



Recommendations for OMB

Landfill Gas (LFG) Issues in Non-Hazardous Secondary Materials (“NHSM”) Commercial and Institutional Solid Waste Incineration (“CISWI”) and Boiler MACT Rules

1) EPA should clarify in regulation that landfill gas (LFG) is not a solid waste subject to the NHSM Rule. Agency statements in the Responses to Comments Document for the NHSM Rule (February 2011) at (3b-13-1; 3b-13-2; and 3b-13-4) indicated that EPA had changed long-standing interpretation of what constitutes “contained gaseous material” a component of the definition of “solid waste,” as well as the regulatory status of LFG.

EPA has since provided helpful “comfort letters” to WM and the AF&PA clarifying that EPA has not changed its prior interpretations and affirmed generally that gaseous material is not solid waste unless held in a container when combusted, consistent with the regulatory definition and interpretations of “contained gaseous material” EPA has used over many years and in various contexts. Instead, LFG has long been subject to overlapping federal, state and local regulatory programs that have required the control of LFG as an air pollutant, not a solid waste, and have encouraged the use of LFG as fuel where economically and practically feasible to do so. EPA’s letter to WM clarified that it did not intend to change prior interpretations of the regulatory status of LFG. (*Attachment A – August 5, 2011 Letter from EPA to Waste Management*)

The EPA comfort letters were offered as a band aid fix at a point when the Agency did not want to reopen the NHSM Rule. Now that it has reopened the rule, EPA needs to provide regulatory certainty and eliminate confusion resulting from the Response to Comments document for the NHSM Rule. Specifically, consistent with the statutory definition of “solid waste,” EPA should clarify in the NHSM Rule that the rule may apply only to contained gaseous material, and not to uncontained gaseous streams such as LFG.

2) EPA also should restore the deleted regulatory definition of “contained gaseous material” in the CISWI Rule. Consistent with the existing CISWI Rule and the discussion above, maintaining the definition within CISWI for “contained gaseous material” will clarify that LFG is not solid waste under typical LFG control and combustion scenarios, including when conveyed to a pollution control device for air emission control; when conveyed to a combustion device for electricity generation; or when conveyed to third parties for use as a fuel. Failure to clarify that CISWI does not apply to LFG combustion will adversely affect beneficial use and control of LFG. (*Attachment B –Defining LFG as Solid Waste-Implications for Renewable Energy & Innovative Materials Management*)

- Regulating LFG as solid waste would have a dramatic and detrimental impact on use of LFG as a renewable fuel.
- Regulation of LFG under CISWI would, for WM alone, exceed the total estimated costs of the CISWI Rule for its intended sources – about \$412 million in capital, \$50 million/year in O&M.
- Failure to recognize LFG as a legitimate fuel will undermine private, local government and federal sustainability initiatives.

3) EPA should insert regulatory language in the NHSM Rule that lists LFG as a “traditional fuel.” The Agency needs to correct the rulemaking record at the NHSM Rule Response to Comments 3b-13-2 where the Agency suggests that LFG must meet the legitimacy criteria of the NHSM rule to be deemed a legitimate fuel, even though the Agency later clarified that LFG is not a solid waste in its comfort letter to WM. Like natural gas, refinery gas, blast furnace gas, recovered gaseous butane and coke oven gas, all of which are listed within the NHSM Rule definition of “traditional fuels,” LFG should be acknowledged as a traditional fuel.

Failure to clarify in the NHSM Rule that LFG is a traditional fuel is contrary to statutory and regulatory definitions and program policies that recognize LFG as a renewable fuel. For example:

- EPA’s Landfill Methane Outreach Program (LMOP) promotes use of LFG as a renewable fuel for boilers, turbines and engines;
- The Federal Renewable Energy Production Tax Credit rewards electricity production from LFG;
- EISA 2007 and EPA’s Renewable Fuel Standard (RFS2) which specify that LFG is an advanced biofuel;
- The Boiler MACT Rule defines LFG as a gaseous fuel; and
- All 29 state Renewable Portfolio Standards define LFG as a renewable fuel for green electricity production.

EPA has now through its comfort letters clarified that it maintains its long-standing definition of “contained gaseous material” and maintains prior Agency determinations that LFG is not a solid waste. The Agency should amend its rulemaking record and clarify in rule language that LFG is a traditional fuel, not a solid waste, and therefore NOT subject to the NHSM Rule. (*Attachment C – EPA’s Prior Determinations That LFG is Not a Solid Waste*)

4) EPA should amend the Boiler MACT Rule to categorize LFG as a “Gas 1” fuel. Alternatively, EPA should correct the fuel specification used to qualify gaseous fuels as “other Gas 1 fuels.” The combustion of LFG in boilers is a positive alternative to control of LFG in flares. Failure to categorize LFG as a “Gas 1” fuel will subject LFG boilers to stringent emission limits, thereby creating strong disincentives to the use of LFG in boilers and hampering many private, local government and federal government facilities’ sustainability efforts and significantly disrupting domestic renewable energy production. The U.S LFG to energy sector is a significant portion of the domestic renewable energy sector, producing more than 7 times the energy output of the entire domestic solar energy sector.

