSED STANDARDS AND GUIDELINES, 2-15 (Mar. 1991).
[30] *Id.* at 2-15-2-16.
[31] *Id.* at 2-16.
[32] *Id*. at 2-16, tbls. 2-4 and 2-5; 2-17-2-21.
[33] *Id*.
[34] 56 Fed. Reg. 24,468, 24,480.
[35] 61 Fed. Reg. 9905, 9906, 9917.
[36] 73 Fed. Reg. 44,354, 44,402 (2008); *see also* TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at ES-1 ("Methane is the second largest source of positive radiative forcing (+0.48 W/m^2.").
[37] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 17.

Moreover, even assuming EPA had not made such a determination, the evidence of methane's significant contribution to climate change, ozone pollution and other harms is overwhelming and requires such a finding immediately.

B. Evidence That Methane Emissions Endanger Human Health and Welfare is Incontrovertible.

1. Methane is a Potent Greenhouse Gas.

As EPA has recognized, methane is a powerful greenhouse gas. In terms of its potential to trap heat in the atmosphere, methane is twenty-one times more powerful than CO_2.[38] Methane is second only to CO_2 in terms of the quantity of greenhouse gas emissions emitted from sources in the U.S.[39] Furthermore, methane emissions globally are on the rise—having increased by 148% since pre-industrial levels.[40] However, unlike other longer-lived greenhouse gases such as CO_2, methane has a relatively short lifetime in the atmosphere, lasting roughly twelve years, before it is absorbed by natural sinks. This short lifetime provides an excellent opportunity to mitigate global warming because cutting methane emissions could stabilize or reduce methane concentrations in the atmosphere in 10-20 years.[41]

2. Climate Change Threatens Human Health and Welfare

EPA recently examined the numerous public health and welfare threats posed by climate change which is caused by the emissions of greenhouse gases such as methane.[42] They include the following:

- **Increased death and illness due to an increase in warmer days and nights and more frequent heat waves**.[43] According to various studies cited by EPA, heat events can lead to increased hospital admissions and emergency room visits for cardiovascular disease as well as short-term increases in mortality.[44] Warmer days and nights are "virtually certain" and increased heat waves are "very likely" in the future according to the IPCC.[45]

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[38] EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2006, *supra* note 19, at ES-5, Table. ES-2 (April 15, 2008).
[39] *Id*. at ES-3.
[40] 73 Fed. Reg, 44,354, 44,425.
[41] U.S. EPA, U.S. METHANE EMISSIONS 1990-2020: INVENTORIES, PROJECTIONS, AND OPPORTUNITIES FOR REDUCTIONS, at 1-2 (Sept. 1999).
[42] 73 Fed. Reg. 44,354, 44,425; TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21.
[43] 73 Fed. Reg. at 44,425; TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 65.
[44] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 65.
[45] IPCC, 2007: Summary for Policymakers at 8, *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (2007).

- **Increased death and illness due to infectious diseases from more frequent weather events, such as floods, storms and fires**.[46] Heavy precipitation events in the future are "very likely".[47] Increases in heavy precipitation events including flooding and hurricanes are associated with increased risks of death and injuries as well as infectious, respiratory and skin diseases.[48]

- **Increasing competition for water resources and decreased water quality**. Climate change is projected to constrain, and increase competition for, already over-allocated water resources[49] and degrade water quality. [50]

- **Stress on coastal communities and habitats**. Rising sea levels are expected to exacerbate the impacts of progressive inundation, storm-surge flooding, and shoreline erosion.[51] Loss of wetlands and waterfront property as well as alteration of coastal ecosystems due to the intrusion of salt-water are likely to occur.[52]

- **Increased stress on ecosystems and wildlife.**[53] Many marine, freshwater and terrestrial species are at risk of extinction. Increased wildfires and pest outbreaks are likely to further disturb ecosystem function and structures.

- **Increases in regional ozone pollution**. The increase in warmer days and nights, as well as the increased incidence of heat waves, is expected to increase ozone pollution.[54] According to studies cited by EPA, ozone-related deaths from climate change in the U.S. are projected to increase by 4.5% from the 1990's to 2050's.[55]

EPA's refusal to take into consideration methane emissions from MSW landfills when revising the NSPS would be unsupportable in light of the serious public health and welfare harms such emissions pose.

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[46] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 66-67; 73 Fed. Reg. 44,354, 44,426-27.
[47] IPCC, 2007: Summary for Policymakers, *supra* note 45, at 8.
[48] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 66.
[49] 73 Fed. Reg. 44,354, 44,427.
[50] *Id*.; TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 67.
[51] 73 Fed. Reg. 44,354, 44,427; TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at ES-4.
[52] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, ES-6.
[53] *Id*. at ES-6.
[54] 73 Fed. Reg. 44,354, 44,426.
[55] 73 Fed. Reg. 44,354; TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 72.

