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Environmental Protection Agency
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Attention Docket ID No. EPA-HQ-OAR-2008-0508
1200 Pennsylvania Avenue, NW
Washington, DC 20460

RE: Docket ID No. EPA-HQ-OAR -2008-0508

Republic Services, Inc. ("Republic") appreciates the opportunity to comment on EPA's Proposed Rule for the Mandatory Reporting of Greenhouse Gases. Published on April 10, 2009, the proposed rule would impose a comprehensive, economy-wide monitoring and reporting program on all significant sources of certain "greenhouse gas emissions" ("GHGs"), specifically carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), sulfur hexafluoride (SF₆), hydro-fluorocarbons (HFCs), perfluorocarbons (PFCs), and other fluorinated gases. Although 80% of the nation's total GHG emissions in terms of global warming potential comes from the combustion of fossil fuels, EPA's proposal would apply to all anthropogenic sources of GHGs, regardless of whether they are fossil fuel-based. As currently drafted, the proposal contains specific provisions applicable to a wide variety of industries, including landfills.

I. Republic's Interest on Proposed Rule

Republic has a vested interest in EPA's decision to require GHG reporting from landfills. Republic is a leading provider of solid waste collection, transfer, and disposal services – Republic owns or operates 242 transfer stations, 213 solid waste landfills, and 78 recycling facilities. Its various operating units provide environmentally-sound and cost-effective service to commercial, industrial, residential and municipal customers through 400 collection companies in 40 states and through contracts with more than 3,000 municipalities to serve millions of residential customers. Based on its significant experience in the industry, Republic offers the following comments on EPA's proposal.

II. General Comments on EPA's Approach to Landfills

Generally, Republic supports EPA's decision to carefully tailor its program to match the unique characteristics of landfill GHG emissions. Unlike most GHG emitters, landfills are merely repositories for materials that would emit the same GHGs regardless of where they came to rest. On the other hand, by collecting decomposing materials into a single, consolidated location, landfills provide an opportunity to capture and manage GHG emissions. In addition, not all of the carbon in the waste decomposes into GHGs, some remains stored in the waste remaining below the surface of the landfill. This carbon storage effect also helps mitigate GHG emissions that would otherwise naturally occur.

By collecting and oxidizing GHG emissions from decomposing material, landfills have achieved significant GHG reductions in recent years, even as GHG emissions from other sectors of the economy have steadily increased. This reduction amounts to a decrease in emissions for municipal solid waste landfills by 11 percent since 1990 according to the U.S. Environmental Protection Agency's (EPA) Inventory of Greenhouse Gas Sinks and Emissions, 1990 – 2007 (EPA 2009). In addition, landfills, and the gas they collect, can also provide important opportunities for alternative energy production to help reduce the reliance on fossil fuels that generates the vast majority of GHG emissions in the United States.

EPA's proposal attempts to account for these differences by only requiring landfills to report CH₄, not CO₂. As such, EPA rightfully treats landfills somewhat similar to biomass combustion sources by excluding the CO₂ emissions that do not represent the type of GHG emissions that concern policy makers. Such emissions are merely part of the natural carbon cycle and do not increase the amount of global warming gases already in circulation.

However, we are concerned that while the biogenic emissions from landfill flares is excluded, the proposed rule would still require the reporting of biogenic CO₂ emissions from the combustion of landfill gas, a renewable energy, in engines and turbines under the proposed rule Subpart C – General Stationary Fuel Combustion Sources. We believe EPA should not require biogenic CO₂ emissions as a reportable greenhouse gas emission when generated by landfill gas. There are several inventories and reports that support not including biogenic emissions from landfill gas such as the Intergovernmental Panel on Climate Change (IPCC) Guidelines for Nation Greenhouse Gas Inventories, U.S. EPA Climate Leaders Greenhouse Gas Inventory Protocol and U.S. EPA Solid Waste Management and Greenhouse Gases, A Life Cycle Assessment of sources and Sinks. Specifically, the IPCC Fourth Assessment Report, Mitigation of Climate Change, Chapter 10, Waste Management (page 589) states:

"The CO₂ emissions from biomass sources – including the CO₂ in landfill gas, the CO₂ from composting, and CO₂ from incineration of waste biomass – are not taken into account in GHG inventories as these are covered by changes in biomass stocks in the land-use, land-use change and forestry sectors."

Therefore, Republic recommends that EPA account for only anthropogenic emissions in any attempt to calculate the GHG contribution of landfills. Failure to do so would conflict with the purpose of EPA's proposal - i.e., to require reporting of *anthropogenic* GHG emissions from U.S. sources to aid policy makers in developing a program for reducing emissions that have the potential to result in climate change. No Act of EPA or Congress will be able prevent waste from decomposing into CH₄, whether in a landfill or not, and EPA's reporting program should reflect that reality.