Under the Boiler MACT, units designed to burn Gas 1 fuel (including natural gas and refinery gas) are not subject to emission limits, while units designed to burn “Gas 2” fuels are subject to strict emission limits for PM, HCL, Mercury, CO and dioxins/furans. By EPA’s own analysis the control costs for Gas 2 boilers are estimated to be higher than the combined compliance capital costs for boilers and process heaters in all other categories. All of WM’s LFG customers have indicated that they would switch to natural gas or other fossil fuels if LFG-fired boilers are subject to “Gas 2” emission limits.

The environmental consequences of fuel switching from landfill to natural gas are very detrimental:

As of September 20, 2011, EPA’s LMOP has data on 60 US boiler projects and 17 projects that utilize LFG in a boiler-steam turbine. EPA estimates that the 60 boiler projects utilize approximately 1900 Million British Thermal Units (MMBtu) per hour of LFG, and that the 17 boiler-steam turbine projects utilize approximately 2400 MMBtu per hour of LFG. If the project owners switch from LFG to natural gas, LFG will still be generated by the landfills and therefore must be combusted in flares, increasing emissions of greenhouse gases and criteria pollutants.

EPA calculated the net increase in overall fossil fuel based CO₂ emissions from boiler and boiler –turbine projects would be 2,025,698 tons. The nation would also realize an additional 12,841 tons of CO, 291 tons of PM and 684 tons of NO_x. SO₂ and Hg emissions would also increase slightly by 10.2 and 0.0052 tons, respectively. (*Attachment D –EPA LMOP Environmental Analysis provided to WM*)

The financial costs associated with switching from LFG to natural gas to comply with the Boiler MACT as promulgated, are also quite significant. For boiler and boiler-turbine projects now using LFG, the order-of-magnitude estimate of the total direct costs of fuel switching to natural gas is estimated to be \$ 1.064 billion.

In addition, project owners will lose the value of the LFG processing and transport equipment that must be abandoned when fuel switching from LFG. The total estimated capital assets lost for existing projects is \$87 million. (*Attachment E – CH2M Hill Boiler MACT Economic Impact Evaluation*)

If EPA does not categorize LFG as a “Gas 1” fuel, it should revise and correct the fuel specification used to allow other gases to qualify as “Gas 1.” The fuel specification relies on two constituents as parameters; mercury and hydrogen sulfide (H₂S). H₂S is an inappropriate parameter for this MACT standard, and is set at a technically infeasible level. Therefore, in revising the specification, EPA should **rely solely on the mercury parameter and remove the H₂S parameter.** Based upon a review of the EPA docket for the Boiler MACT, CH2M HILL concluded the following with respect to the fuel speceification:

EPA has not established a valid rationale for using H₂S, as a relevant parameter. MACT regulates hazardous air pollutant (HAP) emissions. H₂S is not a HAP, nor has EPA established (or even suggested in its rationale of the fuel specification) any correlation of H₂S in fuel with any HAP or HAP surrogate emissions.

EPA has not established a valid rationale for the specific H₂S concentration of 4 parts per million by volume (ppmv) in the fuel specification. The specified concentration is based on natural gas sweetening for corrosion protection. However, boiler units generally do not require this level of protection. Fuel gases, including refinery gases, that have much higher H₂S levels, commonly are used in boilers without treatment to the fuel specification standard. (*Attachment F – CH2M Hill Review of Technical Basis for H₂S in Boiler MACT Fuel Specification*)

5) EPA should clarify the Non-Waste Determination Process. The NHSM Rule framework for distinguishing alternative fuels from solid waste is to require that the secondary material be sufficiently processed in producing the fuel, and that the fuel meets enumerated “legitimacy criteria.” In this evaluation, EPA requires a comparison of contaminants in the fuel product to traditional and alternative fuel materials. There is a great deal of uncertainty surrounding how these non-waste determinations will be conducted, and the type of analysis and information required to satisfy the Agency.

1. Fuel combustors and/or fuel producers should receive one-time, national non-waste determinations;
2. EPA’s headquarters Office of Resource Conservation and Recovery should make coherent, consistent determinations to ensure national consistency;
3. The legitimacy criteria should be discretionary rather than mandatory. The criteria were developed originally to provide indicia of legitimate recycling of hazardous waste. The criteria are not appropriate mandatory requirements in this context;
4. EPA’s legitimacy analysis should focus on the heating value of the fuel, whether material management and processing is conducted in a safe and protective manner, and whether the material’s use as a fuel will extract value from the material and reduce landfill disposal.

Failure to adequately clarify the process and criteria by which legitimacy determinations may be made will create enormous disincentives to recovering energy value from materials which otherwise would be landfilled.