



Riverside County
Waste Management Department

Hans W. Kernkamp, General Manager-Chief Engineer

November 26, 2008

Douglas Ito, Manager
State Implementation Plan &
Local Government Strategies Section
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

VIA ELECTRONIC MAIL & USPS

e-mail: ditto@arb.ca.gov

**Re: Comments on Preliminary Draft Staff Proposal – Interim Significance
Thresholds for Greenhouse Gases under the California Environmental
Quality Act (CEQA)**

Dear Mr. Ito:

The Riverside County Waste Management Department (RCWMD) is the owner/operator of six (6) active County landfills and has varying degrees of oversight/maintenance obligations for about two (2) dozen inactive landfill sites throughout Riverside County. Therefore, the RCWMD is a very interested stakeholder of the California Air Resources Board's (CARB) preliminary proposal for interim significance thresholds for greenhouse gases (GHG) under CEQA. The RCWMD appreciates the need for interim GHG thresholds, however we do have concerns regarding the Preliminary Draft Staff Proposal (Proposal) dated October 24, 2008. The RCWMD supports the comments on the Proposal by the Solid Waste Industry for Climate Solutions (SWICS) in a letter, dated November 21, 2008, and would like to offer its views on the Proposal in the following comments for your consideration:

Solid Waste Management Projects Deserve Separate Considerations

The Proposal indicates that GHG thresholds should be applied differently based on the type of projects being considered, including distinctions between industrial and commercial/residential projects. We strongly agree with this concept; however, it is our contention that waste management activities in particular have enough differences in their nature to warrant separate consideration from all other project types for development of thresholds under CEQA. Waste management projects include, but are not limited to, landfill activities, recycling, composting, landfill-gas-to-energy production, transformation, and bioreactor projects, all of which require energy consumption in fossil fuels and/or electricity and generate GHG emissions, and some of which do involve

energy production. Among the waste management projects, landfills entail a GHG emission profile that is significantly different from a typical industrial project.

Landfills are unique from other GHG generators in the following aspects:

- Landfills generate both anthropogenic and biogenic greenhouse gases, primarily, methane (CH₄) and carbon dioxide (CO₂).¹
- Landfill GHG emissions entail cumulative and delayed emissions. Cumulative emissions are "holdover" landfill gas (LFG)/GHG emissions from cumulative growth of the in-place refuse volume over time, which means LFG/GHG emissions will continue many years after waste disposal operation has ceased at the landfills. Delayed emissions are LFG/GHG emissions that take 1 to 3 years after waste burial to build up to sufficient pressures and reach the minimum CH₄ concentrations (i.e., no less than 25% by volume) required for combustion in a flare. These two landfill gas emission characteristics simply point to a non-linear relationship between LFG/GHG emissions and the daily intake tonnage of refuse, unlike the typical industrial point source emissions whose rate and volume of GHG emissions directly correspond to the rate, quantity, and type of fuel consumption.
- To complicate the picture further, landfills generate LFG/GHG that do not equate fugitive GHG emissions from the landfill operation. It is because LFG/GHG generated from the degradation of organic refuse either is confined within the landfill mass in long duration, dissolved in leachate, collected and then flared, oxidized by the soil or other organic landfill cover, or escapes into the atmosphere as a fugitive GHG emission.
- Regional active landfills in California commonly entail varying degrees of integrated waste management functions, including recycling, composting, and/or waste conversion- to-energy. These waste resource management activities usually have a beneficial effect in terms of net GHG emission reduction, which should be taken into consideration in the evaluation of a landfill operation's overall GHG impact significance.
- Large landfills operating with the requirement of partial closure could have significantly less long-term fugitive GHG emissions.
- Different types of wastestreams, such as rural/agricultural verses urban wastes, can affect the rate of generation of LFG, which would equate to different rates of GHG emissions.

Applying the proposed 7,000 MTCO₂e/year significance threshold largely derived from boiler emissions generated from the combustion of natural gas in other industrial project to landfill or other waste-related projects would be inappropriate in most cases. We

¹ In a presentation to CARB on November 10, 2008 titled "Carbon on Steroids: The Untold Story of Methane, Climate, and Health," by University of California, Berkeley professor Kirk R. Smith, a Nobel Laureate 2007, methane generated from landfill waste and biomass combustion is considered biogenic in nature for the reason that the CO₂ it creates (through the process of oxidation either in a combustion device or in the atmosphere during its 12 years long lifetime) is renewable, i.e., does not add to the atmospheric load of CO₂.

recommend that CARB recognize these significant dissimilarities between the GHG emission profiles of typical industrial projects and landfills. With that we respectfully recommend that CARB consider a separate quantitative significance threshold for landfills and other applicable waste management projects.

Alternative Method of Measuring Impacts

If CARB would agree that landfills and other waste management projects warrant separate significance thresholds, we highly recommend that performance standards be used in place of a numerical threshold. In Attachment A of the Proposal, performance standards are already recommended by CARB as part of the threshold calculations. The threshold components include meeting interim CARB performance standards or equivalent mitigation measures for construction-related and transportation-related emissions, AND not emitting more than 7,000 MTCO₂e/year from remaining sub-sources. Because landfill and other waste-related operations emit GHGs that are inherently impossible to quantify with any certainty, meeting all applicable regulatory performance standards represents a valid alternative to quantitative significance threshold for GHG impacts assessment.