III. Applicability of the Program to Landfills

EPA's proposal applies to all municipal and industrial landfills based on whether the landfill actually generates enough CH₄ to match the equivalent global warming potential of 25,000 metric tons of CO₂. As proposed, the program would cover 82% of landfill emissions and 33% of all landfills, but excludes all hazardous waste and construction / demolition landfills based on the fact that such landfills emit an insignificant amount of GHGs.

Republic appreciates EPA's effort to minimize the burden on the industry by balancing the impact to small sources with the need for comprehensive emissions information. Specifically, Republic supports EPA's decision to exclude certain landfill types that do not generate significant GHGs. However, EPA's decision to base its applicability threshold for municipal and industrial landfills on "generation" of GHGs rather than actual GHG "emissions" is unjustified. EPA explains in the preamble that, by focusing on GHG generation rather than GHG emissions, the program will apply equally to landfills regardless of whether the landfill has a gas collection and destruction system that reduces its CH₄ emissions. In other words, EPA appears interested in obtaining reports from all landfills of a certain size, regardless of the level of GHGs they emit. Yet EPA fails to explain why it is necessary for the program to apply equally to a landfill that actually emits lower than the threshold proposed due to the effectiveness of its gas collection and destruction system simply because it is the same size as one that, because it does not control its emissions, exceeds the threshold. Focusing on generation also overestimates GHGs from landfills by nearly two and half times – in 2006, landfills generated 246.8 million tons of CO₂ equivalent emissions, but only actually released 111.2 million of those tons according to the 2008 U.S. Inventory.

This approach directly conflicts with EPA's stated purpose of measuring "actual emissions." EPA should instead allow landfill owners the benefit of their efforts to reduce GHGs – the reporting program should not apply to any landfills that do not emit more than the threshold proposed. Every other source that EPA proposes to regulate will be able to benefit from efforts to reduce GHGs by receiving credit for any reductions achieved in determining whether reporting obligations apply. Although landfills are certainly unique in many respects, there appears no logical reason why a landfill should not receive the same credit for its GHG reductions. Republic also recommends that

EPA exclude from the applicability determination any biogenic GHG emissions as well, for the reasons described generally above.

In addition, Republic disagrees with EPA's decision to adopt a "once-in-always-in" policy for its proposed GHG reporting program. For some industries, the requirements may be effective in ensuring a more consistent sample of sources from which to receive data. However, the "once-in-always-in" will not achieve that result in the context of landfills, given that landfill emissions slowly increase over time as waste is added, and then, after the landfill is closed, slowly decrease over time. Once a closed landfill drops below the reporting threshold, it will never rise back above the threshold unless it is reopened. Therefore, when the CH₄ emissions from a closed landfill drop below the proposed threshold, EPA should allow the landfill to withdraw from the program so long as it remains closed. Doing so would further EPA's stated purpose of minimizing the burden to sources that do not present a significant source of GHG emissions.

IV. Reporting GHG Emissions Involving Multiple Parties

Republic is concerned that the proposed rule provides no direction on who should report GHG emissions when multiple parties own a portion of the landfill gas collection and control equipment (e.g., landfill gas well field, flare, reciprocating internal combustion engine, boiler, turbine). In an effort to provide alternative energy options, Republic has various operational and ownership arrangements with third parties. There are several scenarios regarding the arrangements between landfill owners, gas developers and end users of the landfill gas. Some examples of such arrangements include but are not limited to the following:

- Landfill owner owns the landfill gas collection and control system but a gas developer may own the destruction equipment which is either located on leased on-site property or off-site property;
- Landfill owner owns the landfill gas collection and control system and may or may not own the distribution system to the off-site user;
- Landfill owner does not own the landfill gas collection and control system, the distribution system, or destruction equipment;
- Gas developer treats the landfill gas to pipeline quality that is then transported through existing gaseous fuel (natural gas) pipelines to an off-site, unknown end user;
- Landfill owner owns the landfill gas collection system plus a piece of the destruction (control) equipment (e.g., auxiliary flare, heaters for a greenhouse) and a developer may own the majority of the destruction equipment; or
- Landfill owner owns a piece of destruction equipment which is only operated when the developer is not operating the gas collection system which developer may or may not own.

