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40 CFR Part 241
Identification of Non-Hazardous Secondary Materials That Are Solid Waste; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 241

[EPA–HQ–RCRA–2008–0329; FRL–9273–1]

RIN 2050–AG44

Identification of Non-Hazardous Secondary Materials That Are Solid Waste

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA or the Agency) is publishing a final rule that identifies which non-hazardous secondary materials, when used as fuels or ingredients in combustion units, are "solid wastes" under the Resource Conservation and Recovery Act (RCRA). This RCRA solid waste definition will determine whether a combustion unit is required to meet the emissions standards for solid waste incineration units issued under section 129 of the Clean Air Act (CAA) or the emissions standards for commercial, industrial, and institutional boilers issued under section 112 of the CAA. In this action, EPA is also finalizing a definition of traditional fuels.

DATES: *This final rule is effective on* May 20, 2011.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–RCRA–2008–0329. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* confidential business information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the RCRA Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the RCRA Docket is (202) 566–0270.

FOR FURTHER INFORMATION CONTACT: George Faison, Program Implementation and Information Division, Office of Resource Conservation and Recovery, 5303P, Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, NW., Washington, DC 20460–0002; telephone number: 703–305–7652; fax number: 703–308–0509; e-mail address: *faison.george@epa.gov.*

SUPPLEMENTARY INFORMATION:

A. Does this action apply to me?

Categories and entities potentially affected by this action include:

Generators		Users	
Major generator category	NAICS*	Major boiler type and primary industry category	NAICS*
		Industrial Boilers:	
Crop Production	111	Food Manufacturing	311, 312,
Cattle Ranching and Farming	1121	Pulp and Paper Mills	3221
Hog and Pig Farming	1122	Petroleum Refining	32411
Poultry and Egg Production	1123	Chemical Manufacturing	325
Sheep and Goat Farming	1124	Primary Metal Manufacturing	331
Horses and Other Equine Production	112920	Fabricated Metal Manufacturing	332
Logging	113310	Other Manufacturing	313, 339, 321, 333, 336, 511, 326, 316, 327
Support Activities for Crop Production	11511		
Bituminous Coal and Lignite Surface Mining.	212111	*Commercial Boilers:*	
Bituminous Coal Underground Mining	212112	Retail	442–454
Anthracite Mining	212113	Warehouse	493
Fossil Fuel Electric Power Generation	221112	Education	611
Sewage Treatment Facilities	221320	Health Care Facilities	621
Construction of Buildings	236	Social Assistance	624
Site Preparation Contractors	238910	Lodging, Restaurant	721, 722
Beverage and Tobacco Product Manufacturing.	312	Office	813, 541, 921
Sawmills and Wood Preservation	32111	Other	922140, others
Veneer, Plywood, and Engineered Wood Product Manufacturing.	32121		
Engineered Wood Member Manufacturing.	321213	*Common Non-Manufacturing Boilers:*	
Pulp, Paper, and Paperboard Mills	3221	Agriculture (crop & livestock production)	111, 112, 115
Solvents Made in Petroleum Refineries	324110	All Mining	212
Solvent Dyes Manufacturing	325132	Construction	236
Plastic Manufacturers	325211		
All Other Miscellaneous Chemical Product and Preparation Manufacturing.	325998	*Other Boilers:*	
Packaging	32611	Electric Utility Boilers	2211
Other Rubber Product Manufacturing	32629	Non-Hazardous Waste Burning Cement Kilns.	327310

Generators		Users	
Major generator category	NAICS*	Major boiler type and primary industry category	NAICS*
Glass and Glass Product Manufacturing	3272	.....	
Cement Manufacturing	327310	.....	
Iron and Steel Mills	331111	.....	
Electrometallurgical Ferroalloy Product Manufacturing.	331112	.....	
Metal-Casting Industry	331522	.....	
Recyclable Material Wholesalers	423930	.....	
Landscaping Services	561730	.....	
Solid Waste Collection and Solid Waste Landfill.	562111, 562212	.....	
Automotive Repair and Replacement Shops.	811111	.....	

* NAICS—North American Industrial Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers, including lists of examples of the types of entities likely to be impacted by this action. Other types of entities not listed could also be affected. To determine whether your facility, company, business, organization, etc., is affected by this action, you should examine the applicability criteria in this rule. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding section: **FOR FURTHER INFORMATION CONTACT**.

B. Why is EPA taking this action?

Clean Air Act (CAA) section 129 states that the term "solid waste" shall have the meaning "established by the Administrator pursuant to [RCRA]." The purpose of this final rule is to provide a definition of "solid waste" in order to develop emission standards under sections 112 and 129 of the CAA. In particular, this rule codifies requirements and procedures that identify whether the definition of "solid waste" applies to non-hazardous secondary materials burned as fuels or used as ingredients in combustion units. In related actions in this **Federal Register**, EPA is concurrently finalizing air emission requirements under section 112 of the CAA for industrial, commercial, and institutional boilers and process heaters, as well as air emission requirements under section 129 of the CAA for commercial and industrial solid waste incineration units.

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D. Non-Hazardous Secondary Materials That Have Not Been Discarded: Resinated Wood Residuals
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I. National Technology Transfer Advancement Act
J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations
K. Congressional Review Act

I. Statutory Authority

The U.S. Environmental Protection Agency (EPA or the Agency) is promulgating these regulations under the authority of sections 2002(a)(1) and 1004(27) of the Resource Conservation and Recovery Act (RCRA), as amended, 42 U.S.C. 6912(a)(1) and 6903(27). Section 129(a)(1)(D) of the Clean Air Act (CAA) directs EPA to establish standards for Commercial and Industrial Solid Waste Incinerators (CISWI), which burn solid waste (section 129(g)(6) of the CAA, 42 U.S.C. 7429). Section 129(g)(6) provides that the term "solid waste" is to be established by EPA under RCRA. Section 2002(a)(1) of RCRA authorizes the Agency to promulgate regulations as are necessary to carry out its functions under the Act. The statutory definition of "solid waste" is provided in RCRA section 1004(27).

II. List of Abbreviations and Acronyms

AASHTO American Association of State Highway and Transportation Officials
ANPRM Advanced Notice of Proposed Rulemaking
ASME American Society of Mechanical Engineers
ASTM American Society for Testing and Materials
Btu British Thermal Unit
CAA Clean Air Act
CAFO Concentrated Animal Feeding Operations
C&D Construction and Demolition
CBO Carbon Burn-Out Unit
CCA Chromated Copper Arsenate
CCR Coal Combustion Residuals
CFB Circulating Fluidized Bed
CFR Code of Federal Regulations
CISWI Commercial and Industrial Solid Waste Incinerator
CKD Cement Kiln Dust
CWA Clean Water Act
DSE Domestic Sewage Exemption
DSW Definition of Solid Waste Rule (2008)
EG Emission Guidelines
EGU Electric Utility Steam Generating Unit
EPA U.S. Environmental Protection Agency
GACT Generally Available Control Technology
GHG Greenhouse Gas
HAP Hazardous Air Pollutant
IWI Institutional Waste Incinerator
LCA Life Cycle Analysis
MACT Maximum Achievable Control Technology
MEK Methyl Ethyl Ketone
NESHAP National Emission Standards for Hazardous Air Pollutants
NHSM Non-Hazardous Secondary Material
NSPS New Source Performance Standards
OCC Old Corrugated Cardboard
OSWI Other Solid Waste Incinerator
PC Portland Cement
PIC Product of Incomplete Combustion
POTW Publicly Owned Treatment Works
PVC Polyvinyl Chloride
RCRA Resource Conservation and Recovery Act
RFS Renewable Fuel Standards
SSI Sewage Sludge Incinerator
SWDA Solid Waste Disposal Act
TCLP Toxicity Characteristic Leaching Procedure
TDF Tire-Derived Fuel
U.S.C. United States Code
USGS U.S. Geological Survey
VSMWC Very Small Municipal Waste Combustor

III. Introduction—Summary of Regulations Being Finalized

In today's rule, EPA is finalizing standards and procedures to be used to identify whether non-hazardous secondary materials are solid wastes when used as fuels or ingredients in combustion units. "Secondary material" is defined for the purposes of this rulemaking as any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, off-specification commercial chemical products or manufacturing chemical intermediates, post-industrial material, and scrap (codified in § 241.2).[1] "Non-hazardous secondary material" is a secondary material that, when discarded, would not be identified as a hazardous waste under 40 CFR part 261 (codified in § 241.2).

The Agency first solicited comments on how the RCRA definition of solid waste should apply to non-hazardous secondary materials used as fuels or ingredients in combustion units are solid wastes under RCRA in an Advanced Notice of Proposed Rulemaking (ANPRM), which was published in the **Federal Register** on January 2, 2009 (74 FR 41). We then published a proposed rule on June 4, 2010 (75 FR 31844).

Today's preamble is organized as follows: This section of the preamble (Section III) describes the principal regulatory provisions that are finalized in this rule; Section IV describes the background of this final rule, including a brief history of this rulemaking in conjunction with the relevant rules being finalized under sections 112 and 129 of the CAA; Section V contains a discussion of the major public comments received on the June 4, 2010 proposal, along with the Agency's response to these comments; Section VI explains the ways in which the June 2010 proposal differs from today's final rule; Section VII provides a detailed explanation of and rationale for the regulations being promulgated today; Section VIII describes the effect of today's final rule on other programs; Section IX discusses how today's rule affects the states' authority over solid waste pursuant to subtitle D of RCRA; Section X describes the costs and benefits associated with today's rule; and Section XI describes this rule's

[1] For the purpose of this definition, all commercial products from a manufacturing process would be considered "primary products." Processes that are designed for the production of multiple products could have more than one primary product.

compliance with the appropriate statutory and executive orders reviews.

Below is a summary of the principal elements of the regulations being promulgated today.

A. Identifying Which Non-Hazardous Secondary Materials Are or Are Not Solid Wastes When Used in a Combustion Unit

In our determination, most non-hazardous secondary materials burned in combustion units are defined as solid wastes under RCRA. However, this rule provides exceptions to that determination. The following non-hazardous secondary materials are not solid waste when used legitimately as a fuel or an ingredient in a combustion unit:

(1) Those that remain within the control of the generator and used as fuel (discussed further below—codified in § 241.3(b)(1));

(2) Scrap tires managed by established tire collection programs and used as fuel (discussed further below—codified in § 241.3(b)(2)(i));

(3) Resinated wood used as fuel (discussed further below—codified in § 241.3(b)(2)(ii));

(4) Those that are used as ingredients (discussed further below—codified in § 241.3(b)(3));

(5) Discards that have undergone processing to produce fuel or ingredient products (discussed further below—codified in § 241.3(b)(4)); or

(6) Those that are used as fuels for which a non-waste determination has been granted (discussed further below—codified in § 241.3(c)).

Materials are considered legitimate fuels or ingredients if they conform to the criteria codified in § 241.3(d), which this action refers to as "legitimacy criteria." These criteria are designed to ensure that the fuel or ingredient is not being "sham" recycled for the sole purpose of avoiding being considered a waste. The legitimacy criteria for non-hazardous secondary materials used as fuels and ingredients in combustion units are discussed below in the "Codification of the Legitimacy Criteria" section.

Materials designated as "traditional" fuels are not wastes when used in combustion units. We are finalizing a definition of traditional fuels (codified in § 241.2) that applies to this subpart. Traditional fuels means materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes, including: (1) Fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (*e.g.,* coal, oil and natural gas), their derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and (2) alternative fuels developed from virgin materials that can now be used as fuel products, including used oil which meets the specifications outlined in 40 CFR 279.11, currently mined coal refuse that previously had not been usable as coal, and clean cellulosic biomass. These fuels are not secondary materials or solid wastes unless discarded before they are used.

1. Within the Control of the Generator: Non-Hazardous Secondary Materials That Are Legitimately Used as Fuels Within the Control of the Generator Are Not Solid Waste When Used in Combustion Units

Except as otherwise provided, under this provision—40 CFR 241.3(b)(1)—EPA would consider non-hazardous secondary materials used as fuels in combustion units which remain within the control of the generator and that meet the specified legitimacy criteria (as codified in § 241.3(d)(1)) as not being a solid waste. The legitimacy criteria for non-hazardous secondary materials used as fuels in combustion units are discussed below in the "Codification of the Legitimacy Criteria" section. Non-hazardous secondary materials would be considered "within the control of the generator" under the following circumstances:

(1) They are generated and burned in combustion units at the generating facility (as codified in § 241.2); or

(2) They are generated and burned in combustion units at different facilities, if the facility combusting the non-hazardous secondary material is controlled (as codified in § 241.2) by the generator; or

(3) Both the generating facility and the facility combusting the material are under control of the same person (as codified in § 241.2).

2. Scrap Tires: Scrap Tires That Are Legitimately Used as a Fuel That Are Removed From Vehicles and Managed Under the Oversight of Established Tire Collection Programs Are Not Solid Waste When Used in Combustion Units

Under this provision—40 CFR 241.3(b)(2)(i)—EPA would consider scrap tires used as a fuel in a combustion unit that are removed from vehicles and collected and managed under the oversight of established tire collection programs as not being a solid waste, provided these materials satisfy the specified legitimacy criteria (as codified in § 241.3(d)(1)). This provision would not differentiate between scrap tires that are used as a fuel within the control of the generator from those that are not. For the purposes of this rule, the term "vehicle" is defined as any mechanical means of conveyance that employs the use of tires. "Established tire collection program" (as codified in § 241.2) means a comprehensive collection system that ensures scrap tires are not discarded and are handled as valuable commodities in accordance with § 241.3(d)(1)(i) from the point of removal from the vehicle through arrival at the combustion facility. The legitimacy criteria for non-hazardous secondary materials used as fuels in combustion units are discussed below in the "Codification of the Legitimacy Criteria" section.

3. Resinated Wood: Resinated Wood That Is Legitimately Used as a Fuel Is Not a Solid Waste When Used in Combustion Units

Under this provision—40 CFR 241.3(b)(2)(ii)—EPA would consider resinated wood used as a fuel in a combustion unit as not being a solid waste, provided these materials satisfy the specified legitimacy criteria (as codified in § 241.3(d)(1)). This provision would not differentiate between resinated wood that is used as a fuel within the control of the generator from those that are not. Resinated wood (as codified in § 241.2) means wood products (containing resin adhesives) derived from primary and secondary wood products manufacturing and comprised of such items as board trim, sander dust, and panel trim. The legitimacy criteria for non-hazardous secondary materials used as fuels in combustion units is discussed below in the "Codification of the Legitimacy Criteria" section.

4. Ingredients: Non-Hazardous Secondary Materials That Are Legitimately Used as Ingredients Are Not Solid Waste When Used in Combustion Units

Under this provision—40 CFR 241.3(b)(3)—EPA would consider non-hazardous secondary materials used as ingredients in combustion units and that meet the specified legitimacy criteria as not being solid waste. This provision does not differentiate between ingredients that are used within the control of the generator from those that are not. Ingredient (as codified in § 241.2) means a non-hazardous secondary material that is a component in a compound, process or product. A discussion of the legitimacy criteria (as

codified in § 241.3(d)(2)) for non-hazardous secondary materials used as ingredients in combustion units is included below in the "Codification of the Legitimacy Criteria" section.

5. Discards: Discarded Non-Hazardous Secondary Materials That Have Undergone Processing To Produce Legitimate Fuel or Ingredient Products Are Not Solid Waste When Used in Combustion Units

Under this provision—40 CFR 241.3(b)(4)—EPA would consider discarded non-hazardous secondary materials that have been sufficiently processed into fuel or ingredient products and used in a combustion unit as not being a solid waste, provided these materials satisfy the specified legitimacy criteria (as codified in § 241.3(d)(1) for fuels and (d)(2) for ingredients). Processing (as codified in § 241.2) means any operations that transform the discarded non-hazardous secondary material into a legitimate fuel or ingredient product, and includes, but is not limited to, operations that remove or destroy contaminants; operations that significantly improve the fuel characteristics of the material, *e.g.,* sizing or drying the material in combination with other operations; operations that chemically improve the as-fired energy content; and operations that 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 this definition. Prior to any processing, the discarded non-hazardous secondary material would be considered a solid waste and would be subject to the appropriate federal, state, and local laws and regulations.

