



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Mr. David T. Hudson
Vice President, Governmental Affairs
Strategic Materials, Inc.
16365 Park Ten Place, Suite 200
Houston, TX 77084

APR 17 2013

Dear Mr. Hudson:

In your letter of January 23, 2012, you requested confirmation from the U.S. Environmental Protection Agency (EPA) that your paper fluff fuel pellets will be considered a non-waste fuel when burned in combustion units in accordance with the requirements of 40 CFR part 241.3(b)(4). In further correspondence, you also provided additional contaminant data, as well as supplemental information regarding the meaningful heating value of the paper fluff fuel pellets and sources of the paper-based fuel material.¹ To be designated as a non-waste fuel under 40 CFR 241.3(b)(4), the regulations require that discarded non-hazardous secondary material (NHSM) undergo processing as defined in 40 CFR 241.2. After processing, the NHSM must also meet the legitimacy criteria for fuels in 40 CFR 241.3(d)(1). Based on the information provided in correspondence and supporting materials, we believe that the paper fluff fuel pellets would be considered a non-waste fuel under the 40 CFR 241 regulations.² The remainder of this letter provides the basis for our position. *If there is a discrepancy in the information provided to us, it could result in a different interpretation.*

Background

As part of its glass recycling operations, Strategic Materials, Inc. (SMI) receives post-consumer and post-industrial glass for recycling from bottle collection and container deposit programs, brewery and bottler rejects, and curbside recycling programs. In the bottle collection and container deposit programs, consumers return glass bottles and glass containers to designated locations. The bottles and containers are provided to SMI without being comingled with any other materials. The brewery and bottle rejects are also provided to SMI without being comingled with any other materials. The materials from curbside recycling programs are received by a clean materials recovery facility (MRF) that only accepts recyclable materials. The MRF separates the recyclable materials by type and provides the glass material stream to SMI. From the outset, each of these collected glass streams is managed as a commodity. As described in the correspondence and supporting materials to EPA, the paper used to develop the fuel is derived from recyclable materials obtained from established collection programs and

¹ Further correspondence provided in letters dated April 13, 2012 and September 17, 2012, from David Hudson, SMI to Marc Thomas, EPA; an email from Tommy Sweat, SMI to Marc Thomas, EPA, dated September 27, 2012; and a letter dated March 13, 2013 from David Hudson, SMI to David Cozzie, EPA.

² Note that a non-waste determination under 40 CFR Part 241 does not preempt a state's authority to regulate a non-hazardous secondary material as a solid waste. Non-hazardous secondary materials may be regulated simultaneously as a solid waste by the state, but as a non-waste fuel under 40 CFR Part 241 for the purposes of determining appropriate emissions standards under the Clean Air Act for the combustion unit in which it is used.

has value for recycling or as paper-derived fuel used in combustion units. Upon receipt of the various glass streams, SMI separates any paper (as well as metal or plastic materials) that may be comingled with the glass feed stream and removes any paper from the glass itself before further processing. SMI collects the paper which has value both as the feed stock used to produce paper-derived fuel for use in combustion units and as a raw material for other processes, such as paper production. The removed metals and plastics also have value and are shipped to users of those materials.

SMI also conducts pelletizing operations to further process the paper byproducts, also called "fluff," into a fuel for solid fuel firing combustion units. The resulting paper fluff fuel pellets would then be combusted and used as a fuel by facilities outside the control of the generator (e.g., electric utilities and industrial facilities) or on-site at SMI's recycling facilities.

Processing

Processing is defined in 40 CFR 241.2 as operations that transform discarded NHSM into a non-waste fuel or non-waste ingredient, including operations necessary to: remove or destroy contaminants; significantly improve the fuel characteristics (e.g., sizing or drying of the material, in combination with other operations); chemically improve the as-fired energy content; or improve the ingredient characteristics. Minimal operations that result only in modifying the size of the material by shredding do not constitute processing for the purposes of the definition.

The determination of whether a particular operation or set of operations constitutes sufficient processing to meet the definition in 40 CFR 241.2 is necessarily a fact-specific determination. This determination applies the regulatory definition of processing to the specific material(s) being processed, as described in correspondence and supporting materials from SMI, taking into account the nature and content of the material, as well as the types and extent of the operations performed on it. Thus, the same operations may or may not constitute sufficient processing under the regulation in a particular circumstance, depending on the material being processed and the specific facts of the processing. In some cases, certain operations will be sufficient to transform non-hazardous secondary material into a non-waste fuel, and in other cases, the same operations may not be sufficient to do so.

