

BOARD OF DIRECTORS

**Co-Presidents**

Stuart A. Clark  
Washington

Ursula Nelson  
Tucson, AZ

**Co-Vice Presidents**

David Klemp  
Montana

Craig T. Kenworthy  
Seattle, WA

**Co-Treasurers**

Bart A. Sponseller  
Wisconsin

Sam Rubens  
Akron, OH

**Past Co-Presidents**

George S. Aburn, Jr.  
Maryland

Merlyn Hough  
Springfield, OR

**Directors**

Rick Brunetti  
Kansas

Robert H. Colby  
Chattanooga, TN

Richard Corey  
California

Anne Gobin  
Connecticut

David J. Shaw  
New York

Chris Schroeder  
Lincoln, NE

Stuart Spencer  
Arkansas

Barry Stephens  
Tennessee

Richard A. Stedman  
Monterey, CA

**Executive Director**

S. William Becker

October 26, 2015

U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460  
ATTN: Docket ID Nos. EPA-HQ-OAR-2003-0215 and  
EPA-HQ-OAR-2014-0451

Dear Sir/Madam:

On behalf of the National Association of Clean Air Agencies (NACAA), thank you for this opportunity to comment on the proposed revisions to the Standards of Performance for Municipal Solid Waste Landfill (NSPS) and Existing Guidelines and Compliance Times (EG) for Municipal Solid Waste Landfills that were published in the *Federal Register* on August 27, 2015 (80 *FR* 52162 and 80 *FR* 52100, respectively). NACAA is a national, non-partisan, non-profit association of air pollution control agencies in 40 states, the District of Columbia, four territories and 116 metropolitan areas. The air quality professionals in our member agencies have vast experience dedicated to improving air quality in the United States. These comments are based upon that experience. The views expressed in this testimony do not necessarily represent the positions of every state and local air pollution control agency in the country.

Municipal solid waste landfills are of great concern because they emit landfill gas (LFG), which can include methane, carbon dioxide, hydrogen sulfide, sulfur dioxide and various hazardous air pollutants, including benzene, toluene, ethyl benzene and vinyl chloride. Since the inception of the NSPS and EG rules in the 1990s, the increase in recycling and organic waste-diversion programs has and will continue to change the composition of municipal solid waste. EPA's rules must be effective as the landfill industry changes and evolves.

NACAA has reviewed the proposals, including EPA's revisions and requests for comment on key issues, and offers the specific observations and recommendations in the attached document, which apply to both the NSPS and the EG proposals. Additionally, on September 15, 2014, NACAA submitted comments on the previous NSPS proposal and the Advanced Notice of Proposed Rulemaking for the EG that were published in the *Federal Register*

on July 17, 2014 (79 FR 41772). We believe those comments are still relevant and we have attached them for your consideration.

Thank you for this opportunity to comment on the proposed rules. Please contact us if we can provide additional information or if you wish to discuss this issue further.

Sincerely,



Robert H. Colby  
Chattanooga, TN  
Co-Chair  
NACAA Air Toxics Committee



William O'Sullivan  
New Jersey  
Co-Chair  
NACAA Air Toxics Committee

cc: Hillary Ward (EPA-OAQPS)

**Comments of the National Association of Clean Air Agencies (NACAA)  
on EPA's Proposed New Source Performance Standards and Emission Guidelines  
Proposed in the *Federal Register* on August 27, 2015 (80 FR 52162 and 80 FR 52100)**

1. NACAA recommends that EPA provide a minimum of 12 months for state and local agencies to develop their state plans to comply with the regulations.
2. NACAA supports the reduction of the applicability threshold to 34 megagrams per year (Mg/yr) of non-methane organic compounds (NMOC). Many landfill facilities have installed landfill gas (LFG) collection and control systems prior to triggering the 50 Mg threshold presently in the rule. When facilities install systems early it is typically due to monetary incentives or odor problems. The monetary incentives that were available previously through the carbon market no longer exist and it is important to collect gas prior to subjecting communities to LFG odors. Including Tier 4 in the final rule will provide an alternative for facilities that do not have sufficient gas production for the operation of a gas collection and control system.
3. NACAA supports the removal from the rule of the wellhead exceedance levels and required follow-up action, as long as language is added specifically requiring that, where applicable, an LFG collection and control system be installed, operated and maintained in a manner that effectively captures and reduces emissions. We also strongly support the requirement to continue collecting the wellhead data. We recommend that the rule specifically require recordkeeping of all parameters that are typically measured in a wellhead read, which include percent oxygen (or percent nitrogen) and temperature, as well as percent methane, percent carbon dioxide, calculated balance gas, initial and final pressure (static and differential) and flow, if possible. We suggest that readings over 5 percent oxygen (or 20 percent nitrogen) and 130°F, along with actions taken in response, be submitted in the Title V semi-annual reports.
4. EPA should clarify the requirements of the rule with respect to surface emissions monitoring (SEM). Due to the removal of wellhead exceedance levels, the SEM is the primary method for demonstrating compliance. Thus, it is imperative that thorough monitoring take place. We request that EPA clarify in the rule whether the use of all-terrain vehicles is allowed. Additionally, the technician should maintain the sampling wand position near the surface of the landfill to the extent possible throughout the monitoring event. The method should specify a serpentine path (or require quarterly offsets) and should clarify that technicians are required to investigate odors as they monitor. The list of suspect areas should be expanded to include leachate seeps and leachate collection structures that are under vacuum for LFG collection.
5. SEM should occur during "typical meteorological conditions." NACAA does not support the inclusion of numerical limits on wind speed in the rule.
6. The coordination of GPS data with SEM data will increase the usefulness of the SEM monitoring. This section of the proposal seems to indicate that all SEM data should be recorded, which is a change to the rule that NACAA supports. Recording all SEM data