Performance standards in existing air and solid waste regulations serve this purpose, because these performance standards set the acceptable safety limits in facility design, construction, and operation for protection of public health & safety and the environment from air quality impacts, thus contributing to control and mitigation of GHG emissions. The primary advantage of using these solid waste management performance standards over a numerical significance threshold is that project performance in GHG emissions reduction can be verifiable via permit enforcement by regulatory agencies throughout the life of the projects.

Carbon-neutral Biogenic Emissions Should Not Apply to Thresholds

Landfill operations generate both anthropogenic and biogenic CH₄ and CO₂. Biogenic CH₄ and CO₂ are generated from decomposition of the organic waste within the landfills or derived from combustion of the biogenic CH₄ in a flare station or energy device. The anthropogenic CH₄ and CO₂ are generated from fossil fuel consumption by landfill equipment and waste-hauling and landfill employee vehicles. Since the biogenic CH₄ and CO₂ are renewable and don't add to the atmospheric load of CO₂, they are considered carbon neutral, and not a human cause of global warming.

Any thresholds under CEQA for waste management projects should apply only to the net increase in anthropogenic GHG emissions from these projects, which constitute the human cause of global warming and climate change. However, for purposes of interim threshold and achievement of the near-term 2020 GHG emissions and global warming reduction goal, fugitive biogenic CH₄ emissions from landfills could be considered for the threshold value. In doing so, CARB should establish realistic surface emission rates for landfill gases, or apply feasible performance standards for landfill gas collection

systems and landfill cover construction for estimation of the quantity of fugitive biogenic CH₄ emissions from landfill operations.

Programmatic Approach

The Proposal includes a programmatic/regional approach to GHG control for residential/commercial projects, but not for industrial projects, which traditionally include landfills and other waste management facilities. Absent a programmatic/regional approach, the current proposed threshold design concept for industrial projects will effectively preclude a comprehensive solution to GHG emissions control from landfills and other waste management projects. Landfills and many other waste-related facilities commonly provide the essential public service of solid waste management to multiple jurisdictions; therefore, their GHG impacts warrant a regional solution.

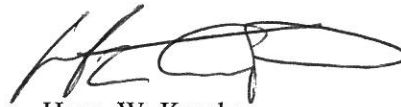
In contrast to the one-size-fits-all quantitative threshold concept, a programmatic/regional approach can better tackle the wide variability of landfill emissions of GHG by establishing a system-wide/Countywide landfill carbon footprint (or GHG emission inventory). The system-wide carbon footprint represents a net GHG emissions profile of the landfill system that would distinguish between anthropogenic and biogenic sources and account for the GHG emission reduction effect of concurrent on-site recycling, composting, energy conversion activities, etc. The system-wide/Countywide landfill carbon footprint represents the baseline GHG emissions from landfill system operation and is the sum of the net carbon footprint for each landfill (active and inactive), which may be estimated using a life-cycle analysis, wherever feasible, or other appropriate methodologies. System-wide GHG emission reduction targets for 2020 and even 2050 would be established with some kind of implementation schedules that can be verified. Emission reduction could be measured by compliance with approved benchmark performance standards for landfill operations and/or implementation of equivalent mitigation measures. As long as future landfill expansion projects are found consistent with the landfill system-wide GHG emission reduction plan targets or in compliance with the prescribed mitigation measures and performance standards, it can be determined to have an insignificant impact to climate change.

The South Coast Air Quality Management District (SCAQMD) has embarked its own effort to establish an interim significance threshold for GHG emissions from projects in the South Coast Air Basin. The SCAQMD's tiered concept consists of a tier that would allow projects to demonstrate GHG emissions within GHG budgets in approved regional plans for determination of the projects having less-than-significant impact on climate change. For landfill operations and waste management, this programmatic/regional approach can be carried out in two ways. First, the landfill system GHG emission reduction plan can be made a component of a Countywide/City-wide GHG emission plan or a part of the County/City General Plan section that addresses climate change and air quality. Second, the Countywide Integrated Waste Management Plan (CIWMP) can be upgraded with a GHG emission reduction component for the landfill system operation.

Comments on CARB's GHG Threshold Proposal
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Thank you in advance for consideration of our comments. If you have any questions, please don't hesitate to contact me at (951) 486-3232, or Lesley Likins, Planning Manager, at (951)486-3280.

Sincerely,

A handwritten signature in black ink, appearing to read 'H. W. Kernkamp', with a large, sweeping loop at the end.

Hans. W. Kernkamp
General Manager-Chief Engineer

HWK:DR:SKM:/skm

cc: Cynthia Bryant, Governor's Office of Planning and Research
Terry Roberts, Governors Office of Planning and Research
Howard Levenson, CIWMB