6. Non-Waste Determination: Non-Hazardous Secondary Materials Used as a Fuel for Which a Non-Waste Determination Has Been Granted Are Not Solid Waste When Used in Combustion Units

Under this provision—40 CFR 241.3(c)—EPA would consider non-hazardous secondary materials used as fuels that have been transferred to a third party, but have been granted a non-waste determination from EPA, to not be a solid waste when used in combustion units.[2] This provision establishes a non-waste determination case-by-case process that provides persons with an administrative process for receiving a formal determination from EPA that their non-hazardous secondary material fuel that has not been managed within the control of the generator (as codified in § 241.2), has not been discarded, and is indistinguishable in all relevant aspects from a fuel product, is not a solid waste when used as a fuel in combustion units. Any petition that is submitted to EPA requesting a non-waste determination must demonstrate that the non-hazardous secondary material has not been discarded in the first instance, satisfies the specified legitimacy criteria for fuels (as codified in § 241.3(d)(1)), and satisfies the following five criteria: (1) Whether market participants treat the non-hazardous secondary material as a fuel rather than a solid waste; (2) whether the chemical and physical identity of the non-hazardous secondary material is comparable to commercial fuels; (3) whether the non-hazardous secondary material will be used in a reasonable time frame given the state of the market; (4) whether the constituents in the non-hazardous secondary material are released to the air, water or land from the point of generation to the point just prior to combustion of the non-hazardous secondary material at levels comparable to what would otherwise be released from traditional fuels; and (5) other relevant factors. These criteria are codified in § 241.3(c)(1).

The process for receiving a non-waste determination is codified in § 241.3(c)(2). In order to obtain a non-waste determination, a facility that is interested in using non-hazardous secondary materials as fuel in combustion units that would otherwise be regulated as a solid waste must apply to the Regional Administrator per the procedures described in § 241.3(c). The application must address the relevant criteria discussed above. The Regional Administrator will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will also be provided by newspaper advertisement or radio broadcast in the locality where the combustion unit is located. The Regional Administrator will accept comments on the tentative decision for at least 30 days, and may also hold a public hearing upon request or at his discretion. The Regional Administrator will issue a final decision after receipt of comments and after the hearing (if any).

B. Codification of the Legitimacy Criteria

This provision—40 CFR 241.3(d)—codifies the legitimacy criteria for fuels and ingredients. In order to be considered a non-waste fuel, non-hazardous secondary materials used as a fuel in combustion units must meet the legitimacy criteria codified in § 241.3(d)(1). To meet the fuel legitimacy criteria, the non-hazardous secondary material must be managed as a valuable commodity, have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy, and contain contaminants at levels comparable to or lower than those in traditional fuels which the combustion unit is designed to burn.

In order to be considered a non-waste ingredient, non-hazardous secondary materials used as an ingredient in combustion units must meet the legitimacy criteria codified in § 241.3(d)(2). To meet the ingredient legitimacy criteria, the non-hazardous secondary material must be managed as a valuable commodity, provide a useful contribution to the production or manufacturing process, be used to produce a valuable product or intermediate, and must result in products that contain contaminants at levels that are comparable to or lower than those found in traditional products that are manufactured without the non-hazardous secondary material.

Non-hazardous secondary materials that are discarded in the first instance (abandoned, disposed of, or thrown away) would still be a solid waste even if they satisfy the legitimacy criteria, unless they were processed into legitimate non-waste fuel or ingredient products or, in the case of fuels, have received a non-waste determination from EPA.

IV. Background

The discussion below is a summary of what was included in the ANPRM and in the preamble to the proposed rule. However, because it continues to be relevant to several of the key concepts being finalized today, it is provided here as background for the benefit of the reader. (For a more detailed discussion of what was included in the ANPRM and the proposed rule, we refer the reader to the ANPRM (74 FR 41, January 2, 2009) and the proposed rule (75 FR 31843, June 4, 2010).) The records and documents comprising the ANPRM and proposed rule are included in the administrative record for this rulemaking. To the extent there are any

[2] As noted previously, scrap tires and resinated wood would not be considered a solid waste even if transferred to a third party provided these secondary materials meet the legitimacy criteria. Also, as indicated in Section V.A.1, the Agency will in the future solicit comment on other non-hazardous secondary materials in addition to scrap tires and resinated wood that can be used as a non-waste fuel both by the generator and outside the control of the generator.

inconsistencies or differences between the ANPRM, the proposed rule, and this final rule, the statements in this final rule govern.

A. What is the history of CISWI, CISWI definitions, and boiler rulemakings?

CAA section 112 requires EPA to promulgate regulations to control emissions of 187 hazardous air pollutants (HAP) from sources in source categories listed by EPA under section 112(c), while CAA section 129 CISWI standards include numeric emission limitations for the nine pollutants, plus opacity (as appropriate), that are specified in CAA section 129(a)(4).[3] Pursuant to CAA section 129, EPA promulgated a final rule setting forth performance emissions standards for Commercial and Industrial Solid Waste Incineration Units (referred to as the "CISWI Rule"). 65 FR 75338 (December 1, 2000). Under CAA section 129, the term "solid waste incineration unit" is defined, in pertinent part, to mean "a distinct operating unit of any facility which combusts any solid waste material from commercial or industrial establishments * * *" 42 U.S.C. § 7429(g)(1). The CAA also specifically excludes the following types of units from the definition of "solid waste incineration unit": (1) Incinerators or other units required to have a permit under section 3005 of RCRA; (2) material recovery facilities (including primary and secondary smelters) which combust waste for the primary purpose of recovering metals; (3) qualifying small power production facilities, as defined in section 3(17)(C) of the Federal Power Act, or qualifying cogeneration facilities, as defined in section 3(18)(B) of the Federal Power Act, which burn homogeneous waste (such as units which burn tires or used oil, but not including refuse-derived fuel) for the production of electric energy or in the case of qualifying cogeneration facilities which burn homogeneous waste for the production of electric energy or steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating or cooling purposes, or (4) air curtain incinerators, provided that such incinerators only burn wood wastes, yard wastes and clean lumber and that such air curtain incinerators comply with the opacity limitations to be established by the Administrator by rule. *Id.* CAA section 129 further states that the term "solid waste" shall have the meaning "established by the Administrator pursuant to the Solid Waste Disposal Act." *Id* at 7429(g)(6).[4]

The CISWI Rule established emission limitations for new and existing CISWI units for the following pollutants: cadmium, carbon monoxide, dioxins/furans, hydrogen chloride, lead, mercury, oxides of nitrogen (NO_X), particulate matter (PM), sulfur dioxide (SO_2), and opacity. In addition, the rule established certain monitoring and operator training and certification requirements.

The CISWI Rule was challenged in *Sierra Club* v. *EPA* (No. 01–1048) (DC Cir.). However, after promulgation of the CISWI Rule, the DC Circuit issued its decision in a challenge to EPA's MACT standards for the cement kiln industry. *See Cement Kiln Recycling Coalition* v. *EPA,* 255 F. 3d 855 (DC Cir. 2001) ("Cement Kiln"). As a result, EPA requested, and was granted, a voluntary remand without vacatur, of the CISWI rule, in order to address the concerns related to the issues that were raised by the court in *Cement Kiln.* Because the CISWI rule was not vacated, its requirements remain in effect. *See Sierra Club* v. *EPA,* 374 F. Supp. 2d 30, 32–33 (D.DC 2005).

On September 22, 2005, EPA issued revised definitions of "solid waste," "commercial or industrial solid waste incineration unit," and "commercial or industrial waste" (the "CISWI Definitions Rule"). *See* 70 FR 55568. In the CISWI Definitions Rule, EPA defined "commercial and industrial solid waste" to exclude solid waste that is combusted at a facility in a combustion unit whose design provides for energy recovery or which operates with energy recovery. Therefore, a unit combusting solid waste with energy recovery was not considered a CISWI unit.

The CISWI Definitions Rule was vacated by the DC Circuit in *NRDC* v. *EPA* (489 F.3d 1250 (DC Cir. 2007)) ("NRDC"). The court stated that the statute unambiguously requires any unit that combusts "any solid waste material at all"—regardless of whether the material is being burned for energy recovery—to be regulated as a "solid waste incineration unit." *Id.* at 1260. In the same decision, the court also vacated and remanded EPA's 2005 emissions standards for commercial, industrial, and institutional major source boilers and process heaters (the Boiler MACT Rule), concluding that "the universe of boilers subject to its [section 112] standards will be far smaller and more homogenous after all CISWI units, as the statute unambiguously defines them, are removed from its coverage." 489 F.3d at 1260.

In response to the D.C. Circuit's decision, EPA proposed revised emissions standards for boilers, process heaters, and CISWI units. Specifically, on June 4, 2010, the Agency proposed new National Emissions Standards for Area Source Industrial, Commercial, and Institutional Boilers (75 FR 31896), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (75 FR 32006), and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (75 FR 31938). These proposed emissions standards were established based on the criteria proposed in the Identification of Non-Hazardous Secondary Materials Rule that are Solid Waste proposed rule (75 FR 31844).

B. Why is the Court's decision affecting the CAA rules relevant to RCRA?

In responding to the court's vacatur and remand of the CISWI Definitions Rule and the Boiler MACT Rule, EPA is establishing, under RCRA, which non-hazardous secondary materials[5] are "solid waste." This is necessary because, under the court's decision, any unit combusting any "solid waste" at all must be regulated as a "solid waste incineration unit," regardless of the function of the combustion device. If a non-hazardous secondary material (also referred to as a "secondary material" in this rulemaking) is not a "solid waste" under RCRA, then a unit combusting that material must be regulated pursuant to CAA section 112 if it is a source of HAP. Alternatively, if such secondary material is classified as a "solid waste" under RCRA, then a unit combusting that material must be regulated under

[3] CAA section 129(a)(4) requires that specific numeric emission limitations must be established for the following nine pollutants, plus opacity (as appropriate): cadmium, carbon monoxide, dioxins/furans, hydrogen chloride, lead, mercury, NOx, particulate matter (total and fine), and SO_2. Of these nine pollutants, cadmium, dioxins/furans, hydrogen chloride, lead, and mercury are also regulated HAP pursuant to CAA section 112.

[4] The Solid Waste Disposal Act, as amended, is commonly referred to the Resource Conservation and Recovery Act or RCRA.

[5] A secondary material is any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, post-industrial material, and scrap. Many types of secondary materials have Btu or material value, and can be reclaimed or reused in industrial processes. For purposes of this notice, the term secondary materials include only non-hazardous secondary materials. *See* also *American Mining Congress* v. *EPA,* 824 F.2d 1177 (DC Cir. 1987) in which the U.S. Court of Appeals for the District of Columbia Circuit discussed secondary materials.

CAA section 129, unless it is within the scope of one of the exclusions from the definition of "solid waste incineration unit" in section 129(g)(1) of the CAA.

In addition to this final rule, EPA is concurrently finalizing air emission requirements under CAA section 112 for industrial, commercial, and institutional boilers and process heaters, as well as air emission requirements under CAA section 129 for CISWI units. For a discussion of what requirements are being promulgated today pursuant to the relevant CAA rules, please see the respective final actions included in today's **Federal Register**. These include: National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers (EPA–HQ–OAR–2006–0790); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (EPA–HQ–OAR–2002–0058); and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units (EPA–HQ–OAR–2003–0119).

C. What is the history of the definition of solid waste?

1. Statutory Definition of Solid Waste

RCRA defines "solid waste" as "* * * any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and *other discarded material* * * * resulting from industrial, commercial, mining, and agricultural operations, and from community activities * * *" (RCRA section 1004 (27) (emphasis added)). The key concept is that of "discard" and, in fact, this definition turns on the meaning of the phrase, "other discarded material," since this term encompasses all other examples provided in the definition.

2. Solid Waste Program, RCRA Subtitle D

The regulations that pertain to non-hazardous solid waste (RCRA subtitle D) contain five definitions of the term "solid waste." (*See* 40 CFR 240.101(y); 40 CFR 243.101(y); 40 CFR 246.101(bb); 40 CFR 257.2; and 40 CFR 258.2.) These regulatory definitions largely mirror the statutory definition of solid waste with some clarifications applicable to the specific regulatory section. The RCRA statutory definition of solid waste has also been repeated in the CAA emission guidelines for other solid waste incineration units (*e.g., see* 40 CFR 60.2977 and 60.3078).

Under RCRA subtitle D, EPA has promulgated criteria for municipal solid waste landfills and approves state solid waste landfill permitting programs; however, it is the states that fully implement these programs. EPA does not have the same role in these programs as it does in the hazardous waste programs established under RCRA subtitle C. As a result, EPA has not promulgated detailed regulations defining "solid waste" for purposes of the subtitle D (non-hazardous) programs. States have promulgated their own laws and regulations for what constitutes solid waste and have interpreted those laws and regulations to determine what types of non-hazardous secondary materials management activities constitute discard (and therefore involve the management of a solid waste).

The Agency is now determining at the national level the requirements and procedures for identifying non-hazardous secondary materials that are solid waste under RCRA subtitle D so that we can establish appropriate emissions standards under CAA sections 112 and 129. We emphasize that we are articulating a narrow definition in this final rule and are not making solid waste determinations that cover other possible secondary material end uses.

3. Hazardous Waste Program, RCRA Subtitle C

Under RCRA subtitle C, EPA is responsible for designing and implementing a cradle to grave disposal system for hazardous wastes. The RCRA subtitle C hazardous waste federal program has a long regulatory history in defining "solid waste" for purposes of the hazardous waste regulations.[6] However, the 40 CFR 261.2 regulatory definition of solid waste explicitly applies only to wastes that also are hazardous for purposes of the subtitle C regulations (*see* 40 CFR 261.1(b)(1)). EPA emphasizes that it is not reopening any of its subtitle C regulations in today's final rule.

Under subtitle C of RCRA, EPA promulgated a final rule on October 30, 2008, which revised the requirements regulating hazardous secondary materials when they are recycled via reclamation (The 2008 Definition of Solid Waste (DSW) Final Rule).[7] On January 29, 2009, the Sierra Club filed a lawsuit challenging the rule in the U.S. Court of Appeals for the District of Columbia Circuit (DC Circuit), Docket No. 09–1041. In addition, Sierra Club submitted to the Administrator of EPA an administrative petition under RCRA section 7004(a), 42 U.S.C. 6974(a). The administrative petition requested that the Agency repeal the October 2008 revisions to the 2008 DSW Final Rule and stay the implementation of the rule.[8] EPA reviewed the administrative petition, held a public meeting[9] and requested written comments on the petition. As a result of settlement in the litigation, Sierra Club has withdrawn its administrative petition, but EPA has agreed to issue a proposal to consider the issues raised in the petition. As a result, EPA plans to develop a proposed rule asking for comment on potential revisions to the October 2008 DSW Final Rule. Under the settlement agreement with the Sierra Club in the DC Circuit litigation, EPA has committed to a proposed rule on or before June 30, 2011 and to take final action on the proposed rulemaking on or before December 31, 2012.[10] The DC Circuit approved the settlement agreement by order dated January 11, 2011. This subsequent proposed rule will apply to the regulation of reclamation of hazardous secondary materials under subtitle C of RCRA and is not affecting today's final rule.

4. Case Law on the Definition of Solid Waste Under RCRA Subtitle C

Partly because the interpretation of what constitutes a solid waste is the

[6] For example, *see* 45 FR 33066 (May 19, 1980; solid waste defined; interim final); 48 FR 14472 (April 4, 1983; Amendments to the Definition of Solid Waste; proposed rule); 50 FR 614 (January 4, 1985; Amendments to the Definition of Solid Waste; final rule); 53 FR 519 (January 8, 1988; Amendments to the Definition of Solid Waste, excludes in-process recycled secondary materials from petroleum industry; proposed rule); 59 FR 38536 (July 28, 1994; Amendments to the Definition of Solid Waste, excludes in-process recycled secondary materials from petroleum industry; final rule); 67 FR 11251 (March 13, 2002; Response to court Vacaturs; final rule); 68 FR 61557 (October 28, 2003; Revisions to the Definition of Solid Waste; proposed rule); 72 FR 14172 (March 26, 2007; Revisions to the Definition of Solid Waste; supplemental proposed rule); 73 FR 64668 (October 30, 2008; Revisions to the Definition of Solid Waste; final rule).

[7] *See* "Revisions to the Definition of Solid Waste," Final Rule, October 30, 2008, at 73 FR 64667.

[8] A copy of Sierra Club's Petition to the U.S. EPA to Reconsider and Repeal the Definition of Solid Waste Final Rule (DSW Rule) can be found in the docket for the 2008 DSW Final Rule. *See* Docket ID: EPA–HQ–RCRA–2009–0315; Document ID No. EPA–HQ–RCRA–2009–0315–0002.

[9] The public meeting was announced in a May 27, 2009 **Federal Register** notice, which also described possible actions and optional paths forward. *See* 74 FR 25200. The transcript of the public hearing can also be found in the docket for the DSW Final Rule. *See* Docket ID: EPA–HQ–RCRA–2009–0315, Document ID No. EPA–HQ–RCRA–2009–0315–0024.

