



August 2, 2010

Re: WEF Comments on the Proposed Rule on Identification of Non-Hazardous Secondary Materials That Are Solid Wastes, ATTN: RCRA Docket ID No. EPA-HQ-RCRA-2008-0329 (Federal Register / Vol. 75, No. 107 / Friday, June 4, 2010 / Proposed Rules, pages 31844-31893

The Water Environment Federation (WEF) would like to submit comments on the proposed rule for Identification of Non-Hazardous Secondary Materials That Are Solid Waste that was issued in the June 4, 2010 Federal Register. WEF is a not-for-profit association that has provided technical education and training for the world's water quality professionals since 1928. The Federation has 36,000 individual members and 75 affiliated Member Associations who support its mission to preserve and enhance the global water environment. WEF is supportive of regulations that are science based, achievable, and protective of human health and the environment. The requirements stipulated in 40 CFR Part 503, Standards for the Use or Disposal of Sewage Sludge, meet this objective for biosolids treatment and management. A summary of our comments and concerns with the proposed rulemaking are focused as follows:

- While the proposal states that the specific intent of regulation is to apply the designation of "solid waste" to wastewater solids (biosolids) processed in sewage sludge incinerators (SSI), WEF would like confirmation that this proposed ruling is not intended to impact any other forms of biosolids management.
- The legitimacy criteria are not suitable for biosolids incineration.
 - Information used by EPA from the Materials Characterization Paper to test whether biosolids meets the contaminant criteria is outdated in terms of biosolids composition, as well as intended uses, which leads to biased conclusions.
 - The meaningful heating value and energy recovery criteria are arbitrary, developed for other industries, and not consistent with renewable energy policy to encourage energy recovery and reduction of greenhouse gas emissions at POTWs.
 - The proposed regulations requirements for adequate processing are limiting and could have negative ramifications on biosolids-to-energy projects either ongoing or planned.
- There may be unintended consequences for other forms of biosolids management as this approach will result in more landfilling of a valuable nutrient and energy rich material that could otherwise be used as a renewable resource.

- EPA may not have sufficient SSI operating data (for either multiple hearth or fluid bed incinerators) to establish science based MACT standards required by the proposed regulation.

Each of these concerns is discussed in more detail below:

Intent of Regulation

The intent of the proposed ruling is classifying biosolids (or sewage sludge) as a solid waste to impose additional regulation on sewage sludge incinerators. WEF is concerned that there may be unintended consequences to this approach. Section VII of 40 CFR Part 241 states *“Through this rulemaking, EPA is articulating the narrow definition of which non-hazardous secondary materials are or are not solid waste when used as fuel for energy recovery or as ingredients in combustion units. We are not making solid waste determinations that cover other possible secondary end uses (VIII 3rd par).”* WEF is concerned that this language is y vague and will inappropriately applied to all biosolids management programs, resulting in harm to beneficial programs for biosolids reuse. WEF believes that the science based 503 Regulations were promulgated to be protective of public health and the environment for all biosolids programs including incineration. If the intended EPA focus is narrow, WEF requests that EPA acknowledge land application and other biosolids programs (other than incineration) are protective of public health and the environment if 503 Regulations are followed.

EPA views incineration as a disposal process; however, in essence it is a stabilization and volume reduction process for sewage sludge, that has been historically used for decades as an integral part of the overall wastewater treatment process. The solid waste rule should only apply to the ash byproduct from the incineration process, if it is land-filled and not beneficially reused, as that is the residual waste being disposed of or discarded.

Sewage sludge used as a legitimate fuel should not be considered as discarded. WEF proposes a more appropriate definition of a legitimate fuel below. EPA assumes by this proposed rulemaking that sewage sludge (non-hazardous waste material) is discarded, and utilities and facilities practicing sewage sludge incineration are required to prove otherwise. Section VII.D explains the process: *“Non-hazardous secondary materials (sewage sludge) used as fuels in combustion units would be considered solid waste unless: (1) the non-hazardous secondary materials remain under the control of the generator as discussed in section VII.D.1, and are legitimate fuels; or (2) they are legitimate fuels that are produced from the processing of discarded non-hazardous secondary materials into a non-waste fuel as discussed in section VII.D.4. Non-hazardous secondary materials used as a fuel in combustion units that are transferred to a third party (and not considered to be managed within the control of the generator) are considered solid wastes unless a non-waste determination has been made pursuant to the proposed petition process discussed in section VII.D.5.”* Why does EPA give third party processors the option to a non-waste determination per the petition process and

not give the same petition process to the generators where the non-waste determination was based only on the legitimate criteria discussed in section V.II.6.a.?