3. Methane Contributes to Ozone Pollution

Methane emissions contribute to the formation of ground-level ozone.[56] Exposure to ground-level ozone has been linked to an increasing number of health problems including premature mortality and shortened life-spans, as well as decreased lung function, respiratory illness, and asthma.[57] Children, the elderly, and people who spend significant amounts of time outdoors are particularly at risk. This year, EPA lowered the national health based standard for ozone in recognition that the 1997 standard was inadequate to protect the public from this harmful, and in some cases, life-threatening, pollutant.[58]

Ground-level ozone also causes global warming. According to the IPCC's 2007 Fourth Assessment Report, ground-level ozone is one of the largest contributors to global warming.[59] The report affirms earlier findings that, of all air pollution caused by human activities, ground-level ozone is behind only carbon dioxide and methane in contributing to climate change.[60] The IPCC estimated that the global average radiative forcing of ground-level ozone increases relative to pre-industrial times is +0.35 W m^{-2}, as compared to an estimated 1.66 W m^{-2} for carbon dioxide and 0.48 W m^{-2} for methane.[61] The +0.35 W m^{-2} figure is the median of a range of ozone forcing analyses reviewed in the IPCC's report.[62] The 5 to 95% confidence interval, also derived from the range of reviewed ozone forcing analyses, was estimated at +0.25 W m^{-2} to +0.65 W m^{-2}, demonstrating that ozone's radiative forcing may be considerably higher than the current best estimate.[63] The IPCC found that remaining uncertainties in the estimates originated from

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[56] Arlene M. Fiore *et al.*, *Characterizing the Tropospheric Ozone Response to Methane Emission Controls and the Benefits to Climate and Air Quality*, Journal of Geophysical Research Vol. 113, at 1 (April 30 2008) (stating that "[I]n the presence of nitrogen oxides (NOx), tropospheric CH_4 oxidation leads to the formation of O_3); Aaron S. Katzenstein *et al.*, *Extensive Regional Atmospheric Hydrocarbon Pollution in the Southwestern United States,* 21 PNAS Vol. 100, 11975 ("The release of hydrocarbons into the atmosphere contributed to the photochemical ozone (O_3) production, with related adverseadverse health effects, reduction in plant growth, and climate change… Ch_4 is by far the most abundant hydrocarbon in the atmosphere.")

[57] Committee on Estimating Mortality Risk Reduction Benefits from Decreasing Tropospheric Ozone Exposure, National Research Council, ESTIMATING MORTALITY RISK REDUCTION AND ECONOMIC BENEFITS FROM CONTROLLING OZONE AIR POLLUTION 2 (2008); U.S. EPA, Control of Emissions from Nonroad Spark-Ignition Engines and Equipment, Final Rule, 73 Fed. Reg. 59,034 (Oct. 8, 2008) (noting that final rule will prevent between 77 and 350 ozone-related premature deaths); Bell ML, Peng RD, Dominici F. 2006. The exposure-response curve for ozone and risk of mortality and the adequacy of current ozone regulations. Environ Health Perspect. 114(4):532-536. Bell ML, McDermott A, Zeger SL, Samet JM, Dominici F. 2004. Ozone and short-term mortality in 95 US urban communities, 1987-2000. JAMA. 292(19):2372-2378. Levy JI, Chemerynski SM, Sarnat JA. 2005. Ozone exposure and mortality: an empiric bayes metaregression analysis," Epidemiol. 16(4):458-468.

[58] U.S. EPA (2008), National Ambient Air Quality for Ozone, Final Rule, 73 Fed. Reg. 16,436, (Mar. 27, 2008) *available* at http://www.epa.gov/fedrgstr/EPA-AIR/2008/March/Day-27/a5645.pdf.

[59] IPCC, 2007: Summary for Policymakers, *supra* note 45, at 4.

[60] *Id.*; *see also* P. Forster, *et al.*, 2007: Changes in Atmospheric Constituents and in Radiative Forcing. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA at 152, *available at* http://ipcc-wg1.ucar.edu/wg1/Report/AR4WG1_Print_Ch02.pdf.

[61] IPCC, 2007: Summary for Policymakers, *supra* note 45, at 4; Forster, *supra* note 60, at 152.

[62] Forster, *supra* note 60, at 152.

[63] *Id.*

the models used and particularly the potential overestimation of pre-industrial ozone levels in the models.[64] EPA has recently acknowledged that "[T]ropospheric ozone is a short-lived greenhouse gas" whose levels have increased "by about 36% since the pre-industrial era…."[65]

EPA must regulate a source category under NSPS if it "contributes significantly" to "air pollution which may reasonably be anticipated to endanger public health and welfare." 42 U.S.C. § 7411(b)(1)(A). In the rulemaking for the current NSPS, as well as more recent rulemakings addressing the imperatives of ozone pollution and climate change, EPA has determined that methane emissions endanger human health and welfare. Indeed, the evidence demonstrating methane's contribution to climate change and ozone pollution is undeniable. Moreover, methane capture and reuse technologies are available to reduce methane emissions from landfills beyond what is required under the current NSPS. EPA must therefore address methane emissions when reviewing and revising the current landfill NSPS.