[10] A copy of the settlement agreement, entitled "EPA's and Sierra Club's Lodging of Settlement and Motion to Sever and Hold Case in Abeyance," can be found at *http://www.epa.gov/osw/hazard/dsw/sierraclubdsw.pdf.*

foundation of the hazardous waste regulatory program (*i.e.,* secondary material must qualify as "solid waste" before it can be classified as "hazardous waste"), there have been a number of court opinions discussing the meaning of "solid waste" in litigation challenges to rules issued under RCRA subtitle C. From these cases, a few key principles emerge which guide our thinking on the definition of solid waste in today's final rule.

First, the ordinary plain-English meaning of the term, "discard," controls. *See American Mining Congress* v. *EPA,* 824 F.2d 1177 (DC Cir. 1987) ("AMC I"). The ordinary plain-English meaning of the term discarded means "disposed of," "thrown away," or "abandoned." The court specifically rejected a more expansive meaning for discard that would encompass any materials "no longer useful in their original capacity" even if they were not destined for disposal. 824 F.2d at 1185–87. The Court further held that the term "discarded materials" could not include materials "* * * destined for beneficial reuse or recycling in a continuous process by the generating industry itself" (824 F.2d at 1190).

Subsequent to AMC I, the court discussed the meaning of discard in particular cases. In *American Petroleum Institute* v. *EPA,* 906 F.2d 729 (DC Cir. 1990) ("API I"), the court rejected EPA's decision not to regulate recycled air pollution control equipment slag based on an Agency determination that waste "ceases to be a 'solid waste' when it arrives at a metals reclamation facility because at that point it is no longer 'discarded material.' " 906 F.2d at 740. Instead, the court stated that these materials are part of a mandatory waste treatment plan for hazardous wastes prescribed by EPA and continued to be wastes even if recycled. 906 F.2d at 741. Further, "once material qualifies as 'solid waste,' [footnote omitted] something derived from it retains that designation even if it might be reclaimed and reused at some future time." *Association of Battery Recyclers* v. *EPA,* ("ABR") 208 F.3d 1047, 1056 (DC Cir. 2000) (referring to API I and the later decided case, *American Mining Congress* v. *EPA,* ("AMC II") 907 F.2d 1179 (DC Cir. 1990)).

One of the more important holdings of a number of court decisions is that simply because a hazardous waste has, or may have, value does not mean the material loses its status as a solid waste. *See* API I, 906 F.2d at 741 n.16; *United States* v. *ILCO Inc.,* 996 F.2d 1126, 1131–32 (11th Cir. 1993) ("ILCO"); *Owen Steel* v. *Browner,* 37 F.3d 146, 150 (4th Cir. 1994) ("Owen Steel"). *ILCO* and *Owen Steel,* however, seem to recognize that legitimate products made from wastes are, themselves, products and not wastes.

The ABR case reiterated the concepts discussed in the previous cases of AMC I and II and API I. The Court held that it had already resolved the issue presented in *ABR* in its opinion in *AMC I,* where it found that "* * * Congress unambiguously expressed its intent that 'solid waste' (and therefore EPA's regulatory authority) be limited to materials that are 'discarded' by virtue of being disposed of, abandoned, or thrown away" (208 F.2d at 1051). It repeated that materials that are reused within an ongoing industrial process are neither disposed of nor abandoned (208 F.3d at 1051–52). It explained that the intervening *API I* and *AMC II* decisions had not narrowed the holding in *AMC I* (208 F.3d at 1054–1056).

Notably, the Court did not hold that storage before reclamation automatically makes materials "discarded." Rather, it held that "* * * at least some of the secondary material EPA seeks to regulate as solid waste (in the mineral processing rule) is destined for reuse as part of a continuous industrial process and thus is not abandoned or thrown away" (208 F.3d at 1056). In this regard, the court criticized all parties in the case—industry, as well as EPA—because they "presented this aspect of the case in broad abstraction, providing little detail about the many processes throughout the industry that generate residual material of the sort EPA is attempting to regulate. * * *" (*Ibid*).

American Petroleum Institute v. *EPA,* 216 F.3d 50, 55 (DC Cir. 2000) ("API II"), decided shortly after *ABR* and considered by the court at the same time, provides further guidance for defining solid waste, but in the context of two specific waste streams in the petroleum refining industry. The court overturned EPA's determination that certain recycled oil-bearing wastewaters are wastes (216 F.3d at 55–58) and upheld conditions imposed by the Agency in excluding petrochemical recovered oil from the definition of solid waste (216 F.3d at 58–59). In the case of oil-bearing wastewaters, EPA had determined that the first phase of treatment, primary treatment, results in a waste being created. 216 F.3d at 55. The court overturned this decision and remanded it to EPA for a better explanation, neither accepting EPA's view nor the contrary industry view. The court noted that the ultimate determination that had to be made was whether primary treatment "is simply a step in the act of discarding [* * *][o]r is it the last step in a production process before discard?" 216 F.3d at 57. In particular, the court rejected EPA's argument that primary treatment was required by regulation, and instead stated that EPA needed to "set forth why it has concluded that the compliance motivation predominates over the reclamation motivation" and "why that conclusion, even if validly reached, compels the further conclusion that the wastewater has been discarded." 216 F.3d at 58.

The court also considered whether material is discarded in *Safe Food and Fertilizer* v. *EPA,* 350 F.3d 1263 (DC Cir. 2003) ("Safe Food"). In that case, among other things, the court rejected the argument that, as a matter of plain meaning, recycled material destined for immediate reuse within an ongoing industrial process is never considered "discarded," whereas material that is transferred to another firm or industry for subsequent recycling must always be solid wastes. 350 F.3d at 1268. Instead, the court evaluated "whether the agency's interpretation of * * * 'discarded' * * * is, reasonable and consistent with the statutory purpose. * * *" *Id.* Thus, EPA has the discretion to determine if material is not a solid waste, even if it is transferred between industries.

We also note that the Ninth Circuit has specifically found that non-hazardous secondary materials may, under certain circumstances, be burned and not constitute a solid waste under RCRA. *See Safe Air For Everyone* v. *Waynemeyer* ("Safe Air"), 373 F.3d 1035 (9th Cir., 2004). In this case, the Court found that Kentucky bluegrass stubble may be burned to return nutrients to the soil and not be a solid waste.

5. Concept of Legitimacy

Under RCRA subtitle C, some hazardous secondary materials that would otherwise be subject to regulation under RCRA's "cradle to grave" hazardous waste system are not considered solid wastes if they are "legitimately recycled" or legitimately reused as an ingredient or substitute for a commercial product. The principal reasoning behind this construct is that use/reuse or recycling of such secondary materials often closely resembles normal industrial production, rather than waste management. Although today's final rule does not address the Agency's hazardous waste regulations, EPA finds the concept of legitimacy to be an important one in determining when a secondary material (whether hazardous or non-hazardous) is genuinely recycled and not discarded under the guise of recycling.

However, since there can be considerable economic incentive to manage recyclable materials outside of the RCRA hazardous waste regulatory system, there is a clear potential for, and historical evidence of, some handlers claiming they are recycling, when in fact they are conducting waste treatment and/or disposal in the guise of recycling. EPA considers such "sham" recycling to be, in fact, discard and these secondary materials being sham recycled are solid wastes (or hazardous waste if the material is listed as, or exhibits a characteristic of, hazardous waste pursuant to 40 CFR part 261).

To guard against hazardous secondary materials being discarded in the guise of recycling, EPA has long articulated the need to distinguish between "legitimate" (*i.e.,* true) recycling or other use and "sham" (*i.e.,* fake) recycling; see the preamble to the 1985 hazardous waste regulations that established the definition of solid waste under RCRA subtitle C (50 FR 638; January 4, 1985). A similar discussion that addressed legitimacy as it pertains to burning hazardous secondary materials for energy recovery (considered a form of recycling under RCRA subtitle C) was presented in the January 9, 1988 proposed amendments to the definition of solid waste (53 FR 522).

Then on April 26, 1989, the Office of Solid Waste [11] issued a memorandum that consolidated the various preamble and other statements concerning legitimate recycling into a list of questions to be considered in evaluating the legitimacy of hazardous secondary materials recycling (OSWER directive 9441.1989(19)). This memorandum (known to many as the "Lowrance Memo," a copy of which is included in the Docket to today's rule) has been a primary source of information for the regulated community and for overseeing agencies in distinguishing between legitimate and sham recycling.

In the October 30, 2008 DSW Final Rule, EPA finalized several exclusions from the definition of solid waste for hazardous secondary materials being reclaimed and a non-waste determination process for persons to receive a formal determination that their hazardous secondary materials are not solid wastes when legitimately reclaimed. In that action, EPA codified in 40 CFR 260.43 the requirement that materials be legitimately recycled as a condition for the exclusion for hazardous secondary materials that are legitimately reclaimed under the control of the generator (40 CFR 261.2(a)(2)(ii) and 40 CFR 261.4(a)(23)) and as a condition of the exclusion for hazardous secondary materials that are transferred for the purpose of legitimate reclamation (40 CFR 261.4(a)(24) and 40 CFR 261.4(a)(25)). As part of that final rule, EPA also codified the legitimate recycling provision specifically as a requirement for the non-waste determination process (40 CFR 260.34).

As discussed above, the Agency has agreed to prepare a notice of proposed rulemaking, which will solicit comment regarding potential revisions to the 2008 DSW Final Rule. The definition of "legitimacy" is one of the issues that will be reconsidered in this subsequent proposed rule. This subsequent DSW proposed rule is, by necessity, in a different proceeding from the rule we are promulgating today. EPA cannot presuppose the results of the DSW rule, but still needs to issue a final rule dealing with legitimacy criteria in today's separate rule affecting non-hazardous secondary materials. The same concept—legitimacy—applies to both rules, but, at this point, EPA cannot reconcile the differences between the legitimacy criteria in each rule, if there are indeed any substantive differences. As a result, each rule will have its own definition of legitimate recycling. Although the Agency is revisiting the definition of legitimacy in the context of regulations promulgated pursuant to RCRA subtitle C, EPA continues to find the principle of "legitimacy" to be an important element in the recycling of both hazardous and non-hazardous secondary materials. That is, the concept of legitimate recycling is crucial to determining whether a hazardous or non-hazardous secondary material being recycled is truly being recycled or is, in fact, being discarded through sham recycling and thus, is a solid waste.

D. Summary of the ANPRM

In the ANPRM, the Agency considered various guiding principles, including the concept of discard, and if discarded, whether the secondary material has been processed to produce a non-waste fuel or ingredient product, and the concept of legitimacy,[12] in determining if secondary materials used in combustion units are solid wastes. Based on these guiding principles, the Agency identified a number of scenarios in evaluating the usage of secondary materials (*e.g.,* as fuels or ingredients) and whether these secondary materials should be considered solid wastes under RCRA when used in combustion devices, such that units burning these secondary materials would be subject to regulation under CAA section 129, rather than subject to CAA section 112. The ANPRM identified several cases where such secondary materials are not solid wastes when combusted, and thus, subject to CAA section 112. These scenarios were: (1) Traditional fuels, (2) non-hazardous secondary materials used as legitimate "alternative" fuels that have not been previously discarded, (3) non-hazardous secondary materials used as legitimate "alternative fuels" resulting from the processing of discarded secondary materials, (4) non-hazardous secondary materials used as legitimate ingredients, and (5) hazardous secondary materials that may be excluded from the definition of solid waste under RCRA subtitle C because they are more like commodities than wastes. All other cases where non-hazardous secondary materials are combusted would be considered "solid wastes" and subject to CAA section 129. Specifically:

- *Traditional Fuels:* EPA identified in the ANPRM fossil fuels (*e.g.,* coal, oil, and natural gas) and their derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas), as well as cellulosic biomass (*e.g.,* wood) as traditional fuels. Such traditional fuels have been used historically as fuels and have been managed as valuable products, such that they are considered unused products that have not been discarded and therefore, are not solid wastes. In addition, EPA also identified as traditional fuels wood collected from forest fire clearance activities and tree and uncontaminated wood found in hurricane debris if not discarded, if managed properly, and if burned as a legitimate fuel.
- *Non-Hazardous Secondary Materials Used as Legitimate "Alternative Fuels" That Have Not Been Previously Discarded:* The ANPRM indicated that, in addition to traditional fuels, there may be a category of non-

[11] On January 9, 2009, the Office of Solid Waste was renamed the Office of Resource Conservation and Recovery.

[12] The Agency discussed various criteria regarding the concept of legitimacy. Specifically, with respect to secondary materials used as a fuel, they should be handled as a valuable commodity, have a meaningful heating value, and contain contaminants that are not significantly higher in concentration than traditional fuel products. For those secondary materials used as an ingredient, they should be handled as a valuable commodity, the secondary material provides a useful contribution, the recycling results in a valuable product, and the product does not contain contaminants that are significantly higher in concentration than traditional products. If these criteria are not met, then sham recycling may be indicated and the secondary material may be a solid waste.

hazardous secondary materials that are legitimate alternative non-waste fuels, even though they may not have been traditionally used as fuels, because of changes in technology and in the energy market. Biomass was discussed as one large category of these alternatives fuels. EPA also discussed that scrap tires used as tire-derived fuel (TDF), which includes whole or shredded tires, that have not been previously discarded, could also be considered legitimate fuels that meet the legitimacy criteria (see Materials Characterization Paper on Scrap Tires in the docket for today's rule for a complete discussion on contaminants in TDF [EPA–HQ–RCRA–2008–0329]). We noted that in many cases, scrap tires are collected pursuant to state tire oversight programs (*e.g.,* used tires from tire dealerships that are sent to used tire processing facilities) are handled as valuable commodities, and, therefore, have not been abandoned, disposed of, or thrown away. We noted that because states typically regulate these programs under their state solid waste authorities, it was not the Agency's intent to undercut the state's authority in this area. We, therefore, requested comment on whether scrap tires collected pursuant to state tire oversight programs should be considered a non-waste fuel when combusted, and whether an EPA designation specifying that scrap tires, for example, managed pursuant to state collection programs would adversely impact a state's ability to manage such a program. Other non-traditional alternative fuels that EPA identified in the ANPRM included construction and demolition materials, scrap plastics, non-hazardous solvents and lubricants, and wastewater treatment sludge. The Agency solicited comment on this category.

• *Non-Hazardous Secondary Materials Used as Legitimate "Alternative Fuels" Resulting from the Processing of Discarded Secondary Materials:* The Agency also discussed the concept of processing of discarded non-hazardous secondary materials, such that legitimate fuel products may be extracted, processed, or reclaimed from a non-hazardous secondary material that has been discarded in the first instance and that such products would generally not be considered solid wastes. The principle behind this idea of processing a solid waste to produce a product is common to industrial processes. We noted in the ANPRM that until a legitimate product has been extracted, processed, or reclaimed, the non-hazardous secondary material has been discarded and is a solid waste. The ANPRM identified a number of non-hazardous materials that can be processed into a legitimate fuel, including biomass, coal fines, used oil, tires and landfill ash. Of course, the degree of processing necessarily will vary depending on the specific material, but the objective is the same—that is, the product from processing must be a legitimate fuel (*i.e.,* a material with a meaningful heating value, with contaminants that are not present at significantly higher concentrations than those of traditional fuel products, and managed as a valuable commodity).

• *Non-Hazardous Secondary Materials Used as Ingredients:* In addition to legitimate fuel products, the ANPRM also recognized that non-hazardous secondary materials that have not been discarded can be used as legitimate ingredients, and identified cement kiln dust (CKD), bottom ash, boiler slag, blast furnace slag, foundry sand, and secondary glass material as secondary materials that could be considered as legitimate ingredient products. If, on the other hand, such non-hazardous secondary materials have been discarded, the ANPRM identified such secondary materials as solid wastes, unless they are sufficiently processed into a legitimate product, as would be the case for discarded materials that could become products after being processed.

• *Hazardous Secondary Materials That May Be Excluded From the Definition of Solid Waste Under RCRA Subtitle C Because They Are More Like Commodities Than Wastes:* The final category identified in the ANPRM are hazardous secondary materials that are recycled and are specifically identified in the subtitle C hazardous waste rules as secondary materials that may be burned under certain conditions, but are not considered solid wastes, at least for purposes of the hazardous waste regulations. The ANPRM indicated that EPA was interested in extending this determination so that these materials also are not considered solid wastes under RCRA subtitle D. The Agency indicated that it believed that it had sufficient information in the rulemaking records for the various hazardous secondary materials—that is, black liquor and spent sulfuric acid,[13] and comparable fuels [14] to conclude that these subtitle C exclusions are broadly applicable to the definition of solid waste under subtitle D of RCRA when these secondary materials are used as a fuel or ingredient.