EPA views the sewage sludge exemption as only applying to solids entering the plant and not those produced within the plant. Is it EPA's intent to only consider secondary or mixed primary/secondary sludge as solid waste since no solids are generated within the primary sedimentation process? WEF would request EPA to clarify their position on this matter. How would EPA view sewage sludge imported to a merchant incineration facility?

Legitimacy Criteria

EPA has established three legitimacy criteria for materials including sewage sludge not to be considered a solid waste: (1) It is managed as a valuable commodity; (2) It has a meaningful heating value; and (3) It contains contaminants at levels comparable to those in traditional fuels for which the combustion unit was designed to burn. We will discuss these in reverse order.

Contaminants. WEF believes that EPA should acknowledge the significant strength and impact of Clean Water Act pretreatment programs on the quality and composition of sewage sludge. Unfortunately, this was not the case when EPA used out of date information in the proposed rulemaking. In EPA's own publication, *Targeted National Sewage Sludge Survey* (EPA, 2009), samples from 74 randomly selected publicly owned treatment works in 35 states indicate that the contaminant levels in sewage sludge have been decreasing for a number of constituents. A summary of the results, alongside the corresponding contaminant values for coal, is shown in the table below. The contaminant values are derived from Table 2-1 of the document *Preliminary Characterization Study, Traditional Fuels and Key Derivatives, Prepared in Support of the Proposed Rulemaking – Identification of Nonhazardous Secondary Materials That Are Solid Waste*. While some of the 2009 contaminant values for sewage sludge remain higher than the single coal values, the overall values are nearing parity compared to the 1989 values. When median values are considered, the results demonstrate the wastewater treatment facilities efforts to improve sewage sludge quality for beneficial uses including energy recovery. This trend would indicate that (depending on the source), biosolids have contaminant levels on par with traditional fuels and can be expected to continue falling based on the success of pretreatment programs.

Element	Wastewater Treatment Sludge				Coal (mg/kg)	Coal in “Fuel” Document (mg/kg)
	40-City Study (1980) mg/kg dry weight	National Sewage Sludge Study (1989) mg/kg dry weight	Targeted National Sewage Sludge Survey (2009) mg/kg dry weight AVERAGE	Targeted National Sewage Sludge Survey (2009) mg/kg dry weight MEDIAN		
Arsenic	9.9	6.7	6.76	4.95	10	0.5 – 80
Cadmium	69	6.9	2.48	1.72	0.5	0.1 – 3.0
Chromium	429	119	78.2	30.6	20	0.5 – 6.0
Copper	602	741	559	449	Not available	Not available
Lead	369	134.4	74	44.4	40	2 – 80
Mercury	2.8	5.2	1.27	0.83	0.1	0.1 – 1.8
Molybdenum	17.7	9.2	15	11	Not available	Not Available
Nickel	135.1	42.7	47.4	22.8	20	0.5 – 50
Selenium	7.3	5.2	7.1	6.2	1	0.2 – 10
Zinc	1,594	1,202	970	764	Not available	Not Available

Note that this comparison does not consider the significantly greater greenhouse gas emissions impacts of burning coal as a fossil fuel versus biosolids as a biogenic fuel source. Downgrading biosolids to a “solid waste” classification is flawed and misleading, given that coal burning is in fact more destructive to the environment.