(rather than only exceedances) is necessary to show compliance with the monitoring requirement. By linking the methane readings with positioning data, the time required to process the data will be reduced. Additionally, retention of all of the data will allow facilities and regulatory agencies to observe trends in surface methane levels and address issues before they become problems.

7. NACAA does not support the addition of integrated SEM to the rule. We have not seen data to indicate the usefulness of this monitoring.
8. SEM of all cover penetrations is a change in how facilities and some regulators have previously interpreted the rule. This monitoring will increase the cost of SEM for facilities depending on the number of surface penetrations present at a facility, but can yield useful data, especially in areas where wells are raised with solid pipe or where an exposed geomembrane cap is in use. NACAA supports the inclusion of penetration monitoring, however we suggest the addition of language that would facilitate state and local agency discretion to grant waivers to monitoring all penetrations as necessary. For example, some facilities install super-silt fences, which consist of chain link fencing that is installed with fabric mesh, on the landfill to control erosion. Requiring monitoring of the fence posts could result in monitoring of hundreds of additional penetrations that are unlikely to be a source of emissions because they are likely to have extensive cover. The regulatory agency should have the discretion to exempt these points upon request of the facility.
9. The rule should enable regulatory agencies to require advanced notification of SEM monitoring (e.g., seven days or more), in case the agency wishes to observe or audit the monitoring.
10. NACAA supports the inclusion of Tier 4 to determine when system installation is required, however, we recommend the following changes to EPA's proposal:
  - a. Quarterly SEM should be required throughout the Tier 4 exemption. Monitoring should not be reduced to semi-annually.
  - b. Tier 4 as written will require installation of a collection system triggered by one reading of greater than 500 parts per million on a landfill. SEM exceedances can be the result of large pieces of waste present too close to the cover soil (e.g., tires or mattresses). These occurrences do not reflect the need for gas collection, but rather they are an indication of insufficient cover, which is easily repaired. The facility should be allowed to repair the location of an exceedance one time, within 10 days of the discovery. If the exceedance cannot be corrected, then the installation of a collection system should be triggered.
11. NACAA supports the inclusion of Tier 4 to determine when system removal can begin, including incremental step-down of collection to parts or all of a facility. However, we recommend the following changes:

- a. During the Tier 4 step down, monitoring should not be reduced to annually until all operation ceases and passes four quarters of monitoring.
  - b. Quarterly SEM should be conducted during typical operational conditions of the LFG collection and control system. If portions of the site are typically offline due to decreased gas flow, they must remain so during SEM.
12. Beneficial use of LFG is a useful addition to the green power available throughout the United States. However, NACAA does not support any reduction in monitoring as an incentive to create beneficial-use projects. The monitoring required by the rule is necessary to ensure that the LFG collection and control system is operated properly. This should not be sacrificed to create incentives for other projects.
13. As alternate technologies such as biocovers, wellhead seals and new well pumps emerge and their use becomes standard practice, it is important for the rule to allow appropriate implementation of these technologies. NACAA supports the creation of technical support documents for emerging technologies. We also recommend that EPA add basic practices to the reference library, including information about properly addressing subsurface fires, wellfield tuning and hydrogen sulfide (H<sub>2</sub>S) generating waste materials.
14. There are several references to LFG migration in the rule; however migration monitoring is only prescribed through the solid waste regulations. This connection between the rules should be made. Migration monitoring should be included by reference in the NSPS and monitoring reports should be submitted to air as well as waste regulators.
15. NACAA recommends that the definition of design capacity be revised to acknowledge that both air and waste regulators can be responsible for limiting the amount of waste a landfill can accept. We propose the following (the addition is underlined for clarity):