The ANPRM indicated that in all other cases where secondary materials were combusted, they would be considered "solid wastes" under RCRA subtitle D and thus, subject to CAA section 129. However, the Agency solicited comment on many aspects of these scenarios. In addition, the ANPRM also solicited comment on the following four issues: (1) Whether there are circumstances where discarded secondary materials—once recovered from the environment—that can be directly used as a legitimate fuel or ingredient product without processing should not be considered a solid waste; (2) whether there are other approaches for determining that non-hazardous secondary materials when used as a legitimate fuel is not a solid waste, and specifically took comment on an approach presented to EPA by industry representatives; [15] (3) whether to consider non-hazardous secondary materials that receive a state beneficial use determination for use as a fuel or ingredient in a combustion unit as not being a solid waste; and (4) how to address biofuels and byproducts from the production of biofuels—that is, whether such secondary materials should be considered a waste or not when combusted. (For a more detailed discussion of the ANPRM, *see* 74 FR 41, January 2, 2009.)

E. Summary of the Proposed Rule

The proposal maintained many of the concepts and provisions discussed in the ANPRM, including the concept of discard and the legitimacy criteria. However, the basic framework differed from the ANPRM based partly on the

[13] A determination was made that black liquor reclaimed in a pulping liquor recovery furnace and then reused in the pulping process and spent sulfuric acid used to produce virgin sulfuric acid were not solid wastes because these hazardous secondary materials were determined to be an integral part of the manufacturing process.

[14] A determination was made with respect to comparable fuels that certain hazardous secondary materials meet specific requirements to ensure that the materials toxic constituents and physical properties are similar to commercial (benchmark) fuels, and therefore, are products and not solid wastes.

[15] Industry representatives suggested that non-hazardous secondary materials should be evaluated, on a case-by-case basis, to identify which criteria have been satisfied and determine whether the material is legitimately handled as a fuel. Criteria identified by industry stakeholders include: Handling and storage of materials to minimize loss, use of materials within a reasonable period of time, material value (e.g., whether there is a market for the material as a fuel, internal or external to the company), material managed and treated as a commodity, and processing of material to enhance fuel value. *See* 74 FR 60 for the ANPRM's description of this approach. A copy of this industry-recommended approach entitled, "Outline of Regulatory Approach to Determine Materials Considered Fuels—not Solid Wastes—under RCRA," is also included in the docket for this rulemaking.

approach taken in the Definition of Solid Waste final rule promulgated on October 30, 2008 (*see* 73 FR 64668), based partly on the comments received on the ANPRM, as well as EPA's interpretation of whether these secondary materials were discarded. For example, comments received on the ANPRM from some states suggested that non-hazardous secondary material fuels that are transferred to a third party have entered what is traditionally considered to be the "waste stream" (and have been regulated by the states as wastes) and therefore should appropriately be considered wastes (*e.g.,* scrap tires, regardless of whether they were collected and managed pursuant to state programs or recovered from legacy waste piles).

As a result of comments like these and the Agency's re-examining our interpretation of the application of the discard concept to various non-hazardous secondary materials, the Agency altered its position in the proposed rule. Whereas the ANPRM had indicated that there may be a number of non-hazardous secondary materials that would not be considered discarded even if the original generator sent them to another entity outside of its control, the proposed rule assumed that non-hazardous secondary materials that are used as fuels and are managed outside the control of the generator are solid wastes, unless they were processed into non-waste fuel products or the Agency grants a non-waste determination (through a case-by-case petition process) that such non-hazardous secondary materials are not solid wastes because they have not been discarded and are indistinguishable in all relevant aspects from a fuel product.

In the proposal, EPA stated that when non-hazardous secondary material fuels are transferred to another party, the Agency generally believed that the material is discarded, since the generator has relinquished control of the secondary material and the entity receiving such materials may not have the same incentives to manage them as a useful product, which results in the materials being discarded. The Agency noted that this lack of incentive to manage as a useful product has been well-documented in the context of hazardous secondary material recycling as evidenced by the results of the environmental problems study performed in support of the 2008 DSW Final Rule and believed that this finding also held true for non-hazardous secondary materials that are used as fuel.

The proposed rule considered non-hazardous secondary materials used as ingredients that are used in combustion units to not be solid waste if they were not discarded in the first instance and if they met the legitimacy criteria, irrespective of whether they have been transferred to a third party. The Agency stated that it was not proposing to differentiate ingredients that are used within the control of the generator from those that are not since we believed the use of non-hazardous secondary materials as ingredients is considered to be more integral or akin to use in a commercial manufacturing process and thus, these non-hazardous secondary materials would not be considered discarded provided they satisfy the legitimacy criteria.

The proposed rule also included a petition process for receiving non-waste determinations, which was an additional area for comment in the ANPRM, but not included as an approach or scenario that was specifically presented. One of the differences between the ANPRM and the proposed rule was the classification of "clean" biomass and on-specification used oil as traditional fuels. In addition, the proposed rule did not address hazardous secondary materials excluded from the definition of solid waste under subtitle C of RCRA, concluding that it does not need to address this exclusion in this rulemaking since these secondary materials have already been excluded from the definition of solid waste as hazardous secondary materials and therefore, should not be addressed in the proposed rule, which deals with the definition of solid waste for non-hazardous secondary materials used in combustion units.

Finally, the proposed rule also revised the contaminant legitimacy criterion, stating that non-hazardous secondary materials used as fuels in combustion units must contain contaminants at levels "comparable to or less than" those in traditional fuels which the combustion unit is designed to burn, whereas the ANPRM had stated that non-hazardous secondary materials used as fuel could not contain contaminants that were "significantly higher" than traditional fuel products. In the proposed rule, EPA explained its rationale for making this change, stating that the requirement that non-hazardous secondary materials have contaminants at levels comparable to or less than traditional fuels would ensure that the burning of any secondary materials in combustion units will not result in discard of materials or their contaminants and thus, will not result in increased releases to the environment that could adversely impact the health and environment of the local community. A similar change was made to the contaminant legitimacy criterion for ingredients, with the comparison being made between products manufactured with and without non-hazardous secondary materials.

Thus, in the proposed rule, the Agency considered all non-hazardous secondary materials burned in combustion units as solid wastes *except* for the following circumstances: (1) Non-hazardous secondary materials used as a fuel that remains within the control of the generator (whether at the site of generation or another site within the generator's control) that meets the legitimacy criteria; (2) non-hazardous secondary materials used as an ingredient in a manufacturing process (whether by the generator or a third party) that meets the legitimacy criteria; (3) legitimate fuel or ingredient products that are produced from the processing of discarded non-hazardous secondary materials; [16] and (4) non-hazardous secondary materials handled outside the control of the generator, but has been determined through a case-by-case non-waste determination petition process to not have been discarded and to be indistinguishable in all relevant aspects from a fuel product.

F. Use of Secondary Materials

1. Introduction

The U.S. is pursuing an approach to sustainable materials management that employs the concepts of life cycle assessment [17] and full cost accounting.[18] Within the context of RCRA,[19] this final rule aims to facilitate materials management to the extent allowed by the statute, through the establishment of a regulatory framework that guides the beneficial use of various secondary materials, while ensuring that such use is protective of human health and the

[16] As we state throughout the preamble, prior to the production of the legitimate fuel or ingredient product, the non-hazardous secondary material is considered a solid waste and would be subject to the appropriate federal, state, and local requirements.

[17] The terms "life cycle analysis" and "life cycle assessment" are commonly used interchangeably. Life cycle assessment is a system-wide analytical technique for assessing the environmental (and sometimes economic) effects of a product, process, or activity across all life stages.

[18] Full cost accounting is an accounting system that incorporates economic, environmental, health, and social costs of a product, action, or decision.

[19] RCRA section 6901(c)—Materials: The Congress finds with respect to materials, that—(1) millions of tons of recoverable material which could be used are needlessly buried each year; (2) methods are available to separate usable materials from solid waste; and (3) the recovery and conservation of such materials can reduce the dependence of the United States on foreign resources and reduce the deficit in its balance of payments.

environment. EPA, in conjunction with the states, seeks to further facilitate this objective through research, analysis, incentives, and communication. The Agency recognizes that secondary materials are widely used today as fuels and/or ingredients in industrial processes. We expect these uses will continue and expand in future years as effective materials management becomes more critical to a sustainable society. The use of secondary materials from a variety of non-traditional sources, including the use of energy-containing secondary materials, is expected to play an important role in future resource conservation efforts.

The use of secondary materials as alternative fuels and/or ingredients in manufacturing processes using combustion not only recovers valuable resources, it is known to contribute to emission reductions. For example, both greenhouse gas (GHG) and particulate matter (PM) emissions have been reduced as a co-benefit of the use of secondary materials.[20] The use of secondary materials, such as use as a fuel in industrial processes may also result in other benefits, including reduced fuel imports, reduced negative environmental impacts caused by previous dumping (*e.g.,* tires), and reduced methane gas generation from landfills.

Secondary materials may, in some cases, be more appropriately defined as "by-products,"[21] reflecting their inherent resource recovery value in the generation and production of heat, energy, and/or marketable products or intermediates. Secondary materials can provide microeconomic (firm level) and macroeconomic benefits when legitimately used as effective substitutes for, or supplement to virgin materials. Economic efficiencies can be improved with the use of secondary materials, when substituted for increasingly scarce virgin materials, because the use of such secondary materials often results in an equivalent level of outputs at lower overall resource use, or in turn, greater outputs could be generated using the same amount of resource inputs. When this occurs, monetary savings resulting from reduced resources and expenditures would, theoretically, be applied to a higher and better use in the economy. This helps advance economic growth as a result of improved industrial efficiency,[22] which, in turn, helps move the country toward material sustainability and energy self sufficiency, while protecting human health and the environment.

2. Secondary Materials Use and Benefits

A wide and diverse range of secondary materials are currently used as fuels and/or ingredients in manufacturing or service processes. Based on our research conducted in support of the January 2, 2009 ANPRM, we identified eight non-hazardous secondary material fuels or fuel groups and six non-hazardous ingredients, or ingredient groups. The eight fuel source materials were: The biomass group (pulp and paper residuals, forest derived biomass, agricultural residues, food scraps, animal manure, and gaseous fuels); construction and demolition materials (building related, disaster debris, and land clearing debris); scrap tires; scrap plastics; spent solvents; coal refuse; waste water treatment sludge, and used oil. The six secondary material ingredients were: blast furnace slag; CKD; the coal combustion residuals (fly ash, bottom ash, and boiler slag); foundry sand; silica fume; and secondary glass material. The ANPRM discussed and described these key secondary materials. In addition, we developed Materials Characterization Papers for each of these fuel and ingredient materials. These papers were included in the docket for the ANPRM, as well as the docket for the proposed rule.

In preparing the proposed rule, we developed three additional Materials Characterization Papers for auto shredder residue, purification process byproducts, and resinated wood products. For today's final rule, we have updated and revised all of the existing Materials Characterization Papers for which we received additional data and information. We have included these updated Materials Characterization Papers in the docket for this final rule. We have determined that the non-hazardous secondary fuels and ingredients discussed in this series of Materials Characterization Papers account for the vast majority of all non-hazardous secondary materials used in combustion processes in the U.S.

V. Comments on the Proposed Rule

Under the approach outlined in the proposed rule, non-hazardous secondary materials were defined as a solid waste unless: (1) The non-hazardous secondary material is used as a fuel and remains within the control of the generator that meets the legitimacy criteria; (2) the non-hazardous secondary material is used as an ingredient that meets the legitimacy criteria; (3) the discarded non-hazardous secondary material has been sufficiently processed to produce a non-waste fuel or ingredient product that meets the legitimacy criteria; or (4) through a case-by-case non-waste determination petition process, EPA has determined that the non-hazardous secondary material has not been discarded and is indistinguishable in all relevant aspects from a fuel product.

The Agency also took comment on two other approaches regarding the combustion of non-hazardous secondary materials. Under the first approach, identified in the proposal as the "Alternative Approach," all non-hazardous secondary materials and ingredients that were used in combustion facilities that were not within the control of the generator were considered a solid waste. Thus, only those non-hazardous secondary materials or ingredients that were used in combustion facilities within control of the generator that meet the legitimacy criteria would be considered a non-waste. However, like the proposed rule, traditional fuels also would not be considered a solid waste, regardless of the generator.

The second alternative that EPA took comment on was a broader definition of solid waste, in which only traditional fuels are not solid wastes and all non-hazardous secondary materials burned for energy recovery or used as an ingredient are considered discarded, and therefore, solid wastes.[23] This

[20] For example, the GHG emissions rate associated with the combustion of scrap tires is approximately 0.081metric tons of carbon dioxide equivalents ($MTCO_2E$) per million metric British thermal units (MMBtu) of scrap tires combusted, while the GHG emissions rate for coal is approximately 0.094 $MTCO_2E$ per MMBtu. Combined with the avoided extraction and processing emissions 0.006 $MTCO_2E$/MMBtu for coal, the total avoided GHG is 0.019 $MTCO_2E$ per MMBtu. Substituting tire-derived fuel for coal would also avoid an estimated 0.246 Lbs/MMBtu of PM associated with the extraction and processing of the coal. Please see the Materials Characterization Papers in the docket for further details on these estimates, and other estimates of avoided emissions associated with burning tires and other secondary materials as fuel.

[21] For purposes of this action, we define by-product as a secondary or incidental material derived from the primary use or production process that retains value in the marketplace or to an end user.

[22] Opportunities for improved economic efficiency are recognized through the Action Statement of the *U.S. Business Council For Sustainable Development:* "Promoting Sustainable Development by Creating Value Through Action Establishing Networks and Partnerships, and Providing a Voice for Industry."

[23] On August 18, 2009, EPA received a letter signed by nearly one hundred community groups and citizens that urged for an expansive definition of solid waste for the purposes of combustion and argued against the general approach of the ANPRM. A copy of this letter has been placed in the docket to today's final rule. The letter highlights stakeholder concerns regarding the differences

Continued

section discusses the comments that EPA received, as well as our response to those comments.

A. Proposed Approach

1. Definition of the Term Discard

Under the proposed rule, non-hazardous secondary materials that are discarded are considered to be a solid waste. On the other hand, secondary materials that have not been discarded, for example, secondary materials that are managed within the control of the generator and meet the specified legitimacy criteria would not be considered a solid waste. Many of the comments discussed the definition of the term "discard" and instances in which the term should or should not apply.

As discussed below, environmental groups argue, generally, that any secondary material burned for energy recovery is a solid waste. These commenters object to allowing control by the generator to be relevant to rendering material a non-waste, even if burned under the legitimacy criteria, claiming that these materials are wastes.

Industry commenters, on the other hand, assert that the secondary materials used in their operations exhibit value as evidenced by their purchase price, their use as inputs and products, their role in ongoing recycling programs, their use as fuels, and/or their use in "routine transactions" or processing operations. Based on these characteristics, industry commenters maintain that such secondary materials should not be considered discarded. Industry commenters also assert that EPA cannot define something as "discarded" when transferred to a third party and express concern that the concept of discard is ambiguous or incorrectly interpreted by EPA in the proposed rule.

In addition, while industry commenters favor allowing the generator to burn secondary materials as non-wastes, they also argue that materials are not wastes so long as they are combusted legitimately even if the material has been discarded in the first instance. They argue that the proposed rule effectively makes the act of moving materials from one party to another the equivalent of "discard," regardless of intent. These commenters claim that EPA's definition of solid waste is overly restrictive and yields little environmental gain. Certain comments maintain that as long as a non-hazardous secondary material meets the legitimacy criteria for use as a fuel, and it is combusted as a fuel, it is not a waste. These comments state that secondary materials cannot be assumed to be part of the solid waste disposal problem merely because the original generator of the materials transfers them to another entity. In fact, depending on the nature of the transaction, this transfer may indicate that the company values the material.

a. Comments From Environmental Groups

Comment: Case law prevents EPA from finding that secondary materials burned for energy recovery are not solid wastes. The DC Circuit holding in *AMC I* that material "recycled and reused in an ongoing manufacturing or industrial process" is not "discarded" does not apply to secondary materials burned for energy recovery even if legitimately recycled and reused. *AMC I* only addresses reclamation of secondary materials. Moreover, EPA incorrectly relies on case law to give it discretion to define "discard." According to the comment, EPA is wrongly implying that, under case law, the meaning of "discard" is ambiguous and that the Agency has discretion to define burning for energy recovery as either discard or not.

EPA's Response: EPA disagrees with this comment. To reply to this commenter, EPA is relying on its explanations in the ANPRM and the proposal, as well as the discussion reiterated in this preamble. See especially discussions of the law in the proposed rule at 75 FR 31850–52 (section titled, "Case Law on Definition of Solid Waste"); 31858–59 (Comment/Response section titled "Meaning of Discard"); and 31885–87 (section titled "Alternative Approach"). That is, EPA sees nothing in the comment that would change the legal basis for this rule. However, the Agency would like to clarify the more obvious inaccuracies in the comment.