We believe the party who has control of the GHG emissions generated should be required to report the emissions under their control. The end user of the landfill gas who is generating the GHG emissions for a fuel source should be responsible for reporting the emissions. These emissions are already captured in other subparts of the proposed rule. The landfill emissions will be overestimated and cause an inaccurate accounting if the landfill is required to report emissions created by a third party which is not in their control. Republic is also concerned about certifying emissions from a third party in which we have no control over the information provided to us. This will cause problems when the facility has to certify the data and could lead to unjustified enforcement issues for the landfill.

We would also like the EPA to revise the equations under HH-6 and HH-8 to include an adjustment (decrease) to the quantity of recovered CH₄ (R) to account for that percentage of recovered landfill gas (R) that is no longer controlled by the landfill owner/operator.

V. Calculation and Measurement of GHGs from Landfills

a. Calculation Methods

As part of its proposal, EPA recognizes that different industries face varying degrees of difficulty in accurately measuring GHG emissions, given that most industries have never before monitored or reported such emissions. Republic supports EPA's efforts to appropriately tailor the monitoring requirements for each industry to ensure a workable program. For landfills, the preamble notes that direct emissions measurement is not feasible and Republic agrees – although direct measurement techniques are currently being developed for research purposes, the technology is relatively untested and cannot yet provide EPA with the reliable, industry-wide data it desires.

Accordingly, Republic supports EPA's "Option 2" calculation method for landfills, which relies on both emission measurement and facility-specific calculations. As EPA suggests, Option 2 effectively balances accuracy and cost. Republic also supports EPA's proposal to allow sources with material-specific data to refine the calculations accordingly while also allowing facilities without such data to rely on more general calculations based on the information that is available.

However, Republic disagrees that all landfills with a gas collection system should be required to compute GHG emissions two different ways. As currently proposed, landfills with a gas collection system must calculate GHG emissions based on the both the IPCC First Order Decay Model *and* based on an Engineering Method that relies on the rate of gas flow and the CH₄ concentration of the gas. Certainly, due to rounding errors or natural variabilities in the different forms of data, the results of these two calculations will not be identical. Yet EPA makes no mention of how to resolve the inevitable differences or whether one method is to be preferred over another. Instead, EPA would merely require reporting of two different calculations at the same time. This

duplicative approach is unnecessary and inconsistent with EPA's efforts to minimize the burden on reporting sources. In addition, many landfills, even those with gas collection systems, do not already have the necessary monitoring equipment in place to collect the data needed for the Engineering Method proposed. For these reasons, Republic recommends allowing reporting sources to choose the one that suits each particular facility, or at least choosing one method over the other for consistency.

b. Continuous Monitoring

EPA requested comments on continuous monitoring versus another method such as monthly monitoring of CH₄ flows and concentrations. The current regulations for landfills under the NSPS Subpart 60 WWW do not require continuous CH₄ monitoring. Since most landfills do not have continuous CH₄ monitoring equipment it will be impossible to secure and place the equipment by the proposed start date for data collection beginning January 1, 2010. The added cost of such equipment will average \$30,000 per device. Republic is unsure of the justification to require continuous CH₄ monitoring when it has been common industry practice to test on a monthly basis since there is little fluctuation of the CH₄ concentrations over the monthly time period. Republic recommends monthly monitoring by using existing equipment which has been used since the landfill NSPS rules were promulgated in 1996.

c. Landfill Gas Modeling

In addition, EPA specifically requested comment on the use of models to determine a landfill's greenhouse gas emissions. The tools currently available to calculate generation and emissions from landfills have been the subject of intense scrutiny. A concern regarding the national models which are currently used is the use of generic default data that does not consider local conditions that can influence individual landfill site emissions as they would be reported under the proposed rule. A number of scientific advances have been published in the last ten years that require the updating of these default values. There are still issues which need to be addressed to account for site-specific collection efficiencies for landfill gas systems, CH₄ oxidation in cover soils, and the importance of carbon storage in landfills. Currently the State of California under the California Energy Commission (CEC) in cooperation with the California Integrated Waste Management Board is developing a field-validated landfill CH₄ emissions tool for annual site-specific emissions which will be inclusive of seasonal oxidation. This research is not completed as it was initiated in 2007 and is a 3-year project.