In this case, the sources of the materials you process, as well as the manner in which they are handled prior to processing are an important factor in our analysis. As noted above, you obtain your materials from three sources: bottle collection and container deposit programs, brewery and bottler rejects, and curbside recycling programs. The bottle collection programs operate to collect post-consumer glass separate from other types of recyclable materials. The bottles are consistently kept separate from other material streams until such time as they arrive at your facility. Similarly, you obtain brewery and bottler rejects directly from the manufacturer, not from a general waste stream. Finally, the bottles from curbside recycling programs go to a clean MRF which separates the bottles, rather than commingling them with a variety of other types of recyclable materials, and consistently keeps them separate from other materials until you receive them. Therefore, all the materials you use to produce your paper fluff pellets are taken either directly from the source (e.g., brewery and bottler rejects) or are consistently kept separate from other materials. This is in contrast to facilities which may use a variety of materials that have been discarded and collected together, and then undertake a procedure that involves separating out and processing certain types of materials. In the latter case, the type of processing you describe in your letter may not be sufficient to meet the definition of processing in 40 CFR 241.2, which, as explained above, is necessarily a case-specific determination.

In your letter, you state that the input stream to the glass recycling process may also include metals (both ferrous and non-ferrous), paper, and plastic. Magnets are used to remove ferrous metals, while eddy currents and other non-ferrous detection devices are used to remove non-ferrous metals. SMI also employs screeners and scalpers (rotating elliptical discs with serrated edges) to separate paper and plastics, which together form the raw fluff material, from the glass stream. You then use additional screening and scalping to remove plastic materials from the fluff. These processes result in paper fluff that has a plastic content of less than 5 percent by weight. To meet customer needs, SMI can change the amount of plastic present in the paper fluff using various types of material separation technology, including finger deck screens.

You also indicate that the paper fluff may be shredded in order to improve its consistency prior to pelletizing.³ Whether this additional step occurs depends on your customer specifications. For example, if a customer requests a paper fluff fuel pellet with increased density or higher Btu content, SMI can adjust the equipment, grind the paper fluff, or adjust the pellet mill to operate at higher pressures, which increases pellet density. In any event, the pelletizing process, which occurs with all the paper fluff, reduces moisture content and increases density, thereby increasing the heating value and enhancing combustion performance.

Based on this description, we believe your operations meet the definition of “processing” codified in 40 CFR 241.2, as the processes employed not only remove contaminants, but also significantly improve the fuel characteristics of the paper fluff fuel pellets. Specifically, removal of contaminants occurs through magnets, eddy currents and other non-ferrous detection devices used to remove ferrous and non-ferrous metals. Screening and scalping also remove unwanted plastic materials, while further shredding may occur, upon customer request, to improve fuel consistency. Finally, sizing and drying of the material to improve fuel characteristics is accomplished through moisture reduction and densifying during the pelletizing process.

Legitimacy Criteria

Under 40 CFR 241.3(d)(1), the legitimacy criteria for fuels include: 1) management of the material as a valuable commodity based on the following factors—storage prior to use must not exceed reasonable time frames, and management of the material must be in a manner consistent with an analogous fuel, or where there is no analogous fuel, adequately contained to prevent releases to the environment; 2) the material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy; and 3) the material must contain contaminants at levels comparable to or less than those in traditional fuels which the combustion unit is designed to burn.

Managed as a Valuable Commodity

Regarding the first criterion, the paper fluff fuel pellets will be stored on-site in silos prior to shipping to customers or used as a fuel on-site at SMI’s recycling facilities, with an estimated storage time between 1 and 3 days depending on market demand. As you note in your letter, you believe that such handling and management is analogous to other types of biomass—most notably wood biomass pellets. The paper fluff fuel pellets are stored in a manner to prevent contact with moisture, and prevent releases to

³ As indicated previously, this non-waste fuel determination applies to the paper fluff fuel pellets, and not the paper fluff prior to pelletizing which has not undergone full processing.

the environment. Further, the paper fluff fuel pellets are expected to contain minimal fine material and, thus, air emissions are not expected during storage and transport. Based on the information provided in your letter, we agree that the paper fluff fuel pellets are managed as a valuable commodity and would satisfy this criterion if managed as described.

We note, however, that you did not provide information regarding how the paper fluff fuel pellets will be managed once they are delivered to your customers. Thus, this letter does not address that aspect of the legitimacy criterion. For paper fluff fuel pellets to be considered a non-waste fuel, they would need to continue to be managed as a valuable commodity and used within a reasonable time frame by your customer.

Meaningful Heating Value and Used as a Fuel to Recover Energy

In your September 17 letter, you provide test data that show heating values ranging from 4,164 – 7,418 Btu/lb (as-received) for the loose paper fluff (before pelletizing), with an average value of 6,464 Btu/lb. As you explain in your letter, one sample, which has a value of 4,164 Btu/lb, is an outlier due to its high moisture content. If this sample is removed from the dataset, the range is 6,493 - 7,418 Btu/lb, with an average value of 6,793 Btu/lb.