First, EPA freely admits, as stated in the proposal, that the secondary materials at issue in *AMC I* were not burned for energy recovery. See, for example, 75 FR 31887. However, the plain logic of the court's opinion and the plain meaning of the statute are unmistakable. EPA does not have the discretion to cover as solid waste secondary materials recycled in a continuous industrial process, even if they are used in a combustion unit. Indeed, if EPA were to assert jurisdiction for secondary materials recycled in a continuous process for energy recovery, it appears highly likely that the Agency's rule would be invalidated in a litigation challenge.

In addition, EPA has not at any time since the ANPRM in this proceeding stated that the term "discard" is ambiguous. It is clear that EPA's jurisdiction under RCRA applies unambiguously to materials that are discarded and the definition is unambiguous in that it means thrown away, disposed of or abandoned. It is the application of the definition to particular instances that gives rise to ambiguity. The ABR court plainly stated that the term may be ambiguous as applied to some situations, but not as applied to others. 208 F.3d at 1056, *See* also 75 FR 31887. The comment simply begs the question when it claims EPA is relying on an ambiguous meaning to claim discretion. EPA has no discretion in certain cases. For example, the Agency may not regulate under RCRA secondary materials recycled in a continuous industrial process. On the other hand, EPA may have to exercise discretion to determine whether particular materials are recycled in a continuous process and whether such materials recycled in other ways are solid wastes. Agency discretion applies to the application of the discard definition.

Comment: EPA's proposal acknowledges that burning a secondary material for energy recovery is not "traditional" recycling. Thus, EPA may not consider burning for energy recovery as recycling because the term, "recycling," is not given its ordinary meaning. *See* 75 FR at 31872.

EPA's Response: EPA disagrees with the conclusion of the comment, but needs to correct the record. EPA received a comment in response to the ANPRM that requested the Agency to apply the legitimacy criteria to situations where the recycling does not include burning for energy recovery. The commenter referred to these other situations as "traditional" recycling. EPA's response noted that this regulation specifically applies to whether non-hazardous secondary materials in a combustion unit are legitimately recycled or not. This is the general policy in this regulation, since states may regulate non-hazardous secondary materials recycled in ways not involving combustion units, but EPA is required to determine which non-hazardous secondary materials are solid waste when combusted for purposes of CAA sections 112 and 129.

In its response to the comment wrongly referring to "traditional" recycling, the Agency used the same term as the commenter. This was a mistake, since the Agency makes clear virtually everywhere else in the rulemaking record that recycling

between CAA sections 112 and 129 and argues against an overly narrow definition of solid waste.

includes legitimate burning for energy recovery and this is very clearly understood by almost all of the commenters. The Agency views the comment's distinction as a semantic matter, not as a practical application of the term "traditional." This mistake is hereby corrected for purposes of the final rule. "Traditional" recycling may include burning for energy recovery of secondary materials.

Comment: EPA effectively concedes that the "ordinary everyday" meaning of "discarded material" includes "secondary materials" when they are burned—no matter who burns them and regardless of whether energy is recovered from the combustion process. The comment cites the preamble to the proposed rule in several places where EPA notes that combustion of secondary materials is "commonly" associated with disposal. *See* 75 FR at 31859, 31877.

The comment states, further, EPA's sense of what constitutes discard is not the ordinary sense of the term by citing the Agency's discussion of the benefits of burning secondary materials. 75 FR at 31849. In addition, according to the comment, EPA is unlawfully seeking to exclude from the definition of solid waste by its discussion of the benefits of burning the following materials: Pulp and paper residuals, agricultural residues, food scraps, animal manure, construction and demolition waste, disaster debris, land clearing debris, scrap plastics, spent solvents, coal refuse, waste water treatment sludge and used oil. 75 FR at 31850.

EPA's Response: Other responses deal with the legal arguments made by this particular comment on how the statute and case law deal with the definition of solid waste. However, the Agency believes it necessary to address some of the comment's specific inaccuracies separately.

First, EPA in no way "concedes" that all materials burned for energy recovery are discarded in the ordinary sense of the term. To the extent that the Agency notes certain public perceptions, it plainly states (on the same pages cited in the comment) that these are misconceptions because they do not take into account that a secondary material may often be used to produce a safe fuel product that is a valuable commodity or that a secondary material that is burned in a combustion unit does not necessarily have high levels of contaminants. 75 FR 31859.

In addition, EPA refers to the same misconceptions when it discusses whether product fuels may be processed or extracted from materials once discarded. EPA notes that fuel processed or extracted from discarded non-hazardous secondary materials should not necessarily be considered solid waste, just as recycled newspapers, recycled aluminum, re-refined oil, to name but a few, are not considered solid waste. Moreover, the misperception that contaminant levels are high in combusted secondary materials affects the perception that there needs to be a very high threshold with respect to the level of processing that must take place to render a discarded material into a non-waste product. 75 FR 31877.

Finally, EPA does not understand the comment's citation to 75 FR 31849–50 as containing statements regarding the Agency's "sense" of discard or the fact that the Agency is seeking to exclude various materials from the definition of solid waste. These pages only discuss the benefits of secondary material combustion without opining on whether the combusted materials would or would not be a waste. EPA cannot understand the comment's motivation in making these statements.

Comment: RCRA's statutory language shows that Congress did not intend EPA to exclude secondary materials that are burned for energy recovery from the definition of solid waste. In particular, section 3004(q) directs EPA to issue regulations both for facilities that produce fuels from hazardous waste and for facilities that burn "for purposes of energy recovery" any fuel that is produced from hazardous waste or any fuel that contains any hazardous waste. Thus, EPA may not declare that hazardous wastes and hazardous waste derived fuels are not discarded when burned for energy recovery. The comment concedes that section 3004(q) addresses hazardous waste, but maintains that the provision is strongly indicative of Congress' intent that burning a material for energy recovery does not transform that material into a non-waste.

EPA's Response: EPA disagrees with this comment. Section 3004(q) only applies to specific provisions of the statute and in no way can it be considered to present a sweeping bar to the Agency's ability to interpret the statute. In fact, since Congress only addressed these provisions in the hazardous waste subtitle of RCRA, the more logical interpretation is that such provisions would not be applicable to other parts of the statute. Section 3004(q) very clearly provides that a material must be a hazardous waste, first, before its provisions apply. EPA needs to make the determination that material is a hazardous waste before even dealing with the restrictions under 3004(q). Thus, it does not apply to the present rule where EPA must first determine whether the material is a solid waste and there is no question that the materials subject to this rule are not hazardous wastes. EPA accepts the comment's concession that 3004(q) only applies to hazardous waste.

Comment: One comment states that "exemptions" in EPA's rule from the definition of solid waste violate the CAA. EPA interprets this comment to mean that the commenter sees violations of the CAA for any non-hazardous secondary material the Agency has decided is not a solid waste. The comment states the following: "Congress was not concerned either about the ownership of a waste material that was being burned or about whether energy was recovered from the combustion process; it simply wanted to ensure that all waste combustion units were subject to the protective control, monitoring, siting, training, and reporting requirements that it found necessary and appropriate for these units."

The comment makes four points to support its contention:

1. The proposed rule is a transparent attempt to exempt facilities that recover energy from the section 129 standards and would shrink the population of facilities covered to 175, a number far less than Congress intended.

2. Section 129(g)(1) makes clear that Congress viewed refuse-derived fuel as waste and EPA includes "refuse-derived" fuel as a non-waste.

3. Section 129(h)(5) shows that Congress viewed the universe of "fuel" to consist of "waste" on the one hand and "fossil fuel" on the other. Congress's definition of "municipal waste" expresses the intent that facilities that burn non-fossil fuels and are not covered by the express exclusions in section 129(g)(1) must meet the section 129 incinerator standards.

4. Because EPA would allow energy recovery facilities controlled by the generator to burn non-hazardous secondary materials under section 112, EPA's regulations would improperly allow hospital-owned medical waste incinerators to burn medical and infectious wastes and would not be incinerators subject to the section 129 incinerator standards.

EPA's Response: EPA disagrees that these provisions of the CAA are relevant to this regulation. EPA is not creating exemptions to section 129 for facilities that recover energy. Rather, EPA is establishing a definition of non-hazardous solid waste, which, as specified by CAA section 129(g)(6), governs the meaning of "solid waste" under section 129. Because Congress

specifically directed that "solid waste" have the meaning established by the Administrator under RCRA, instead of defining the term under RCRA, the CAA definition of "municipal waste" is not relevant to this action.

If any or all of the commenter's contentions are correct, section 129 would not provide that the term "solid waste" shall have the meaning promulgated by EPA under RCRA. There would simply be no reason for EPA to consider the RCRA definition, since section 129 would take care of the issue. Section 129(g)(6) would be meaningless.

The commenter further argues that EPA should consider the CAA when defining solid waste under RCRA. The CAA does not direct the Agency to consider the language of section 129 when establishing a RCRA definition. So long as EPA's rule is consistent with the RCRA definition of "solid waste," it must stand. That is, as long as the definition of solid waste is consistent with RCRA, and the Agency issues emissions standards for all units that burn commercial and industrial solid waste in the CISWI rule, the standards under section 129 are valid. Therefore, we believe the commenter's general argument is without merit.

With respect to each of the supporting points:

1. Contrary to the commenter's assertion, EPA is not "exempting" energy recovery facilities from the section 129 standards. The Agency is simply interpreting the term "solid waste" under RCRA. The number of facilities that are combusting solid waste is not relevant to this interpretation. Moreover, there is no indication in the CAA of the number of facilities Congress intended to be covered under section 129 of the Act.

2. The comment is incorrect that section 129, by excluding "refuse-derived fuel" from the exclusion in 129(g)(1)(B) was somehow defining the term as being included in the term, "solid waste," under RCRA. Again, if that were the case, section 129(g)(6) would be superfluous. Nevertheless, today's rule identifying which non-hazardous secondary materials that are solid wastes when combusted does not include fuel derived from municipal waste refuse under 129(g)(5). Some fuels may be processed from solid waste, but that determination by the Agency stands or falls based on the RCRA statute and case law, not the CAA. EPA is not defining "refuse derived fuel" in this RCRA rule. The validity of EPA's interpretation on whether commodity fuels may be processed, or extracted, from a waste must stand or fall based on the RCRA definition, not provisions of the CAA.

3. EPA disagrees with the statement that the CAA considers "the universe of 'fuel' to consist of 'waste' on the one hand and 'fossil fuel' on the other." Again, the CAA is not defining solid waste. Solid waste is defined under RCRA as material that is "discarded." There is no distinction anywhere in RCRA that would indicate that anything other than a fossil fuel must be a waste.

4. This rule does not address whether or not medical waste is a solid waste under RCRA. EPA issued regulations under section 129 of the CAA establishing emission standards for hospital and medical waste, and today's action does not affect those regulations. [74 FR 51367].

Comment: EPA's distinction between materials burned for energy recovery and those burned for destruction has already been rejected as irrelevant in *NRDC.* 489 F.3d at 1257–1258.

EPA's Response: EPA agrees that the DC Circuit has rejected for purposes of combusting materials under CAA section 129 a distinction between materials burned for energy recovery and solid wastes. However, EPA is not making that distinction in this rule. EPA agrees that units combusting solid waste are generally subject to the emission standards issued under section 129 of the CAA whether those wastes are fuels or not. Moreover, nothing in the *NRDC* case addresses EPA's discretion to interpret the term "solid waste" under the RCRA rulemaking. This issue was not before the Court in *NRDC,* and thus the Court did not speak to it. Therefore, we disagree with that portion of the comment.

It is clear that wastes may have fuel value. EPA, in this rule, is making a distinction between materials that are discarded and those that are not. One of the considerations is whether a secondary material is really being burned for destruction and is, therefore, a waste. If it is not being burned for destruction, other factors need to be considered to determine whether the non-hazardous secondary material is a waste.

Another way of describing our evaluation process to determine if a secondary material is a waste, is that EPA evaluates, first, whether such material is discarded in the first instance. If not, the Agency needs to consider whether that material is legitimately burned for energy recovery.

There are different ways of explaining the legitimacy criteria and the factors are not necessarily considered in any particular order and one or more of the factors may render the material a waste. For example, one of the legitimacy criteria is the consideration of whether the non-hazardous secondary material has meaningful fuel value or is simply being burned for destruction—that is, incinerated. If there is no meaningful fuel value, the non-hazardous secondary material is simply being destroyed.

If there is meaningful fuel value, other factors must be considered, including whether the non-hazardous secondary material is managed as a commodity and whether contaminants indicate that incineration (destruction) is the real reason for burning. A decision as to whether a non-hazardous secondary material is a waste, thus, depends on a number of factors, all of which need to be considered by the Agency before it decides whether such secondary material is a waste or not.

Comment: It is irrelevant whether non-hazardous secondary materials are burned at a facility controlled by the generator. Even EPA does not believe its argument because it admits that a secondary material could still be a waste even if it is recycled on-site or within the control of the generator and cites the court's holding in *API II.* Instead of defending its condition as relevant to whether a non-hazardous secondary material is or is not discarded, the Agency merely says that the secondary material must both be within the control of the generator and must pass the legitimacy criteria. By punting to its legitimacy criteria, EPA effectively concedes that its "'on-site' problem" renders irrelevant the condition that non-hazardous secondary materials be burned at a facility within control of the generator.

EPA's Response: EPA disagrees with this comment. If the non-hazardous secondary material remains within the control of the generator, it is more likely to be a material that is saved and not thrown away or abandoned. The Agency has explained that case law would not allow it to determine that secondary materials are wastes if they are recycled as fuels within a continuous industrial process. EPA cannot evaluate every non-hazardous secondary material, but believes this standard would cover all secondary materials that are recycled as a fuel within a continuous process. EPA, however, acknowledges that this may capture non-hazardous secondary materials which may be a waste, but this is unlikely. There may also be non-hazardous secondary materials transferred to another party that may not be a waste and EPA is attempting to deal with those categories of non-hazardous secondary materials on a case-by-case basis. However, EPA believes that it is a reasonable interpretation of the

statutory definition of discard and the case law to consider that a non-hazardous secondary material within the control of its generator that is legitimately burned as a fuel is not a solid waste.

EPA is careful to note that "legitimacy" is shorthand for referring to non-hazardous secondary materials that are not thrown away, are saved and are reused by being burned for their value as a fuel. The legitimacy criteria are the factors needed to be examined to make this determination. Thus, for example, it is relevant how the non-hazardous secondary materials is managed and the extent to which contaminants in the secondary material may indicate that the real reason for burning the secondary material is simply its destruction—referred to as "sham" recycling. The Agency is not simply "punting" to its legitimacy criteria, but believes they provide a valid basis for showing that a non-hazardous secondary material is more commodity-like than waste-like.

b. Comments From Industry Groups

Comment: A number of industry comments object to EPA's explanation for determining the extent to which transfer of secondary materials between companies for use as a fuel renders the non-hazardous secondary materials discarded. According to the comments, EPA not only makes the transfer of secondary materials an indication of discard, but transfer becomes the primary and controlling condition for determining whether secondary materials will be classified as fuel commodities or solid waste. One commenter in this general category claims that EPA is forbidding economic reuse of such materials by anyone other than the generator without prior government permission.

Moreover, the commenters claim that EPA cannot make a sweeping and arbitrary assumption in categorizing these transferred materials as "discarded" and then place the burden on the regulated community to challenge the assumption through submission of a petition to declare the material a non-waste. According to the commenters, it is incumbent upon EPA to explain why a material is discarded before the Agency can put the burden on companies to submit non-waste petitions if the companies want to claim the secondary material is not a waste.

The *Safe Food* case states that firm-to-firm transfers "are hardly good indicia" of discard. If a fuel can meet all of the legitimacy criteria (managed as a valuable commodity, have meaningful heating value, not contain elevated levels of contaminants), it cannot reasonably be said to be discarded just because it is sold or otherwise transferred to an entity separate from the generator. Assuming all relevant legitimacy criteria are met, the transfer of secondary materials between companies is simply not relevant for determining whether such materials have been discarded. In fact, depending on the nature of the transaction, this transfer may be a good indicator that a company values the material.

EPA cannot support its position by referring to over-accumulation of scrap tires resulting in massive piles of discarded tires. Those materials did not meet the legitimacy criteria and should be treated as discarded. Such a reference does not rehabilitate EPA's presumption that mere transfer of a non-hazardous secondary material could cause the mismanagement that resulted in the tire piles.

Nor can EPA support its position that state agencies consider materials wastes when transferred to third parties for use as fuels. States can make mistakes, as they did regarding used oil, which they classified as a waste, but changed direction after EPA promulgated its used oil regulations at 40 CFR part 279.