The solid waste industry has been evaluating various methods to more accurately determine CH₄ emissions from landfills. The dynamic nature of landfills given the high spatial variability of CH₄ emissions has made this a difficult process. However, the Solid Waste Industry for Climate Solution (SWICS) has developed guidance on the best available method for estimating greenhouse gas emissions from landfills. This protocol replaces default values for landfill gas collection efficiency and methane oxidation in existing EPA models with ranges. The SWICS methodology is

based on published literature reviews, which better account for effects of climate, landfill design and landfill cover types. The most recent version of the SWICS methodology (Attachment One, Version 2.2, January 2009, *Current MSW Industry Position and State-of-the-Practice on LFG Collection Efficiency, Methane Oxidation, and Carbon Sequestration in Landfills*, SCS Engineers) includes additional literature review of the IPCC Fourth Assessment Report and revisions to the 2007 California Air Resource Board (CARB) Greenhouse Gas inventory. Further, Version 2.2 is based on a critical review of the previous version by academic experts in the waste management field. These experts re-reviewed literature sources, added literature sources, and completed a thorough evaluation of the research data to arrive at the most scientifically supportable conclusions regarding appropriate default values. Please also see additional SWICS documents as attached: Attachment Two, *Current MSW Industry Position and State of the Practice on LFG Destruction Efficiency in Flares, Turbines, and Engines*, SCS Engineers, July 2007; Attachment Three, *Landfill GHG Template*, SCS Engineers, Revised 9-16-08; Attachment Four, *Final Methane DRE% White Paper Tables*, SCS Engineers.

Until a better landfill emission measurement method can be developed and proven more accurate, the SWICS method is a tool available which allows for more site-specific estimates than the other models available. At this time direct measurement methods are too complex, costly and under investigation and the historical models used to estimate do not have enough flexibility as noted above. Therefore, Republic proposes EPA to allow landfills the flexibility to use either a national default or to use the site-specific estimates such as the SWICS methodology. However, Republic still urges the EPA to consider waiting until the research is finalized for the development of a more refined emissions estimation method prior to requiring the inventory of site-specific GHG emissions.

d. National Waste Composition Rates

Landfills in general are unlikely to know the specific composition of the waste materials because tracking for MSW, C&D, etc is done by the weight or cubic yard and not broken down specifically by the composition of the materials. Therefore, using a national composition rate is a more reasonable approach.

Republic is also concerned regarding EPA's proposal when waste disposal quantities are not readily available. The proposal requires a determination on the population served by the landfill in these instances. Depending on the location of the landfill, many serve multi-cities, counties and states on a daily basis. This makes estimating populations serviced by the landfill difficult and impossible to report which will lead to inaccurate reporting. We request EPA not to require population estimates.

e. Construction and Demolition Waste

Republic believes the EPA should consider the amount of C&D waste accepted at the landfill when determining the CH₄ emissions. Since C&D waste is likely to not produce GHG emissions, the amount of C&D accepted should not be included when calculating the emissions to better reflect the emissions. We recommend EPA to allow for C&D waste to be separated from the actual landfill emissions by including a provision for “inert waste”. This would be consistent with the IPCC waste component model.

VI. What Emissions Must Landfills Report?

EPA’s proposal would require landfills to report the following information every year: (1) CH₄ generation, (2) CH₄ oxidation, (3) CH₄ destruction (if applicable), (4) net CH₄ emissions (using both the IPCC Model and the Engineering Method for landfills with gas collection systems, as noted above), and (5) the input data necessary to make the calculations. Notably, this list does not include CO₂ emissions or any indication of electricity usage and Republic supports EPA’s decision not to require such reporting. As noted above, CO₂ emissions from landfills should not be considered the type of anthropogenic emissions that raise climate change concerns, and reporting electricity usage would unnecessarily seek to attribute emissions from electricity generation to landfills, thus double-counting such emissions in a way that would not provide useful information to the Agency.

Republic also encourages EPA to reconsider whether reporting of *de minimis* emission points is necessary. In the preamble to the proposed rule, EPA states that it “analyzed the *de minimis* provisions of existing reporting rules” but concluded that “there is no need to exclude a percentage of emissions reporting.” On the contrary, excluding *de minimis* emission points would further EPA’s stated goal of minimizing the burden of the program by excluding small emitters. EPA appropriately excludes portable equipment and emergency generators, but should also consider other *de minimis* emission points to help minimize the total reporting burden imposed on covered sources.

Specifically with regard to mobile sources, Republic understands that EPA’s proposal would not require landfills to report the emissions from any onsite vehicles used in landfill operations or any vehicles used in the collection of waste that is delivered to the landfill. Republic agrees with this approach – reporting vehicle emissions would be extremely onerous and would unnecessarily duplicate the information on mobile sources that EPA already seeks to obtain through other means.

Republic also supports EPA’s decision not to require third party verification. Source certification and EPA verification have worked well under numerous other environmental programs and should work well for GHG emission reporting as well. EPA verification provides uniformity of verification procedures and source certification

provides EPA with the assurance, enforceable under penalty of law, that sources are providing true and accurate calculations to the best of their knowledge. As compared to EPA verification, third party verification of the calculations would only add greater cost without significantly improving the quality of the information received and therefore should not be required.