*Design Capacity* means 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 air or waste agencies responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit.
16. With respect to the development and implementation of a third-party design plan certification program, NACAA appreciates that the intent of the program would be to reduce the burden on state and local regulatory agencies. However, the proposed program is not sufficiently developed to implement at this time.
17. The NSPS rule regulates NMOC emissions directly and as a result also seeks to control methane and odors. The control of methane is an easily understood process and a product of LFG collection. The control of odors is not. The odor associated with LFG is primarily due to the anaerobic reduction of sulfur compounds to H<sub>2</sub>S gas. The source of sulfur in municipal solid waste is largely due to the presence of wall board/gypsum waste (CaSO<sub>4</sub>), ash, sludge and/or sulfur scrubber cake. LFG has been shown to contain H<sub>2</sub>S

levels from non-detectable amounts up to 12,000 ppm<sup>1</sup>. The amount of H<sub>2</sub>S contained in the gas has a direct effect on the odor potential of fugitive emissions. H<sub>2</sub>S is also a safety concern because the Immediate Danger to Life and Health (IDLH) level is only 100 ppm. NACAA recommends that EPA specifically address H<sub>2</sub>S in the NSPS and EG rules by requiring site-specific annual H<sub>2</sub>S measurements to be taken and by producing guidance for facilities regarding how to minimize H<sub>2</sub>S content of LFG. Additionally, the combustion of H<sub>2</sub>S in landfill gas methane and volatile organic compound control systems creates sulfur dioxide, which may cause exceedances of the one-hour sulfur dioxide National Ambient Air Quality Standard (NAAQS), depending on the amount of H<sub>2</sub>S and the location of the property line. Odor, toxicity and potential for NAAQS violation are all good reasons for EPA's air quality and solid waste programs to focus additional efforts on appropriate means to dispose of wallboard to avoid high amounts of H<sub>2</sub>S and sulfur dioxide in landfill gas.

---

<sup>1</sup> Eun, Sangho, Debra R. Reinhart, C. David Cooper, Timothy G. Townsend, Ayman Faour. Hydrogen sulfide flux measurements from construction and demolition debris (C&D) landfills. *Waste Management* 27 (2007) 220-227. Available online: <http://www.sciencedirect.com>

September 15, 2014

**BOARD OF DIRECTORS**

**Co-Presidents**

George S. Aburn, Jr.  
Maryland

Merlyn Hough  
Springfield, OR

**Co-Vice Presidents**

Stuart A. Clark  
Washington

Thomas Huynh  
Philadelphia, PA

**Co-Treasurers**

Barry R. Stephens  
Tennessee

Ursula Kramer  
Tucson, AZ

**Past Co-Presidents**

David J. Shaw  
New York

Barry R. Wallerstein  
Los Angeles, CA

**Directors**

Mark Asmundson  
Mount Vernon, WA

Rick Brunetti  
Kansas

Robert H. Colby  
Chattanooga, TN

Richard Corey  
California

Sandra Ely  
New Mexico

Anne Gobin  
Connecticut

David Klemp  
Montana

Bart A. Sponseller  
Wisconsin

Richard A. Stedman  
Monterey, CA

**Executive Director**

S. William Becker

U.S. Environmental Protection Agency  
EPA Docket Center (EPA/DC)  
Mailcode 28221T  
Attention Docket ID No. EPA-HQ-OAR-2014-0451  
1200 Pennsylvania Avenue, NW  
Washington DC 20460

Dear Sir/Madam:

On behalf of the National Association of Clean Air Agencies (NACAA), thank you for this opportunity to comment on the Advanced Notice of Proposed Rulemaking for Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills that was published in the *Federal Register* on July 17, 2014 (79 *Federal Register* 41772). NACAA is a national, non-partisan, non-profit association of air pollution control agencies in 42 states, the District of Columbia, four territories and 116 metropolitan areas. The air quality professionals in our member agencies have vast experience dedicated to improving air quality in the United States. These comments are based upon that experience. The views expressed in this document do not necessarily represent the positions of every state and local air pollution control agency in the country.

NACAA believes that appropriate controls are warranted to address emissions from municipal solid waste (MSW) landfills. We are writing regarding one specific area of concern that we do not believe the Advanced Notice of Proposed Rulemaking addresses. This is emissions of formaldehyde from internal combustion (IC) engines fueled by landfill gas at MSW landfills.