One comment states, on the basis of case law on abandonment, that to be abandoned there must be a clear and unequivocal intent to abandon on the part of the owner and that the burden is on whoever alleges abandonment to establish that intent. Of particular significance is the principle in the common law that abandonment does not occur where a direct transfer of ownership to another party occurs. Where a generator conveys title to a secondary material to a third-party, no abandonment occurs, whether there is payment for the material or not. Nor, if the material is actually recycled (*i.e.,* used, reused, or reclaimed), would such material ordinarily be deemed to be "disposed of" or "thrown away." Materials legitimately burned for energy recovery or used as ingredients in combustion units are neither disposed of nor abandoned and do not meet the 'plain-English meaning' of * * * 'discard.'

Merely because one party has relinquished control of a secondary material does not make it a waste nor does the fact that a receiving party may not have the same incentives to manage them as a useful product. EPA cannot indict all parties that in fact do manage these secondary materials as a useful product. Indeed, a generator's use of a secondary material does not guarantee its proper use, yet EPA allows the legitimacy criteria to suffice in situations in which the generator retains control of the non-hazardous secondary material and legitimately recycles it.

Further, EPA seems to contradict itself because it does not presume discard of ingredients transferred to other companies and gives no reason as to why fuels should be treated differently. EPA only states, without giving a reason, that it believes that the use of non-hazardous secondary materials as ingredients is considered to be more integral or akin to use in a commercial manufacturing process and thus, these non-hazardous secondary materials should not be considered discarded provided they meet the legitimacy criteria. After all, commercial manufacturing processes require both ingredients and energy (*e.g.,* fuels).

EPA's Response: EPA disagrees with these comments to the extent they argue that the Agency has arbitrarily determined that secondary materials transferred between companies are wastes. Instead, EPA has evaluated whether certain categories of materials are discarded or not. The Agency has not adopted the extremes of saying that all burning of secondary material, regardless of ultimate use, is waste treatment or that any secondary material that is recycled for legitimate fuel value is a commodity and not a waste. Wastes may have value, but are still wastes.

Between these broad parameters, EPA has examined a number of specific materials, recycled within the control of the generator and transferred to a third party for recycling, and determined whether they would be appropriately placed within the waste or non-waste categories. EPA would consider transferred materials not to be wastes if it could make the appropriate findings for those categories. In fact, the Agency does so with respect to scrap tires removed from vehicles and managed under the oversight of established tire collection programs and resinated wood residuals.

Consideration of over-accumulation of scrap tires resulting in massive piles of discarded tires is not being cited as support for the proposition that all transfers of secondary materials result in waste treatment, but only for the proposition that the Agency needs to be careful in examining whether secondary materials may be transferred as commodity fuels or as wastes. Further, EPA is not relying on state determinations regarding whether secondary materials are wastes, specifically tires, but is instead allowing state tire programs that meet certain parameters to affect an EPA determination that transferred scrap tires are not wastes.

Any of EPA's decisions regarding specific materials, if challenged, must stand or fall based on its individual merit. For example, resinated wood residuals are routinely transferred between either intra- or inter-company facilities and used as either "furnish" (*i.e.,* raw materials) or fuel at the receiving facilities. The material being transferred off-site is used and handled in the same manner that resinated wood residuals are used when generated on-site (such that it is impossible to distinguish between materials that are being used as a raw material and those that are being used as a fuel). Accordingly, these materials are not solid wastes whether used within the same company or transferred to another company. See below, at sections V.B.6 for discussion of EPA's response to comments and the Agency rationale for how resinated wood should be treated for purposes of this rule.

Other materials would be wastes based on the Agency's analysis of the industry in general or, based on a lack of data or knowledge, an effective presumption that recycling materials for a fuel is primarily conducted within the control of the generator. For example, use of old corrugated cardboard (OCC) rejects (clay, starches, other filler and coating materials, as well as fiber) are not discarded when used within the control of the generator, since these secondary materials are part of the industrial process. OCC rejects can include, and are usually burned in conjunction with, other fuels (such as bark) at pulp and paper mills that recycle fibers. These materials are not generally transferred outside the control of the generator.

Still other non-hazardous secondary materials may be processed or extracted from wastes to produce fuel commodities. Examples include tire-derived fuel processed from scrap tires retrieved from waste tire piles, and coal refuse retrieved from legacy piles that have been processed through the use of grizzlies, screens, and blending to improve the quality, remove metal objects, and reduce the concentrations of various constituents. To the extent that EPA has indicated that particular categories of non-hazardous secondary materials are wastes when transferred off-site to a third party, the Agency provides companies with the opportunity to petition EPA for a non-waste determination; we believe a petition process is essential because many non-hazardous secondary materials are recycled and managed in many different ways, and the Agency may lack the specific details in certain cases to know whether or not such non-hazardous secondary materials are or are not solid wastes.

Thus, EPA is not making a sweeping arbitrary assumption in categorizing transferred secondary materials as discarded. In addition, EPA is not, in any sense, forbidding economic reuse of such materials by anyone other than the generator without prior government permission (through the petition process). The effect of this regulation would simply be to require the non-hazardous secondary materials designated as wastes to be combusted only in facilities regulated under section 129 of the CAA, while non-waste fuels could be combusted under section 112 of the CAA.

EPA also disagrees with the comment's narrow citation to the Safe Food case. Safe Food does not stand for the narrow proposition that transferring material to another industry is not relevant for determining whether material is discarded. The court in that case noted that "the term 'discarded' cannot encompass materials that 'are destined for beneficial reuse or recycling in a continuous process by the generating industry itself.'" 35 F.3d at 1268. Further, "materials destined for future recycling by another industry may be considered 'discarded.'" *Id.* With respect to transferring material, the court only said "we have never said that RCRA compels the conclusion that material destined for recycling in another industry is necessarily 'discarded.'" *Id.* Rather, the key to understanding the importance of *Safe Food* is the question "'whether the agency's interpretation of * * * 'discarded' [is] permissible, that is, reasonable and consistent with the statutory purpose.'" 35 F.3d at 1269 (citations omitted).

The point of *Safe Food* is that the courts are to examine EPA's interpretation based on whether it is reasonable. No one factor will be determinative.

Thus, the comment is wrong to try to argue that a quotation in *Safe Food* regarding "vertical integration" somehow means that the transfer of a secondary material to another party is irrelevant for determining whether a secondary material is a waste. Aside from the fact that EPA finds no evidence of the relevance of "vertical integration" to this regulation and no commenter has indicated its relevance, it is plain from any reasonable analysis that transfer to another party, where a generator of a secondary material relinquishes all control of the material is certainly relevant to any determination whether a material is a waste.

EPA is in no way claiming that such transfer is the definitive criterion for discard. Instead, EPA has examined the issue of company-to-company transfers in the context of specific secondary materials and to the extent the Agency has found either discard or no legitimate recycling, it is requiring companies to file a non-waste petition in order to allow the Agency to review the specifics of their cases. Further, the Agency will in the future solicit comment on additional non-hazardous secondary materials that can be used as a non-waste fuel both by the generator and outside the control of the generator. Under today's rule, only scrap tires managed under established tire collection programs and resinated wood are non-wastes when used both within and outside generator control (*see* § 241.3(b)(2). In addition, citations to case law on abandonment issues between private parties are not relevant to this case of government regulation. The cases do not consider the factors that are relevant to EPA's determination under this rule. In this rule, EPA needs to decide whether secondary material is discarded in the first instance, and whether the transfer represents a legitimate non-waste activity. To represent a legitimate non-waste activity, if the material has not been discarded in the first instance, it must be handled as a valuable commodity, must have meaningful heating value, and must not have contaminant levels that show the material is transferred to destroy unwanted constituents instead of for its fuel value. A waste owner may not be "abandoning" a waste when it sends it to another company, but the non-hazardous secondary material is still a solid waste if the receiver is not burning the secondary material legitimately as a fuel (construction debris highly contaminated with lead paint).

EPA also disagrees with the comment that the Agency is inconsistent by allowing the legitimacy criteria to suffice for generators, but not for the transferred material. The issue is not whether legitimacy suffices for materials under the control of the generator as opposed to material transferred to another party. Rather, EPA is using the legitimacy standard for generators in order to comply with the holdings in the case law that secondary material recycled within a continuous industrial process is not a waste. As stated in the preamble to the proposed rule, secondary materials recycled or reused legitimately under the control of the generator will cover all, or almost all, secondary materials recycled or reused

in a continuous industrial process. See 75 FR 31886–87. EPA thus, rejects the environmental groups' argument that any combustion of secondary material is a waste. EPA has only decided that there is greater likelihood that material will not be a waste if it is under the control of the generator. If the generator keeps the material it would indicate presumptive non-discard. However, the legitimacy criteria serve as a check to make sure discard would not occur. For material transferred to another party, as noted above, EPA has greater concern since different incentives come into play for the generator as well as the recipient, as evidenced by past careless treatment of secondary materials.

Comment: EPA has no authority under section 129 of the CAA to regulate the use of non-hazardous secondary materials as ingredients. EPA's section 129 authority is limited to "solid waste incineration units," which the statute defines as units that "combust" solid waste. This statutory definition does not say EPA can regulate units that "treat" solid waste (as provided in RCRA subtitle C). Nor does it say that EPA can regulate units that "use" solid waste. For example, the feedstock for clinker that is placed into a Portland Cement kiln is not "combusted"—rather, it is incorporated into the clinker product. Similarly, non-hazardous secondary materials that may be used as substitutes for mined or virgin feedstock become incorporated into the clinker product and are not "combusted."

EPA's Response: This comment is not relevant to this regulation, which determines whether a secondary material is a solid waste, or not a solid waste as defined by RCRA. Clearly, EPA has the authority to interpret RCRA to decide whether non-hazardous secondary materials are solid wastes or not. Whether EPA may cover ingredients used in combustors under section 129 of the CAA is a matter for regulations under that statute.

Comment: EPA asserts in its preamble that any material that is discarded must be considered forever discarded (and therefore remain a solid waste) no matter what value or use it may have to another person who may retrieve the material. This logical leap defies common sense, and is not in any manner compelled by the statutory language or judicial precedent.

It is illogical and nonsensical to hold that a material must be considered forever "discarded" if Party B comes upon the material, removes it from its "discarded" venue, and takes it with him or her for a bona fide use. Suppose a woman walks by a town dump and spies a chest-of-drawers that has been thrown away (*i.e.,* abandoned, discarded). The piece of furniture is old, but it is perfectly usable for a room in her house. She takes the chest of drawers and places it in a guest bedroom and it now sits there full of clothes. To say the chest sitting in that room is now a "discarded" material simply defies the plain meaning of the word.

According to the comment, the RCRA subtitle C case *API I,* which deals with hazardous waste under RCRA, in no way impairs EPA's ability to craft a subtitle D rule that could allow for materials once deemed to have been discarded to cease to be a solid waste when reused. The comment acknowledges that in *API I,* the court disapproved of the concept that a material that may have once been thrown away could nevertheless "cease to be a solid waste" if it were being beneficially reused, as it would no longer at that point be considered a "discarded material." The comment goes on to say, however, that the court only stated that it believed it would be "unlikely" that EPA could successfully maintain the position that a discarded material could cease to be a solid waste when recycled. The court reasoned that for EPA to reach such a conclusion, the Agency would have to reconcile this position with RCRA's acknowledged objective to establish a *cradle-to-grave* regulatory structure for the safe handling of *hazardous* wastes.

The comment argues that this language of the opinion is a "critical" element of the decision and only applies to hazardous wastes. Therefore, it does not apply to non-hazardous waste. The comment goes on to say that EPA cites no case law, and they are aware of none, in which a court has ruled that a discarded non-hazardous secondary material must forever be deemed discarded no matter what beneficial use it may subsequently be put to.

EPA's Response: EPA disagrees with this comment. In the first place, the Agency is not saying that wastes are "forever" discarded. Wastes may be processed into materials that are not wastes. The important point, here, is that a waste does not automatically lose its waste designation *solely* because some person has found value in the material. Something has to happen to that waste to make it a non-waste.

Judicial interpretations of the statutory definition of discard very plainly hold that a material that has become a waste—because it is discarded—may not lose its waste status "just because a reclaimer has purchased or finds value" in the waste. *ILCO* at 1131; *OWEN STEEL* at 150. Furthermore, in *ABR,* the court stated, "The point of AMC II, and for that matter API, is that once material qualifies as 'solid waste," something derived from it retains that designation even if it might be reclaimed and reused at some future time." *ABR* at 1056.

EPA notes in a response to a comment elsewhere in this preamble that these cases do not prevent the Agency from considering that wastes may be processed in some way into non-waste products. Nevertheless, the cases unmistakably hold that secondary materials do not lose their waste status simply because they have value.

The commenter's reference to the *API I* case's mention of the purposes behind the hazardous waste regulation's "cradle to grave" regime is not "critical" to the court's holding. The court only was opining on a hypothetical situation should EPA return to the court in a future case. It certainly was not necessary to the holding in the case and must only be considered dicta. EPA believes it has crafted a valid interpretation of the statute based on other relevant case law on the subject.

EPA also acknowledges that persons may find value in materials that have been thrown away, such as the chest of drawers to which the comment refers. However, this regulation deals with fuels and ingredients that are used in combustors, and EPA is not evaluating other materials when beneficially used. In fact, EPA has specifically indicated that the Agency is not making a determination that non-hazardous secondary materials are, or are not, solid wastes for other possible beneficial end uses. Such beneficial use determinations are generally made by the states for these other end uses, and EPA will continue to look to the states in making such determinations. Thus, EPA does not need to resolve the hypothetical situation as to when the chest of drawers becomes a non-waste.

Comment: In the proposed rule, the Agency indicated that the 2008 DSW Final Rule included a third part in the definition of "under the control of the generator." Specifically, the 2008 DSW Final Rule also applies to hazardous secondary materials that are generated pursuant to a written contract between a tolling contractor and a toll manufacturer and legitimately reclaimed by the tolling contractor. For purposes of that exclusion, a tolling contractor is a person who arranges for the production of a product or intermediate made from specified raw or virgin materials through a written contract with a toll manufacturer. The

Agency requested comment on whether to include this option in the final rule.

Few comments were received on tolling contractors. One commenter stated that to the extent that such arrangements facilitate the recycling or use of non-hazardous secondary materials and benefit the environment by reusing such secondary materials that might otherwise be disposed of, it should be included. A state commented, however, only that tolling contracts should not be considered under the control of the generator.

EPA's Response: We did not include tolling arrangements as being "within the control of the generator" as we viewed this as a specific type of arrangement used in the production of secondary materials that are not being used as fuels, and were unaware of these types of contractual arrangements where both products and secondary material fuels are sent to what we are calling tolling contractors, nor has any comment informed the Agency of such arrangements for fuels.

Comment: In implementing RCRA, EPA must balance the statute's two primary goals of (1) protecting human health and the environment and (2) encouraging reuse and recycling. The second goal is particularly critical in the RCRA subtitle D context. EPA's proposal, along with the CISWI proposal, draws many lines that would impose major impediments on recycle/reuse. Yet EPA never attempts to justify these choices dealing with non-hazardous secondary materials on the grounds of protecting human health and the environment.

EPA's failure to take both of these factors into account produces results that impede reuse and recycling of non-hazardous secondary materials with no benefit to health and the environment. The commenters claim this is arbitrary and capricious and a failure of reasoned decision making.

EPA's Response: EPA disagrees that these policy goals provide the legal basis for the Agency's determination whether secondary materials are solid wastes—discarded within the ordinary meaning of the term. Broad policy goals stated in the statute do not substitute for the substantive statutory requirements which the Agency must follow. In the *NRDC* case, the DC Circuit admitted that EPA may have legitimate policy reasons for its decision. However, the Agency must still follow the statute.

Yes, the Agency should encourage recycling, but it may not encourage that use by allowing discarded materials to be considered non-wastes. The overall congressional policies are limited by the substantive statutory requirements. Yes, the Agency must protect human health the environment, but its ability to do that is limited to its ability to regulate material that is discarded—material that is a solid waste. The Agency is establishing standards for determining if a secondary material is a solid waste, in order to clearly identify which combustion units are subject to CAA section 129 standards. We do note that as part of the Agency's legitimacy criteria, we consider whether there are excessive contaminants in the secondary material that is combusted. This analysis delves into matters regarding whether the secondary material is actually a waste.