VII. Stationary Fuel Combustion

Republic request clarification on EPA's requirement of using the Tier 4 calculation under s. 98.33(b)(5)(ii). Currently this section would require the use of Tier 4 calculation of a unit if any of the 6 subheadings meet the requirements. This is concerning because it will impact all landfill gas projects in the U.S. Specifically landfill gas to energy projects would be impacted under the subheading (C) of this section if a unit has operated for more than 1,000 hours in any calendar year since 2005 and would therefore be required to perform a Tier 4 calculation. This would require installing continuous emissions monitoring equipment on all the stacks of each emission unit which is currently not required under existing permits for these facilities. We believe existing regulations under the NSPS JJJJ which require performance testing on stationary electrical generation engines at an interval of every 8760 hours or 3 years of operation is sufficient testing. Further these emissions are from a biogenic source which we believe should not be included as stated previously. The ability for these sources to install the necessary equipment by 2011 will be difficult and an unnecessary burden.

VIII. Timing Concerns

EPA's proposal recommends that monitoring begin January 1, 2010, with the first reports due March 1, 2011 to report the annual emissions for 2010. That leaves less than six months from the end of the comment period for this proposed rule until EPA expects sources to be ready to monitor their GHG emissions. Given that many industries have never measured or calculated GHG emissions before, and the fact that EPA will still need time to finalize the rule and begin the outreach programs it has planned, January 1, 2010 is simply too soon.

Specifically for landfills, many will need to install additional monitoring equipment in order to generate the data EPA claims will be required to calculate GHG emissions. Even for landfills that already have the necessary equipment in place, or are able to get it installed in time, there will still be a need for additional time to develop and implement the proper procedures for gathering the data, calculating the GHG emissions, and preparing the proper records for EPA.

Although Republic understands EPA's urgency, given the need to provide policy-makers with the information necessary to develop and implement national climate change policy, rushed and potentially inaccurate information will not serve EPA's

purpose. EPA' stated timetable assumes that monitoring methods are "well-known" and that monitoring devices are "routinely available, in ready supply." Although perhaps true for some industries, which have monitored GHGs in the past under other regulatory programs, most sources will have to perform significant work to prepare for complying with EPA's proposed rule. EPA's preamble recognizes that sources must go through many steps before it can report, including "studying the final rule, determining whether it applies to the facility, identifying the requirements with which the facility must comply, and preparing to monitor and collect the required data needed to calculate and report GHG emissions."

Even if EPA were able to review and incorporate all comments submitted on the proposal and publish the final rule in three months (an extremely optimistic goal), it would only leave three more months for sources to prepare, an unreasonably short time for such an unprecedented program in both scope and substance. As such, Republic recommends EPA strongly consider one of its other two timing options – either (1) allow sources to rely on "best available data" for 2010 and prepare for full implementation of the program in 2011, or (2) simply delay implementation of the program until 2011 to allow all sources time to prepare for monitoring and reporting GHG emissions.

IX. Enforcement and Penalties

As with most environmental programs, EPA will enforce the proposed requirements with the threat of penalties, but EPA's proposal seeks to minimize the need for enforcement through implementation of an active outreach and technical assistance program. Republic appreciates EPA's promised efforts in this regard, and agrees that compliance materials tailored to the needs of individual industries will be an important way of ensuring a cooperative and productive way of implementing EPA's proposal. Given the nature of landfills generally, and the many unique provisions in the proposed rule for landfills, Republic encourages EPA to focus specifically on landfills in its outreach efforts. Such efforts should include preparation of guidance documents in plain language to assist landfill owners and operators in understanding and complying with the new reporting requirements.

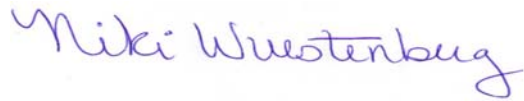
Inevitably, however, mistakes will be made, especially in the first few years of the program. Republic encourages EPA to recognize the complexity of its proposal, and the difficulty many sources may have in complying with its requirements, by following a good faith or willfulness conduct standard in pursuing any enforcement actions for at least the first three years of the program.

X. Conclusion

In general, Republic appreciates EPA's efforts to tailor its proposed mandatory GHG reporting rule to the sources to which it will apply and EPA's recognition of the unique nature of landfill GHG emissions. Republic hopes that these comments will help

EPA understand the potential concerns its proposal presents for landfills and we look forward to further participation in EPA's efforts to adopt a final rule. If you have any questions or concerns please do not hesitate to contact me at 563.285.1404 or nwuestenberg@republicservices.com

Respectfully submitted,
Republic Services



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Attachments

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