As you know, formaldehyde is a pollutant associated with serious public health concerns. According to EPA's National Air Toxics Assessment, formaldehyde is a national cancer risk driver and is considered "likely carcinogenic to humans." Furthermore, exposures to formaldehyde "have been shown to cause respiratory symptoms and irritation to the eyes, nose, and throat. Human studies have suggested an association between formaldehyde exposure and lung and nasopharyngeal cancer. Studies in animals have reported an increased incidence of nasal squamous cell cancer."<sup>2</sup> In light of these significant adverse health effects, it is important to control emissions of formaldehyde.

---

<sup>2</sup> [http://www.epa.gov/ttn/atw/nata2005/05pdf/sum\\_results.pdf](http://www.epa.gov/ttn/atw/nata2005/05pdf/sum_results.pdf)

Several state and local agencies have collected data on emissions from IC engines at landfills and have learned that there are significant emissions of formaldehyde from some of these devices. One state reported that some models of engines emit almost 10 tons per year of formaldehyde in actual emissions and another obtained stack test data showing that the facility is a major source of Hazardous Air Pollutants due to its emissions of formaldehyde alone.

NACAA has collected data from state and local agencies that include specific information about these and other formaldehyde emissions from IC engines at MSW landfills. Links to the state- and local-specific data are included in the attached document, which we are submitting to the docket for your consideration. We are submitting the data files directly to the docket as well. We strongly recommend that EPA review the data provided here and any other similar information the agency collects regarding the emissions of formaldehyde and include provisions in the proposed rule to address this serious problem.

Thank you for this opportunity to comment on the proposal. Please contact us if we can provide additional information or if you wish to discuss this issue further.

Sincerely,



G. Vinson Hellwig  
Michigan  
Co-Chair  
NACAA Air Toxics Committee



Robert H. Colby  
Chattanooga, Tennessee  
Co-Chair  
NACAA Air Toxics Committee

**Formaldehyde Emissions from Internal Combustion Engines at  
Municipal Solid Waste Landfills  
State and Local Air Quality Agency Data**

September 15, 2014

Delaware

- Data – <http://www.4cleanair.org/sites/default/files/Documents/DE-LFG-Formaldehyde-Test-Results.xls>
- Test Method Information – [http://www.4cleanair.org/sites/default/files/Documents/landfill\\_formaldehyde\\_testing\\_from\\_DE.doc](http://www.4cleanair.org/sites/default/files/Documents/landfill_formaldehyde_testing_from_DE.doc)

Iowa

- Data – [http://4cleanair.org/sites/default/files/Documents/Iowa\\_Formaldehyde\\_LandfillEngines\\_LandfillsMethane\\_062614.xlsx](http://4cleanair.org/sites/default/files/Documents/Iowa_Formaldehyde_LandfillEngines_LandfillsMethane_062614.xlsx) (Note from the agency: A few facilities burn landfill gas in their engines, but only one reported formaldehyde emissions. This is likely because it had actual stack test data. The other facilities would have relied upon AP-42 or other emission factors, and there really are none for formaldehyde emissions from engines burning methane.)

Linn County, Iowa

- Landfill Gas Engine Test – <http://4cleanair.org/sites/default/files/Documents/2013-10-08-Landfill-Gas-Engine-Test-CRLCSWA-Site-2.pdf>
- Test Acceptance Letter – [http://4cleanair.org/sites/default/files/Documents/2014-02-07-Test-Acceptance-Letter\\_EP02%20Landfill-Gas-Engine.pdf](http://4cleanair.org/sites/default/files/Documents/2014-02-07-Test-Acceptance-Letter_EP02%20Landfill-Gas-Engine.pdf)
- Test Review Summary – <http://4cleanair.org/sites/default/files/Documents/2014-02-07-Test-Review-Summary.pdf>

Maryland

- Data – <http://4cleanair.org/sites/default/files/Documents/Millersville-MD-Landfill-Gas-Engine-Formaldehyde-Test-Results.xlsx>

Michigan

- Data – [http://www.4cleanair.org/sites/default/files/Documents/LFG\\_Formaldehyde\\_Test\\_Results\\_MI.xls](http://www.4cleanair.org/sites/default/files/Documents/LFG_Formaldehyde_Test_Results_MI.xls)

New Jersey

- New Jersey has compliance stack test results for three identical lean-burn RICE combusting landfill gas, Caterpillar G3520C, 2233 HP each. The testing memo for all tested pollutants follows. Based on the stack test data, the facility is a major HAPs source for formaldehyde, and subject to MACT ZZZZ.  
[http://4cleanair.org/sites/default/files/Documents/75697\\_TST130001\\_35\\_PPL-Cumberland-2014-%20Memo.pdf](http://4cleanair.org/sites/default/files/Documents/75697_TST130001_35_PPL-Cumberland-2014-%20Memo.pdf)