Comment: In a similar vein, another industry comment argues that the statutory definition of solid waste sets the outer limits of EPA's regulatory authority under RCRA. However, EPA is neither required nor authorized to go to the limits of that definition in each of its regulatory programs. Each such program, according to this comment, is aimed at specific dangers that the wastes it addresses may pose, and each such program must take account other statutory purposes, such as encouraging the beneficial reuse of secondary materials. EPA, therefore, should exercise its authority to establish a definition of waste that is tailored to address the problems at issue, and that does not impermissibly infringe on other statutory goals.

EPA's Response: EPA disagrees with this comment. First, general congressional policies that refer to encouraging recycling have no place in EPA's determination as to whether a secondary material is a waste or not. For purposes of this rule, EPA is evaluating which non-hazardous secondary materials are discarded under the statute. CAA section 129 requires that units burning solid waste, as defined by the Administrator, are subject to emissions standards under that section.

In deciding which non-hazardous secondary materials are in fact wastes, the Agency evaluated a number of circumstances and exercised discretion to decide on how the definition of solid waste applies in various circumstances. However, EPA cannot decide to develop a narrower interpretation of what constitutes a waste simply because it does not want to have the non-hazardous secondary materials burned under CAA section129 instead of CAA section 112. EPA may not say material is not discarded if, in fact, it is.

In this case, EPA is determining which non-hazardous secondary materials are solid wastes. EPA has no authority to grant waivers simply because it wishes to encourage recycling by making the combustion of secondary materials less expensive.

With respect to RCRA subtitle C regulations, as has been noted throughout this proceeding, EPA is not reopening any decisions. Any commenter's subjective evaluation of whether a particular hazardous waste regulation is more stringent than this regulation has no relevance to whether a non-hazardous secondary material is discarded for purposes of this regulation.

EPA has stated that secondary materials excluded from the definition of solid waste under the subtitle C regulations will remain non-wastes under this rule. We are not reopening the RCRA subtitle C rules. EPA also notes that some comments have argued that the legitimacy criteria do not apply to the subtitle C rules and, therefore, should not apply to this rule. EPA disagrees with that concept. In fact, the legitimacy criteria in some form apply to all recycling, regardless of how it is formulated, even if there is a specific exclusion under RCRA subtitle C.

2. Processing Requirements

Under the proposal, fuels or ingredients that are produced from the processing of discarded non-hazardous secondary materials are not a solid waste provided they meet the specified legitimacy criteria. Comments from environmental groups rejected in its entirety any processing requirement at all. According to these comments, a discarded material remains a waste and cannot be rehabilitated to become a commodity fuel. Any fuel derived from a waste must be combusted under section 129 of the CAA.

On the other hand, industry commenters in general found the proposed definitions of "processing" and "sufficient processing" unclear and the processing requirements generally too restrictive. Several comments requested that EPA offer further explanation as to why processing is necessary in the first instance. In particular, they claimed that the degree of processing required by the proposed rule is inappropriate and illogical, arguing that there is no reason to impose an artificial and arbitrary requirement that materials first be "transformed" into something different.

Other commenters argued that secondary materials suitable for use as a fuel or ingredient without processing are not solid wastes when combusted, even if they have been previously discarded. In other words, if previously discarded, non-hazardous secondary materials can be used as is, as fuels or as ingredients, then such non-hazardous

secondary materials are not solid waste. As long as the fuel or ingredient meets the legitimacy criteria, affected parties should not have to process the material, as doing so would be burdensome and unnecessary. Other commenters asserted that minimal processing should be sufficient for a fuel not to be considered a solid waste.

a. Comments From Environmental Groups

Comment: EPA is incorrect in defining discarded materials to be considered non-waste product fuels if they have been "sufficiently processed." In the view of this commenter, the DC Circuit has held plainly and repeatedly that the term solid waste unambiguously includes fuels made from processed secondary materials. The comment refers to dicta in the DC Circuit opinions of *AMC I* and *ABR,* in which the court states that EPA may regulate used oil recyclers that collect discarded used oils, distill them, and sell the resulting material for use as fuel in boilers. In addition, the comment cites cases in other circuits—*ILCO* and *Owen Steel*—to the effect that wastes may be recycled and that their recycling is irrelevant to the determination as to whether they are wastes. In particular, the comment cites the facts in *ILCO* where the court found used batteries to be discarded within the everyday use of the term and that their secondary character as recyclable material is irrelevant to that determination. In addition, the comment cites the *Owen Steel* facts where steel slag recycling activities were considered waste treatment even though the recycled slag was used commercially. According to the comment, a material is discarded and the fact of discard is not changed just because a reclaimer has purchased or finds value in the components of such secondary materials.

EPA's Response: EPA disagrees with the comment, and finds that the commenter reads too much into these cases. EPA has repeatedly stated in this rulemaking that it agrees that wastes may be recycled and that the fact of discard does not change solely because the waste may have value. As stated earlier, EPA has specifically indicated that the Agency is not making a determination that non-hazardous secondary materials are, or are not, solid wastes for other possible beneficial end uses. These cases do not, however, stand for the proposition that any product resulting from the recycling must be a waste. Such a view would make almost every aluminum can from which we drink our sodas or newspapers on which we read the news "solid wastes."

With respect to *AMC I* and *ABR,* the reference to regulating used oil processing into fuels that are sold is, first, not necessary to the decisions. Those cases overturned rules where EPA was overly broad in its regulation. The cases were not deciding which situations constitute proper regulation by EPA. Nevertheless, the DC Circuit, by the terms of its dicta, was only referring to regulating the processing activity for the used oil. The court was not referring to regulation of the resulting material that was sold to boilers as a fuel. In fact, the court acknowledges that the fuel is sold to boilers and in no way opines on whether the resulting fuel is a waste. In this rule, also, EPA is not saying that the processing of discarded material is excluded from regulation as a waste activity, but only that the resulting fuel is not a waste if it has been sufficiently processed and meets the criteria of fuels that are not wastes—referred to as meeting the legitimacy criteria.

As for the other recycling cases, EPA has admitted that the mere fact of recycling does not change the nature of a secondary material that has been discarded. Again, *AMC I* and *ABR* cases are not directly on point for deciding whether non-waste products can be extracted from discarded material because the courts were not called upon to decide that issue. In both cases, however, the courts refer to resulting products that were sold commercially.

In the *ILCO* case, the issue was whether reclaimed lead plates from discarded batteries were recycled wastes or raw materials used to produce steel ingots. The court found that the lead plates were wastes, but only noted that the lead ingots made from the wastes were sold commercially and did not opine as to whether the ingots were wastes. EPA argues that the ingots were not wastes, since they were processed into valuable commodities.

In *Owen Steel,* the court found that slag from steel production was a waste and the area where the slag was processed was a waste treatment facility. The cured slag was sold for various commercial processes, including roadbed construction. The court was not asked to opine, nor did it, on whether the roadbed material was a waste. Again, EPA argues that the cured slag could be a product produced from the waste, even though the processing activity involved waste treatment.

EPA does admit that the cases are not directly on point regarding the Agency's determination that discarded materials may be processed into legitimate product fuels. The cases do seem to recognize, however, that products made from wastes may be products and not wastes.

More importantly, the cases do not refute EPA's essential logic that fuel or ingredients processed or extracted from discarded secondary material is analogous to many products that are processed or extracted from non-hazardous wastes, such as aluminum cans or recycled paper made from recycled secondary materials. The cases indicate that the same logic could apply to fuel processed from used oil, lead ingots made from battery lead plates, or roadbed construction material made from steel slag. This applies even though the processing or extraction activities involve waste treatment. EPA believes that, at a minimum, there are circumstances in which the resulting materials are not wastes.

EPA's task in the current rule is to decide when such processing results in a product or a waste. To resolve the issue, EPA has identified conditions on the extent of processing that has been conducted. That is, the processed discarded material may become a non-waste fuel or ingredient if certain conditions are met—that is sufficient processing has occurred. If so, and if the material meets the legitimacy criteria, the fuel or ingredient product would be considered a non-waste material.

b. Comments From Industry Groups

Comment: A number of industry commenters object to the processing requirement for discarded non-hazardous secondary materials to become non-waste fuels or ingredients. These comments contrast with the argument of environmental groups that no processing would transform discarded non-hazardous secondary materials into non-waste fuels or ingredients, a contention to which the Agency responds to earlier in this preamble.

Industry commenters argue that the legitimacy criteria are sufficient and that there should be no processing requirement for non-hazardous secondary materials that were discarded and could now be used as fuels or ingredients. The general argument is that the very act of retrieving a previously discarded material for use as a fuel or an ingredient proves that the material is once again wanted by the consumer, regardless of the type or extent of processing which the secondary material must undergo. According to these comments, the mere act of removing the previously discarded material from the environment for use "conclusively" demonstrates that the non-hazardous

secondary material has value as a product or intermediate—otherwise, no one would invest the significant costs associated with the recovery of these materials.

Various activities were specifically mentioned—recovery of coal combustion byproducts from landfills, extraction of coal refuse from mine sites and used whole tires retrieved from tire piles. With respect to these non-hazardous secondary materials, commenters argue that the excessive threshold level of processing makes no sense and that EPA should allow only a minimal amount of processing to convert a waste into a product fuel or ingredient.

In particular, the comments argue that normal processing of coal refuse (mining rejects) should be sufficient to constitute processing needed to convert previously discarded materials to legitimate fuels/ingredients. The same material mined to be used in today's combustion technology is processed in that way and there is no difference between the mined materials.[24] Also, whole tires retrieved from waste tire piles may need only minimal processing for use in cement kilns, such as removal of excess water and dirt, mud, and debris. Whole tires from newer stacks or piles often need no physical processing whatsoever. In contrast, EPA argues that scrap tires cannot be considered sufficiently "processed" unless they are physically shredded and undergo metals removal processing.

Establishment of a threshold level of processing that must take place before a discarded non-hazardous material is considered a legitimate fuel or ingredient would also have the perverse effect of applying different standards to identical materials. For example, there is no difference in the coal refuse or coal combustion byproducts that are recovered from landfills for use in a fluidized bed combustion unit or in the cement manufacturing process.

Some comments claim that under EPA's hazardous waste regulations, only minimal processing, such as baling or sorting, is required for scrap metal to be excluded from the definition of solid waste. The scrap metal, which would otherwise be a hazardous waste, may be sent into high-temperature environments, such as electric arc furnaces at steel mills and aluminum smelters. EPA had stated that this is a good example of where the level of processing necessary to convert a waste material to a non-waste material is dependent on the material itself. The comments claim that this is inconsistent with requiring used tires that have been discarded to not to be considered sufficiently "processed," unless they are physically shredded and undergo metals removal processing.

EPA's Response: As discussed in the case law elsewhere in this preamble, EPA is constrained by the statutory definition of solid waste under RCRA and the fact that case law holds that a discarded material does not lose its status as a waste solely because it has value or may be beneficially reused. Allowing certain non-hazardous secondary materials to be combusted as a fuel under the section 112 standards of the CAA may have beneficial policy objectives. However, EPA may not base its decision on the policy, but must evaluate whether a secondary material is a solid waste under RCRA. Specifically, the DC Circuit in *NRDC* would not allow EPA to establish a policy basis for determining whether section 112 or 129 applies. Thus, non-hazardous secondary materials that are wastes and are used as a fuel/ingredient in a combustion unit must be used in section 129 units, whereas non-hazardous secondary materials that are not wastes and are used as a fuel/ingredient in a combustion unit may be used in section 112 units. The court stated that "the distinction EPA draws may well be reasonable" referring to EPA's distinguishing between section 112 combustors designed to recover energy and section 129 incinerators meant to destroy materials. *NRDC* at 1260. The court, however, was very clear that this is not the line drawn by Congress, which intends that any waste material, even if burned for energy recovery, must be burned in section 129 combustion units.

The Agency, however, believes that the case law would not prohibit the processing or extracting of products from non-hazardous secondary materials that were once wastes. This latter view is controversial as evidenced by the comments from environmental groups, which claim that no amount of processing can convert a waste into a legitimate fuel or ingredient product. EPA, however, does not believe it may interpret the statute or the case law to allow a clearly discarded secondary material to become a non-waste *solely* because it has value.

EPA sympathizes with the commenters' concern that the processing requirement could have the effect of applying different standards to identical materials, such as scrap tires. The Agency, however, is constrained by the statute and case law. If the non-hazardous secondary material is not discarded in the first instance and is legitimately recycled—that is, meets the legitimacy criteria, it is not discarded. Once the material has been discarded—thrown into waste piles or on stacks—there is no choice. Something other than mere recycling must happen to the material before it may lose its waste designation. The mere fact that secondary materials may have value after being discarded is not sufficient to rehabilitate it.

Accordingly, EPA is not making any changes to the processing requirements for discarded scrap tires, although the Agency is providing that tires harvested from vehicles do not need to be processed if they are harvested off of the vehicles and are managed under the oversight of an established tire collection program and are legitimately used as a fuel in a combustion unit (refer to Section V.B.5 Scrap Tires) to be considered a non-waste fuel.

For coal refuse, however, EPA has decided that for the final rule, to make some modifications to its determinations regarding sufficient processing. In the proposal, EPA was still considering that the coal refuse that was abandoned would require additional processing, even though they were the same material as coal refuse currently generated and used in fluidized bed combustors as traditional mined coal. EPA has modified its view to provide that the discarded coal refuse that is processed in the same way as coal is today would not be considered a waste when combusted. For more information on the rationale for this decision, see Section V.B.8 for a discussion of the comments received on coal refuse and our response to those comments.

Finally, in response to the point that minimal processing is permitted to exclude scrap metal from the definition of solid waste in EPA's hazardous waste regulation, the Agency first states that it is not reopening the hazardous waste regulations, including the reasoning in those regulations. Besides, the reference to scrap metal in the hazardous waste regulation was only used in the preamble to note the fact that the extent of processing in general depends on the nature of the material, as we have noted elsewhere in the preamble to today's rule. Any comparison, other than the very general one that processing depends on the material, is not being considered by EPA. Whatever the reasoning provided in those regulations, EPA did not cite the scrap metal regulation as support for the processing

[24] As discussed later in this preamble, the Agency has changed its view regarding coal refuse that was previously abandoned, such that if the discarded coal refuse is processed in the same way as coal is today, the Agency would not consider the processed coal refuse a solid waste.

definition. The Agency also points out that the scrap metal is not combusted.

B. Comments on Specific Materials Used as Fuel

1. Traditional Fuels [25]

The following discussion describes how EPA has analyzed what is a traditional fuel in the ANPRM and the proposal. Next, the Agency shows how it considered various comments on the concept of traditional fuels. Section VII.A, based on these analyses and all information in the rulemaking record, explains the Agency's decision on what constitutes a traditional fuel.

EPA does wish to clarify, however, that it is using the term, "traditional," more in the sense that we have a product that is created for its use as a fuel. Some traditional fuels have been used for a long time, while others are "traditional" only in the sense that they are created in the "traditional" way that a product is created (or mined), even though they may be newly developed fuels. For example, coal refuse that was formerly not able to be used as a fuel may now be used in fluidized bed systems. Perhaps, more obvious is the fact that petroleum, itself, would not have been considered a traditional fuel in the early 1800s, nor would uranium.

The ANPRM categorized as traditional fuels cellulosic biomass (*e.g.,* wood) and fossil fuels (*e.g.,* coal, oil, natural gas), as well as fossil fuel derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas). Traditional fuels are those that have been burned historically as fuels and have been managed as valuable products. They are unused products that have not been discarded. The ANPRM also stated that unadulterated or clean wood collected from forest fire clearance activities and trees and such wood found in disaster debris, likewise, constitute traditional fuels. This basic concept of traditional fuels was discussed at 74 FR 53.

The ANPRM also discussed other legitimate "alternative" fuels that have not been previously discarded generally noting that what constitutes a new "fuel" reflects the availability of the fuel materials generally, the demand for the fuel, and technology developments. Thus, there is a category of materials that are legitimate alternative fuels that may not have been historically used as fuels, but that are nonetheless legitimate fuels today because of changes in technology and in the energy market. In cases where these legitimate alternative fuels have not been discarded, EPA said that it would not consider them to be solid wastes. This is explained in the ANPRM at 74 FR 56.

The ANPRM stated that much of the biomass currently used as alternative fuels are not solid waste since they have not been discarded in the first instance and are legitimate fuel products. It noted that biomass can include a wide range of alternative fuels, and can be broken down into two different categories—cellulosic biomass and non-cellulosic biomass. Cellulosic biomass was described to include forest-derived biomass (*e.g.,* green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, and tree harvesting residuals from logging and sawmill materials), food scraps, pulp and paper mill wood residuals (*e.g.,* hog fuel, such as clean and unadulterated bark, sawdust, trim screenings; and residuals from tree harvesting),[26] and agricultural residues (*e.g.,* straw, corn husks, peanut shells, and bagasse). Non-cellulosic biomass was described to include manures and gaseous fuels (*e.g.,* from landfills and manures) (74 FR 56).