Meaningful Heating Value. WEF believes that sewage sludge has a meaningful heating value that can be used to reduce the use of fossil fuels and lower greenhouse gas emissions. In order to best benefit from this inherent heating value of biosolids, WEF recommends that EPA focus on the net recovery of energy within the incineration process as opposed to defining the minimum heating value of the sewage sludge input. The limitation of 5,000 BTU per pound of wet feed appears arbitrary and is not appropriate for sewage sludge applications. In many cases, sewage sludge can be processed by incineration without supplemental fossil fuel, with heating values as low as 1,800 to 2,200 BTU per pound. The minimum heating value restriction should be eliminated and replaced by a process requirement that the sewage sludge heating value should represent at least 90% (or some other mutually agreeable number) of the total fuel input to the system. In this way, the focus is better placed on maximizing the use of the heating value of biosolids for net energy benefit.

Valuable Commodity. Sewage sludge is handled as a valuable commodity in that it is prepared in at least one of the following processes: stabilization, dewatering, or drying

before being used as a fuel. The majority of biosolids produced in the US has for decades been beneficially used for its nutrient and organic value in land application, demonstrating its value as a commodity and not as a discard. Biosolids should be considered a renewable energy resource, which can be an important component of the country's renewable energy portfolio. Defining a resource as a solid waste is contradictory to the advancement of biosolids as a sustainable, renewable energy resource. Incineration facilities can recover useful energy and reduce greenhouse gas (GHG) emissions which significantly reduces the need for landfilling. Furthermore, addressing public questions or about 'solid waste' being applied for agricultural purposes will increase management and application costs, and may result in additional landfilling. Based on EPA's proposed rule and approach, it is unclear how increased landfilling can advance renewable energy and reduced GHG emissions policy goals. Many states have adopted renewable portfolio standards for biomass (biosolids are included in some states definitions for biomass) and the proposed ruling will have a detrimental effect on the implementation of those programs.

Energy Recovery Criteria

WEF has been supportive of energy conservation, renewable energy generation, and efficiency improvements in how municipal wastewater treatment agencies treat and handle wastewater and biosolids. Many wastewater utilities have plans, permits, and projects in place with the goal of maximizing renewable energy resource potential of biosolids and minimizing greenhouse gas emissions. Although these proposed facilities will fulfill this renewable energy goal by becoming net producers of electricity within the incineration process, net energy production alone will not be sufficient to meet the requirements of the proposed rule.

EPA states in their proposal that *“Although waste heat boilers are useful devices for providing energy in the form of steam for secondary processes, the Agency does not regard them as legitimate energy recovery devices because they receive their energy input from the combustion of off-gases via a separate chamber. Under the RCRA program, a legitimate energy recovery device is one that meets the definition of a boiler or an industrial furnace (see 40 CFRA 260.10)”*. The definition of a boiler as an enclosed device is outdated and not appropriate for modern fuel-burning technologies. In many cases, particularly units burning solid fuels, it is necessary to construct a separate combustion chamber for the fuel, with no removal of heat via transfer to another medium (steam, heated fluids, or heated gases) to provide adequate “controlled flame combustion” conditions and meet current emission regulations (presumably the reason for the process heater and fluidized bed combustion unit exemption). The use of close-coupled downstream components, such as heat exchangers or heat recovery boilers should be viewed no differently than related heat-recovery components, such as economizers or air preheaters, which are not required under the current definition to be all part of a single chamber. Limiting a boiler system to one single integrally-manufactured or assembled unit and excluding systems assembled as a combustion chamber joined by ductwork to separate heat recovery boilers or heat exchangers is illogical. This is particularly evident in cases where no bypass duct is provided around

the heat recovery equipment, demonstrating that combustion and heat recovery are clearly parts of an integral system where the principal process intent is the combustion of a fuel for the purpose of recovering and exporting energy.

In 40 CFR 260.10, the limitations on the thermal efficiency of the combustion unit (60%), and the requirement that at least 75% of the recovered energy be exported and utilized is overly restrictive and will severely limit the application of proven technology to recover energy from sewage sludge or biosolids. Due to the inherently high moisture content of dewatered biosolids, a significant component of the thermal value is consumed in evaporating this moisture and supporting the combustion process in lieu of using fossil fuel for this purpose. Nevertheless, it is usually practical to recover up to 50% of the energy for export and utilization. WEF recommends that EPA recognize the unique characteristics of biosolids and revise its definition to allow waste heat boilers connected by ducts and require the incineration process to be a net exporter of energy and utilize at least 40% of the recovered energy.