Your information also demonstrates that the pelletizing process, which reduces moisture content and increases density, is expected to raise the heating value for the paper fluff fuel pellets, as fired, to between 7,500 and 9,000 Btu/lb. As the Agency stated in the preamble to the final rule, NHSMs with an energy value greater than 5,000 Btu/pound, as fired, are considered to have a meaningful heating value (see 76 FR 15541, March 21, 2011). Your letter also states that the paper fluff fuel pellets “will be used by power plants or industrial facilities, which will recover energy (i.e., generate steam) from the combustion of the fuel.”

We agree that the pelletizing process, by reducing moisture content and increasing density, is expected to raise the heating value for the paper fluff fuel pellets, as fired, to between 7,500 and 9,000 Btu/lb. Thus, we believe that this NHSM would meet the criterion, provided that the final paper fluff fuel pellets are used as fuel in a combustion unit that recovers energy.

Comparability of Contaminant Levels

You provided data that the paper fluff fuel pellets contain contaminants at levels comparable to or lower than the levels found in biomass and in the case of coal, much lower. Table 1 (attached) summarizes the contaminant data you provided on a dry weight basis. Thus, any combustion unit designed to burn either coal or biomass could also burn the paper fluff fuel pellets as a non-waste fuel based on this contaminant comparison.

This conclusion assumes that the paper fluff fuel pellets were tested for any constituents expected to be present. Additional constituents for which the paper fluff fuel pellets were not tested (including antimony, cobalt, and fluorine) must be present at levels comparable to or less than those in biomass or coal, based on your knowledge of the material.⁴

⁴ During a February 16, 2012 phone call between SMI and EPA, SMI stated its belief that other contaminants for which data was not provided (including antimony, cobalt, and fluorine) would either not be present in the paper fluff fuel pellets or be present at trace amounts that would be much lower than levels found in coal or biomass.

Conclusion

Overall, based on the information provided, we believe that the paper fluff fuel pellets, as described in your correspondence and supporting materials, meet both the processing definition and the legitimacy criteria outlined above⁵. Accordingly, we would consider this NHSM a non-waste fuel under the 40 Part 241 regulations.

If you have any other questions, please contact Mike Svizerro of my staff at (703) 308-0046.

Sincerely,



Betsy Devlin, Director
Materials Recovery and Waste Management Division

cc: Thomas P. Sweat

⁵ As noted above, for the fuel pellets to meet the legitimacy criteria after delivery to the customer, the material must continue to be managed as a valuable commodity and used within a reasonable time frame.

Table 1: Comparison of SMI Paper Fluff Fuel Pellet to Wood/Biomass Materials and Coal

All contaminant analyses are expressed in parts per million (ppm) on a dry weight basis.				
Contaminant	Paper Fluff ¹		Range for Wood and Biomass Materials ²	Range for Coal ²
	No of Samples	Range		
Antimony (Sb)	--	--	ND – 26	ND – 10
Arsenic (As)	6	< 0.32 – 1.8	ND – 298	ND -174
Beryllium (Be)	6	< 0.015	ND – 10	ND – 206
Cadmium (Cd)	6	0.39 – 1.01	ND – 17	ND – 19
Chromium (Cr)	6	4.9 - 12	ND – 340	ND – 168
Cobalt (Co)	--	--	ND – 213	ND – 30
Lead (Pb)	6	25 - 33	ND – 340	ND – 148
Manganese (Mn)	6	62 - 95	ND – 15,800	ND – 512
Mercury (Hg) ³	1	0.599	ND – 1.1	ND – 3.1
Nickel (Ni)	6	3.8 – 8.8	ND – 540	ND – 730
Selenium (Se)	6	0.39 – 4.2	ND – 9.0	ND – 74.3
Sulfur (S) ³	8	1,070 – 4,500	ND – 8,700	740 – 61,300
Chlorine (Cl) ³	3	1,962 – 2,987	ND – 5,400	ND – 9,080
Fluorine (F)	--	--	ND – 300	ND – 178
Nitrogen (N) ³	1	8,400	200-39,500	13,600 – 54,000

¹Paper fluff data based on information provided by SMI on September 26, 2012.

²Data for wood/biomass materials and coal taken from EPA document *Contaminant Concentrations in Traditional Fuels: Tables for Comparison*, November 29, 2011, available at www.epa.gov/epawaste/nonhaz/define/index.htm. EPA notes that the values listed in that document may be revised in the future based on the availability of new or additional data. Any future revisions to the values will not impact the conclusions made in this letter; the values are based upon the data available at the time EPA responds to a request.

³Test data provided indicates a moisture content of approximately 5 to 7 percent. At these levels, the dry-basis contaminant levels would still be well within the range for wood and biomass materials, as well as coal.