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Dr. Holly Stallworth, Designated Federal Official
Science Advisory Board
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460

Re: Comments on SAB Review of EPA's Draft *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources*, March 9, 2012

Dear Dr. Stallworth:

Waste Management (WM) is pleased to submit comments on the Science Advisory Board's (SAB) Deliberative Draft Report of the Biogenic Carbon Emissions Panel review of the EPA *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources*, dated March 9, 2012. Headquartered in Houston, WM is North America's leading provider of integrated environmental solutions. We partner with our customers and communities to manage and reduce waste from collection to disposal while recovering valuable resources and creating clean, renewable energy. As of the end of 2011, WM operates the largest network of landfills in our industry, with 266 active sites managing the disposal of approximately 110 million tons of waste per year. WM uses waste to create enough energy to power more than a million homes every year through our more than 131 landfill-gas-to-energy projects and our 17 waste-to-energy plants. We also operate five independent power production plants and 36 organics processing facilities. All of these landfills, energy plants, and processing facilities potentially would be affected by the Agency's decision regarding the regulatory status of biogenic carbon dioxide ($CO_{2)}$ emissions.

EPA Should Evaluate Categorical Exemptions of Biogenic CO_2 Emissions

EPA's determination of the regulatory status of biogenic CO_2 will have very significant consequences for the regulatory burden associated with the Prevention of Significant Deterioration (PSD) and Title V GHG Tailoring Rule ("Tailoring Rule"). The decision will also have enormous consequences for other Administration priorities to promote production and

use of renewable fuels and renewable electricity. While WM agrees with the SAB panel that not all sources of biogenic CO_2 emissions should be treated in the same manner, there are obvious categories of biogenic emissions that should be excluded from regulation under the Tailoring Rule or future GHG mobile or stationary source regulations.

We noted that one of the first questions the SAB panel considered was whether it supported either a categorical approach to biogenic emissions inclusion or exclusion from regulation. We agreed with the panel's response that carbon neutrality cannot be assumed for all biomass energy absent a consideration of a particular feedstock's production and consumption cycle. However, we disagree with the panel's "all or nothing" approach to this question. WM recommends that the panel provide advice to EPA on categories of biogenic emissions sources that warrant consideration for exclusion from regulation. **We believe that biogenic CO_2 emissions from management of municipal solid waste warrant a categorical exclusion without the need for additional, extensive lifecycle analysis.**

EPA's Office of Solid Waste has already conducted extensive lifecycle analyses of solid waste management emissions in its September 2006 *Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks*. EPA determines that because a large percentage of municipal solid waste (MSW) comprises organic materials such as yard trimmings, food wastes, paper and harvested wood products, a significant proportion of the GHG emissions from safely managing MSW is biogenic. For example, CO_2 emissions from flaring landfill gas (LFG) to destroy methane and trace organic compounds or combusting LFG in beneficial use projects to produce renewable energy are biogenic. Fugitive emissions of oxidized methane (CO_2) are also emitted through the landfill cap. Greenhouse gas emissions from municipal waste combustors are, on average, more than 60 percent biogenic. Additionally, CO_2 emissions from composting or digesting organic wastes are also biogenic. EPA concludes that accounting for and regulating biogenic emissions from solid waste management would result in double-counting of carbon because, at the point of waste generation, reductions in carbon sink due to harvesting wood or plant material and manufacturing consumer products have already been accounted for. The decision about how the discarded consumer product is disposed will not affect land use or the carbon stocks of virgin resources. (EPA 2006, Pg13)

EPA's Landfill Methane Outreach Program describes beneficial use of LFG as a fuel to produce electricity or steam as a direct reducer of GHG emissions. EPA estimates "that an LFG energy project will capture roughly 60 to 90 percent of the methane emitted from the landfill, depending on system design and effectiveness. The captured methane is destroyed (converted to water and the much less potent CO_2) when the gas is burned to produce electricity. Carbon dioxide emissions from MSW landfills are not considered to contribute to global climate change because the carbon was contained in recently living biomass. The same CO_2 would be emitted as a result of the natural decomposition of the organic waste materials outside the landfill environment." (LMOP Website http://www.epa.gov/lmop/basic-info/index.html#a04) The EPA's LMOP website also describes LFG to energy projects as indirect reducers of air pollution through offsetting use of non-renewable energy resources. "Producing energy from LFG avoids

the need to use non–renewable resources such as coal, oil, or natural gas to produce the same amount of energy. This can avoid gas end–user and power plant emissions of CO_2 and criteria pollutants such as sulfur dioxide (which is a major contributor to acid rain), particulate matter (a respiratory health concern), nitrogen oxides (NO_X), and trace hazardous air pollutants." It would be particularly problematic if the Agency regulated biogenic CO_2 emissions from these projects as the added permitting burden of the Tailoring Rule would have a significant chilling effect on placing new LFG reuse projects in service.

EPA's Office of Transportation and Air Quality has also evaluated MSW and landfill gas as feedstock for the production of renewable transportation fuels. Landfill gas is considered an advanced biofuel that reduces lifecycle emissions of GHG at least 50 percent below the petroleum fuel it replaces. The biogenic portion of MSW that has undergone reasonably practicable separation of recyclable materials has likewise been determined to be a renewable feedstock for even lower carbon intensive fuels, such as cellulosic ethanol. EPA has already conducted extensive lifecycle analyses of the GHG emissions associated with various management options for MSW, as well as the use of landfill gas and components of MSW as feedstock for producing renewable fuel. **The Agency has an ample scientific basis to justify a categorical exclusion for biogenic CO_2 emissions stemming from disposal or reuse of MSW.**

WM recently submitted comments to EPA on its proposed Step 3 for the GHG Tailoring Rule. We applauded the Agency's proposed GHG permit streamlining measures, but commented that **a permanent exclusion from permitting for biogenic CO2 emissions from MSW management** and associated projects that beneficially use landfill gas, **would be the most effective streamlining tool EPA could employ to reduce permitting burdens** for regulatory agencies and the regulated community.