Advanced Processing

EPA suggests that dried biosolids pellets would be an acceptable and valuable fuel commodity but that dewatered biosolids alone is not. WEF considers this to be an unfounded distinction and recommends that EPA to focus on the net energy value of the material, considering all processing steps involved regardless of the process location.

EPA acknowledges gasification processes, which produce syngas, to be an adequate process for producing a non-waste fuel product. As such, EPA acknowledges that sewage sludge would be a legitimate fuel and not a solid waste when processed by gasification. This acknowledgement is within the intent of the proposed regulation since the gasification process is used to recover or produce energy from the biosolids and not discard it as EPA stipulates for sewage sludge incinerators. Note that EPA qualified this position with “*provided the syngas has been adequately processed to remove contaminants.*” The definition of gasification systems as stated in the proposed rule limits itself to only two-stage gasification where the syngas is cleaned to remove impurities prior to using it for energy production. The two-stage system as described in the proposed rule is *only one of two* gasification systems for energy recovery as described in a recent report published in July 2009 by National Research Energy Laboratories entitled “*Market Assessment of Biomass Gasification and Combustion Technology for Small- and Medium-Scale Applications, NREL/TP-7A2-46190.*” WEF recommends that EPA to modify its definition of the gasification system to include the close-coupled variety, which does not require syngas cleaning to remove impurities.

Unintended Consequences

WEF is concerned with the following unintended consequences of the proposed regulation:

- The narrow intent of the proposed regulation will become lost and will have an impact on land application and other forms of biosolids nutrient and energy recycling;
- The proposed regulation may have a detrimental effect on the energy recovery of wastewater solids which are a carbon neutral renewable energy source;
- The proposed regulation could significantly increase the amount of biosolids that are landfilled, thereby wasting the inherent nutrient and energy value of our biosolids; and
- The proposed regulation may significantly increase the cost for compliance for many wastewater agencies.

EPA's consideration that landfilling is more economical than incineration fails to consider a number of factors. Incineration facilities are predominantly located in larger urban areas where hauling distances are long and roads are congested. For urban areas it is likely the average hauling distance is 100 to 150 miles each direction which could add approximately 50 million heavy truck miles to our roads each year. This notable traffic will increase fossil fuel use and the resulting emissions of greenhouse gases, particulate matter, nitrogen oxides, sulfur dioxides and other emissions. In addition, an increase in vehicular miles will statistically result in more traffic related injuries and deaths.

EPA should also consider the environmental impact sewage sludge would have on greenhouse gas emissions at landfills. Fugitive emissions from even the best managed landfills would have a significant environmental impact.

MACT Standards

If the proposed rule is promulgated, EPA will be required to develop maximum achievable control standards for sewage sludge incinerators. WEF is concerned that EPA does not have sufficient data for either multiple hearth or fluid bed incinerators to properly develop standards that are achievable and statistically valid. The development of these standards is important to maintain sewage sludge incinerators as a viable biosolids management option. WEF notes the long and painful experience the medical waste incinerator industry underwent when EPA issued numerical emission limits that were not achievable. If MACT standards are proposed, WEF recommends that separate standards be developed for multiple hearth and fluid bed incinerators.

In conclusion, WEF believes that EPA's focus should be the acceptable methods for managing biosolids that are protective of the environment and socially and economically beneficial rather than an arbitrary definition of biosolids which limits local management alternatives and could foster adverse environmental consequences. WEF thanks EPA

for the opportunity to submit comments. If you have questions or require additional information concerning these comments, please contact Tim Williams at 703-684-2437 or Sam Hadeed at 703-684-2418.

WEF Comments of the on the Proposed Rule on Identification of Non-Hazardous Secondary Materials That Are Solid Wastes.

Electronically submitted on August 2, 2010 to: RCRA Docket ID No. EPA–HQ–RCRA–2008–0329 (Federal Register / Vol. 75, No. 107 / Friday, June 4, 2010 / Proposed Rules, pages 31844-31893.

Sincerely,

Tim Williams
Senior Managing Director, Public Policy
Water Environment Federation
601 Wythe Street
Alexandria, VA 22314
twilliams@wef.org
703-684-2437