V. EPA MUST REVISE THE EMISSION GUIDELINES FOR MSW LANDFILLS

Section 111(d) requires EPA to promulgate regulations governing emissions for existing sources in certain source categories for which NSPS are established. 42 U.S.C. § 7411(d); 40 C.F.R. § 60.22. EPA promulgated the current emission guidelines in 1996 when it established the MSW landfill NSPS. In doing so, EPA established the identical BDT requirement for existing landfills, based on the same economic and technical considerations.[66] As the foregoing analysis demonstrates, the underlying cost and technical assumptions for BDT and the current NSPS and emission guidelines have changed. EPA has extensive, compelling information on the public health and welfare impacts associated with methane emissions from landfills. EPA must not only review, but also revise, the current NSPS. At that time, EPA must also revise the emission guidelines for MSW landfills so that they reflect BDT, as well as ensure uniformity in the rules applying to all regulated landfills.

EPA issued its emission guidelines for landfill gas together with the NSPS, recognizing that the environmental, technological, and economic considerations bearing on regulation of new and existing landfills are closely related. EPA's revision of the emission guidelines for MSW landfills must also proceed in conjunction with its review and revision of the NSPS. *See* 40 C.F.R. § 60.22.

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[64] *Id.*

[65] TECHNICAL SUPPORT DOCUMENT FOR ENDANGERMENT ANALYSIS FOR GREENHOUSE GAS EMISSIONS UNDER THE CLEAN AIR ACT, *supra* note 21, at 14. Ozone pollution also contributes indirectly to climate change. Exposure to severe ozone dramatically weakens the health of forests and increases the chance of forest fires caused by large amounts of dry, dead underbrush. Loss of forests itself exacerbates climate change because trees act as natural carbon sinks, absorbing carbon dioxide emissions through the process of photosynthesis, thereby reducing the amount of greenhouse gases in the atmosphere. Zack Parsons and Steven Arnold, Colorado Department of Health and Environment, *Ozone Transport in the West: An Exploratory Study* (July 2004), *available at* http://www.cdphe.state.co.us/ap/down/ozonetransport.pdf at 9.

[66] 61 Fed. Reg. 9905, 9907.

This letter serves notice under 42 U.S.C. § 7604(a) of Environmental Defense Fund's intent to sue EPA for the Agency's unreasonable delay in publishing revisions to the emission guidelines for landfill gas. These guidelines, promulgated more than 12 years ago, are no longer justifiable in light of new information about the environmental harms associated with this pollutant, and the economic benefits of controls, as summarized above.

VI. CONCLUSION

EPA has missed, by over four years, its mandatory deadline to review and revise the NSPS for MSW landfills. During that time, the body of knowledge regarding the public health and welfare impacts associated with landfill emissions, in particular methane's significant contribution to climate change and ozone pollution, has increased. In addition, landfill gas and methane capture and reuse technologies have advanced; the existing standard and emission guidelines do not reflect best demonstrated technology.

We hereby submit this notice of intent to sue EPA for failure to review the NSPS for MSW landfill emissions as mandated by Congress. Please note that after the expiration of sixty (60) days from the postmark date of this notice, Environmental Defense Fund intends to file suit against the Administrator of EPA in federal court for the failure to act as required by Section 111(b)(1)(B) of the Clean Air Act. Environmental Defense Fund also hereby gives notice of its intent to sue in the United States District Court for the District of Columbia, pursuant to Section 304(a) of the CAA, to compel the publication of emission guidelines unreasonably delayed in contravention of Section 111(d) of the Act and 40 C.F.R. § 60.22.

VII. OUR CONTACT INFORMATION

As required by 40 C.F.R. § 54.3, we provide our name and address which is:

James T.B. Tripp
General Counsel
Environmental Defense Fund
257 Park Avenue
New York, NY 10010

Kevin Lynch
Vickie Patton
Environmental Defense Fund
2334 North Broadway
Boulder, CO 80304

VIII. OUR COUNSEL

We have retained legal counsel to represent us. Our counsel's contact information is:

Sean H. Donahue
Donahue & Goldberg, LLP

2000 L St., NW Suite 808
Washington, D.C. 20036
Tel: 202-277 -7085
Email: sean@donahuegoldberg.com

Elizabeth Paranhos
1555 Jennine Place
Boulder, CO, 80304
Tel: 303-880-4285
Email: elizabethparanhos@delonelaw.com

We believe this notice describes, with "reasonable specificity," the actions not taken by the Administrator which constitutes a failure to perform a mandatory duty. *See* 40 C.F.R. § 54.3(a). If, however, you require clarification or have any questions, please feel free to contact us.

Yours Sincerely,

Vickie Patton
Deputy General Counsel
Environmental Defense Fund
(303) 447-7215

cc: Enclosure