EPA Should Classify Municipal Solid Waste with a Biogenic Accounting Factor of Zero

The Panel recommended EPA consider identifying appropriate feedstock categories that could be classified as "anyway" emissions so that their biogenic accounting framework (BAF) would automatically be set to zero. We agree with the Panel's recommendation, and believe that MSW is a feedstock category warranting an automatic BAF of zero, given the extensive lifecycle analyses already conducted by the Agency. For MSW, the panel recommends that the EPA should take into account the mix of biogenic and fossil carbon when waste is combusted. We also agree with this recommendation. The EPA's Mandatory GHG Reporting Rule already requires MSW combustion facilities to separately report fossil-based and biogenic CO_2 emissions. This is accomplished with the required use of the ASTM method D-6866, which uses radiocarbon dating analysis to delineate fossil-based from biogenic CO_2 emissions. The range of biogenic CO_2 emissions from MSW combustion ranges from about 65-70 percent. Since biogenic CO_2 emissions are easily measured and delineated from anthropogenic, fossil-based emissions, the biogenic CO_2 can and should be assigned a BAF of zero.

The Panel also recommended that for MSW, EPA should incorporate emissions and partial capture of methane from landfills. There was no further explanation of this concept, and we were a bit mystified by the recommendation. There is certainly no scientific or policy basis for regulating biogenic CO_2 emissions from landfills differently from other biogenic CO_2 emissions sources simply because landfills also emit methane. Landfill methane emissions are widely recognized to be anthropogenic GHG emissions, and the biogenic deferral never encompassed them. Furthermore, under the Mandatory GHG Reporting Rule, MSW landfills calculate and report only methane emissions. Their biogenic CO_2 emissions are recognized in Subpart HH of the Rule as carbon neutral and are not even required to be reported as biogenic emissions. The only biogenic emissions associated with MSW landfills that are reportable under the Mandatory GHG Reporting Rule are those from combustion sources using LFG as a fuel that are otherwise required to report under Subpart C of the Rule. .

Carbon dioxide emissions from landfills come from two primary sources, both of which are designed to control methane emissions by converting them to the much lower global warming potential CO_2. Carbon dioxide is emitted from the collection and combustion of LFG in flares or in combustion devices that use LFG as a renewable fuel to produce electricity or to power a facility. Additionally, CO_2 is fugitively emitted when LFG passes through the landfill cover, which oxidizes between 30-35 percent of the methane in LFG to CO_2. Both the CO_2 emissions from combustion of LFG methane and the CO_2 emissions from oxidation of LFG through the landfill cover are widely acknowledged to be biogenic in nature. LFG collection and control systems and landfill cover are effective and important environmental control techniques that greatly reduce the GHG impact of landfills. EPA acknowledged this in its most recent Inventory of U.S. GHG Emissions and Sinks. The most recent data for 2010 shows that methane emissions from landfills have steadily declined each year since 2005 and since 1990, landfill methane emissions have declined by about 30 percent. EPA concludes that these significant reductions are due to the federal Clean Air Act requirements which regulate the collection and combustion of LFG from MSW landfills (40 CFR 60 Subpart WWW).

The BAF for MSW Disposed in Landfills Should Reflect the Significant and Permanent Carbon Sequestration that Occurs

The biogenic emissions panel notes that "the focus of the *Framework* is on point source emissions from stationary facilities with the goal of accounting for any offsetting carbon sequestration that may be attributed to the facility's use of a biogenic feedstock." Thus, the long-term storage of the biogenic carbon component of MSW sequestered in landfills should be reflected in the BAF for MSW management in landfills. This carbon sequestration is a significant offset in the mass balance of carbon flows within landfills. EPA and the Intergovernmental Panel on Climate Change account for this offset in national inventories, and the offset can be readily applied at the facility level as well.

As the Inventory of U.S. GHG Emissions and Sinks: 1990-2010 notes,

> "When wastes of biogenic origin (such as yard trimmings and food scraps) are landfilled and do not completely decompose, the carbon that remains is effectively removed from the global carbon cycle. Empirical evidence indicates that yard trimmings and food scraps do not completely decompose in landfills (Barlaz 1998, 2005, 2008; De la Cruz and Barlaz 2010), and thus the stock of carbon in landfills can increase, with the net effect being a net atmospheric removal of carbon." (Chapter 7, pg 340)

WM recommends that the EPA *Framework* account for carbon sequestration of MSW disposed in landfills when assessing the BAF for biogenic emissions of CO_2 from MSW landfills. Carbon sequestration is as quantifiable as methane emissions from landfills, the biological process is well understood and described in Agency documents and peer-reviewed scientific literature, and its offsetting effects are easily assigned at the facility level.

WM appreciates the opportunity to comment on the ongoing Biogenic Emissions Panel review of the EPA's Draft Accounting Framework. We believe MSW is a category of biomass whose biogenic emissions of CO_2 should be assigned a BAF of zero. MSW biomass management does not pose land use or carbon stock changes and its use as a renewable fuel can result in net GHG reductions. If you have any questions about our comments, please feel free to contact me at (202) 639-1218 or by email at kkelly5@wm.com.

Sincerely,

Kerry Kelly, Director
Federal public Affairs