The ANPRM stated that biomass, especially cellulosic biomass, has a comparable composition to traditional fuel products due to the nature of the plants and animals (*i.e.,* they would not be considered to have additional "contaminants"). Thus, if they are managed as valuable commodities and have meaningful heating value, they would not be considered solid wastes.

The ANPRM distinguished the traditional fuels from non-traditional alternative fuels to decide whether they are discarded, or whether they are legitimate alternative fuels. These fuels are those in use today that the Agency was evaluating, and continues to evaluate, to determine whether they have been discarded and whether they are legitimate alternative fuels (*e.g.,* construction and demolition materials, scrap plastics, non-hazardous non-halogenated solvents and lubricants, and wastewater treatment sludge) (74 FR 56).

The ANPRM also described secondary materials EPA considered to be questionable as to whether they are legitimate fuels because they lack adequate heating value (wet biomass), or because they may contain contaminants that are significantly higher in concentration than those in traditional fuel products to the degree that sham recycling is indicated. The secondary materials that were described in the ANPRM that could fall into this category include polyvinyl chloride (PVC), halogenated plastics, chromated copper arsenate (CCA) lumber, creosote lumber, copper-based treated lumber, lead-based treated lumber, and secondary mill residues, such as board, trim and breakage from the manufacture of reconstituted wood/panel products.

The proposed rule continued to recognize that traditional fuels, as noted above, are not solid wastes, but added to that group clean cellulosic biomass and on-specification used oil (75 FR 31856). Specifically, in the proposal, "clean" biomass material was defined as a non-hazardous secondary material that has not been altered (either chemically or through some type of production process), such that it contains contaminants at concentrations normally associated with virgin biomass materials (the description of "clean" is being modified slightly for today's rule, see discussion below). Clean cellulosic biomass was described to include forest-derived biomass (*e.g.,* green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, and tree harvesting residuals from logging and sawmill materials), corn stover and other biomass crops used specifically for energy production (*e.g.,* energy cane, other fast growing grasses), bagasse and other crop residues (*e.g.,* peanut shells), wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, and clean biomass from land clearing operations (75 FR 31856). Essentially, "clean" biomass was that biomass material that was simply picked up from its environment and burned for fuel. EPA requested comment on whether other types of cellulosic biomass should be designated as clean biomass, and thus a traditional fuel (75 FR 31856).

EPA also proposed to add on-specification used oil to the list of "traditional" fuels based on the argument that it meets the Agency's view of fuels that have been managed as valuable fuel products rather than being managed as waste materials. 75 FR 31864. The Agency stated that under 40 CFR part 279, once used oil is determined to be on-spec, it is no longer regulated under the used oil management standards. This means that once the marketer complies with the

[25] Traditional fuels are not considered secondary materials and therefore, are not considered a solid waste unless they themselves have been discarded. However, because the Agency received comments regarding "traditional fuels," including whether certain materials should be considered a traditional fuel, the Agency is addressing those comments in this section.

[26] The ANPRM description of cellulosic biomass inadvertently repeated the same material—"tree harvesting residuals from logging" and "residuals from tree harvesting." Descriptions of cellulosic biomass in the proposed rule and this final rule deleted the second reference to residuals from tree harvesting.

requirements for analysis and record retention, notification, and record tracking shipment to on-specification burners, the oil is no longer subject to other management standards. Moreover, the on-specification used oil contains contaminants at levels below the maximum concentration limits established in the standards, such that they are either at the same concentration or a lower concentration than virgin refined fuel oil.

EPA acknowledged in the proposal that changes in technology and in the energy market over time may result in additional materials being economically viable to be used as alternative "traditional" fuels. It also may not always be clear whether a fuel material is a traditional fuel. We agreed with commenters to the ANPRM that this rulemaking should be flexible to account for increasing use and changes in commodities, technologies, markets, and fuel prices. We, therefore, requested comment on whether other fuels in use today should be classified as traditional fuels, as well as whether to provide a petition process that would allow a facility or person to request that EPA determine whether the fuel that they burn qualifies as a traditional fuel.

As also discussed in Section VII, the definition of traditional fuels has been modified in today's rule. The new definition encompasses two categories of fuels: (1) "Historically managed" fuels, as identified in the proposed rule, and (2) "alternative" fuels, as discussed in the ANPRM. Through this revised definition, EPA is recognizing that changes in technology and in the energy market over time have resulted in additional materials being economically viable to be used as alternative "traditional" fuels. The definitions of traditional fuels and clean cellulosic biomass are codified in today's rule (§ 241.2). "Traditional fuels" is defined in today's final rule as materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid waste including: (1) Fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (*e.g.,* coal, oil and natural gas), their derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and (2) alternative fuels developed from virgin materials that can now be used as fuel products, including used oil which meets the specifications outlined in 40 CFR 279.11, currently mined coal refuse that previously had not been usable as coal, and clean cellulosic biomass. Clean cellulosic biomass is also codified in today's rule (§ 241.2) and includes those residuals that are akin to traditional cellulosic biomass, such as forest-derived biomass (*e.g.,* green wood, forest thinnings, clean and unadulterated bark), sawdust, trim, and tree harvesting residuals from logging and sawmill materials), corn stover and other biomass crops used specifically for energy production (*e.g.,* energy cane, other fast growing grasses), bagasse and other crop residues (*e.g.,* peanut shells), wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. "Clean" cellulosic biomass is cellulosic biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials. As indicated above, this description of clean is modified slightly in today's rule. The previous description included non-hazardous secondary material that has not been altered (either chemically or through some type of production process), such that it contains contaminants at concentrations normally associated with virgin biomass materials.

Traditional fuels as described above are not secondary materials or solid wastes.

Comment: Several industry commenters suggested that EPA include off-spec used oil, scrap tires, resinated wood products, treated wood, pulp and paper mill residues, and recycling process residuals in its definition of traditional fuels. They claim that these materials have histories of use as valuable fuel products. Another commenter suggested that secondary materials from new processes to meet Renewable Fuel Standards (RFS) should be defined as traditional fuels. According to the commenter, not defining those materials as traditional fuels could lead to reduced beneficial use, could negatively impact the economics of these newly developing processes, and could increase the use of conventional fossil fuels. This could significantly harm the prospects of reaching RFS goals.

EPA's Response: For a discussion of comments and EPA responses related to each of the individual materials listed above and their use as traditional fuels, see their respective subsections within Section V.B. Regarding the RFS program, the Agency disagrees with the commenter that materials from processes to meet the RFS standard should be defined as traditional fuels. Under the RFS program, EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the U.S. contains a minimum volume of renewable fuel. Today's rule addresses only the use of non-hazardous secondary materials as a fuel or ingredient in stationary source combustion units (regulated under CAA section 112 and 129), and does not impact other end uses of these materials, including their use as a transportation fuel.

Comment: There are many other materials that might be considered as secondary materials, but because of their energy content, have been identified as viable fuels, particularly as the cost of fossil fuels have increased over time. Citing phrases from the proposed rule, one commenter stated that "Changes in * * * the energy market," as well as systems designed and installed by cement plants in order to manage these materials ("changes in technology"), would suggest that materials, such as plastics, paper and paper residues, and tires should qualify under this definition of "traditional fuels."

EPA's Response: As indicated in the discussion above, EPA agrees that there is a category of materials that are legitimate alternative fuels that have not been discarded and may not have been traditionally used as fuels (*i.e.,* a product that is created for its use as a fuel), but that are nonetheless legitimate fuels today because of changes in technology and in the energy market. Such alternative fuels would include clean cellulosic biomass, currently mined coal refuse, and on-specification used oil. See the respective subsections within Section V.B for a further discussion of each of these materials. As discussed in the proposed rule, the Agency believes materials, such as plastics, paper and paper residues and tires that have not been removed from vehicles and managed under an established tire collection program typically have been discarded, and thus would not be considered traditional fuels or legitimate alternative fuels.

Comment: Another commenter stated that EPA does not say why it regards certain fuels as "traditional" and, indeed, stresses that the term "traditional" "should be flexible to account for increasing use and changes in commodities, technologies, markets, and fuel prices." Thus, EPA makes clear that the term "traditional fuels" will accommodate fuels that are anything, but "traditional." EPA provides no basis at all for assuming that none of the fuels

it labels "traditional" are not actually waste.

EPA's Response: EPA disagrees with the commenter. As described in the ANPRM and proposed rule, traditional fuels, such as fossil fuels have been burned historically as fuels and have been managed as valuable products. They are considered unused products and are not secondary materials and are not solid wastes unless discarded. We added "alternative fuels" to the definition of traditional fuel in today's rule to recognize that changes in technology and in the energy market have resulted in additional materials being economically viable to be used as alternative "traditional" fuels. The definition is codified in § 241.2 in response to comments received on the proposal and to provide clarity in the application and the meaning of traditional fuel.

Comment: Other commenters suggested that, in order to further clarify the definition of traditional fuel, if a fuel was on record as being used before a specific year, *e.g.,* 1980, that it be categorized as a traditional fuel. Still other commenters suggested that additional rule text is needed to clarify that non-hazardous secondary materials used traditionally as fuels are not solid wastes. Finally, to address any ambiguity about which materials are traditional fuels, another commenter stated that EPA should include a petition process in the rule that would allow sources to seek a determination on whether a material may be considered a traditional fuel.

EPA's Response: As described in the ANPRM and proposed rule, traditional fuels, such as fossil fuels have been burned historically as fuels and have been managed as valuable products. They are considered unused products and are not secondary materials unless discarded. We do not agree that a specific year should be identified to define historically managed traditional fuels. First, it is not clear what year should be selected and why and what the basis for picking a particular year would be. In addition, as we noted in the proposal, the wide variability of historic use and management of this category of fuels does not lend itself to identification of a specific year. As discussed above, EPA does wish to clarify that it is using the term, "traditional," more in the sense that we have a product that is created for its use as a fuel. Some traditional fuels have been used for a long time, while others are "traditional" only in the sense that they are created in the "traditional" way that a product is created (or mined), even though they may be newly developed fuels.

The Agency received only a few comments that supported a petition process for traditional fuels. In light of the time and resource intensive nature of such a process for the petitioner, the Agency believes that the revised codified definition in today's rule together with the preamble discussion should provide the basic guidance needed for the regulated facility to determine whether the material qualifies as a traditional fuel. Therefore, today's rule does not include a petition process for an Agency determination that a material is, or is not, a traditional fuel. However, any person can petition EPA under the Administrative Procedure Act (APA), section 7004 of RCRA, and general principles of administrative law for modifications to its regulations. Thus, if a person believes that additional materials should be included as a traditional fuel or alternative fuel, they may petition EPA to request such a change through rulemaking. In addition to the specific changes requested, the petition would also need to include a justification and rationale for the change.

Comments: "Hogged fuel" should be added to the list of "clean" biomass materials. Hogged fuel is bark and other wood removed from the tree that cannot be chipped and used in making pulp, paper, and wood products.

EPA's Response: We believe that the materials described by the commenter as "hogged fuel" are currently covered by the terms "clean and unadulterated bark" and "tree harvesting residuals from logging and sawmill materials" within the definition of traditional fuel. However, we are aware that there are varying definitions of "hogged fuel" and point the readers to the sections describing traditional fuel and secondary materials to determine if their hogged fuel would be considered a type of traditional fuel or a non-hazardous secondary material.

2. Manure

The proposed rule explained that the Agency lacked sufficient data to evaluate whether manure burned for energy recovery is a waste. As a result, we did not take a position one way or the other, but rather requested comment, information and data on the legitimacy criteria, which are designed to determine whether a non-hazardous secondary material when combusted is a waste. Specifically, these criteria deal with the levels of the various contaminants in manure, the energy content of the manure, and on how manure is handled from its point of generation to the point it is used as a fuel.

The proposal also stated, however, that if manure is processed into biofuels (for example, by anaerobic digesters), such biofuels would be considered a legitimate non-waste fuel that has been processed from a non-hazardous secondary material provided "the biofuel" meets the legitimacy criteria—that is, provided it is managed as a valuable commodity, has a meaningful heating value and contains contaminants at levels that are comparable to or lower than those in traditional fuels. The proposal again acknowledged, however, that we had limited data on biofuels that are produced from animal manures, and requested that commenters provide additional data on the extent to which manures are currently processed into biofuels, as well as data to support whether biofuels produced from manure meet our legitimacy criteria. See 75 FR at 31863.

Comment: The Agency received comments both supporting and opposing the designation of manure as a waste. Specifically, two commenters asserted that poultry litter that is burned as a fuel poses health hazards (*e.g.,* from arsenic that is added to poultry feed), but provided no data to support this position. Another comment submitted in response to the ANPRM stated that, due to the nature of manure, there is the possibility of widespread environmental harm due to the release of pathogens from animal manure, and that concentrated animal feeding operation (CAFO) wastes are known to contain heavy metals, halogens, dioxins, and other hazardous compounds. They assert chicken litter has elevated arsenic levels and that swine waste has high amounts of ammonia, nitrogen, and phosphorous. Still another commenter suggested that poultry litter that is burned in power plants emit more pollutants per million Btus when compared to coal fired power plants. Another commenter referenced a 2008 report that described the risks associated with CAFOs.[27] This report stated that CAFOs are sited in rural communities that bear the brunt of the harm caused by CAFOs, including the frequent presence of foul odors and water contaminated by nitrogen and pathogens, and that the use of antibiotics in CAFOs, especially for non-therapeutic purposes, such as growth promotion, contributes to the

[27] Gurian-Sherman, Doug, *CAFOs Uncovered: The Untold Costs of Confined Animal Feeding Operations,* Union of Concerned Scientists (April 2008).

development of anti-biotic resistant pathogens that are more difficult to treat. Finally, one Midwest state commented that when manure supply significantly exceeds demand for manure as a fertilizer, the excess is treated as a waste and should be regulated as a waste under this rule.

On the other hand, a commenter argued that EPA should not classify poultry litter as a solid waste and provided some contaminant data on poultry litter generated in the United Kingdom.[28] Another commenter described how their company collects poultry litter from growers for use as a fuel in dedicated (off-site) biomass power plants. The commenter asserts that the poultry litter satisfies all the legitimacy criteria. Specifically, this commenter describes operations (and argues) that the poultry litter is managed as a valuable product by the poultry litter generators and transporters, as well as by the power plants. The commenter describes poultry litter generators as collecting the litter on a continual basis and storing it in enclosed poultry barns. The poultry litter is then transported in completely covered trucks to the power plant where it is unloaded in a fully enclosed fuel hall and is tested for fuel quality to ensure contractual obligations are being met by the growers. After sampling, the trucks dump the litter into a concrete reception pit within the fuel hall. Then, before being combusted, the commenter indicates that the biomass fuel is processed (*e.g.,* processed in a "de-lumper" followed by a disc screen) to breakdown the clumps of material and remove incidental non-combustible tramp materials. The commenter also asserts that poultry litter satisfies the contaminant legitimacy criterion, but only provided data on sulfur and chlorine levels, noting the reported chlorine levels averaged 0.7 percent (on a dry basis). They also provided data on the heating values of poultry litter that ranged from 3–4,000 Btu/lb, explaining that this material is a self-sustaining fuel (requiring no supplemental fuel), although they also note in their comments that the poultry litter is mixed with other biomass before being used as a fuel. The developer of this plant has indicated that they have proposals to build similar type plants in North Carolina, Virginia, and Georgia, but has not received approval from local authorities. Another firm has a proposal for a plant in Connecticut, designed to run on litter from an egg farm, but funding for this plant dried up as a result of the U.S. financial crisis. Additionally, two power plants (one in Texas and one in California), each currently mothballed, but scheduled to reopen in 2011, would use cattle manure as feedstock.

Finally, two states commented that manure is excluded from the definition of solid waste under their laws and regulations. One of these states excludes manure from being defined as a solid waste when it is returned to the soil as fertilizer or as a soil conditioner, while the other exempts it from its statutory definition of solid waste.

Regarding our request for comment on the extent to which manures are currently processed into biofuels, as well as data to support whether biofuels meet the legitimacy criteria, one state referenced a June 2009 Report to Congress[29] that reviewed the current commercial use of manure to energy systems, and found that few exist, and that it is unlikely in the near term future for more to be developed due to technological and economic barriers. Another state commented that they were aware of one gasification system that has been built on a pilot scale that uses chicken and poultry litter as a feedstock. Another commenter stated that about 120 dairy farms and 30 hog farms use manure as a feedstock for anaerobic digesters which are designed to capture the methane gas in manure. Most farms then burn the gas as a feedstock for on-farm electrical generation, which can be used to off-set the farm's purchases and to sell electricity to the power grid. This commenter also noted that one very large farm in the Phoenix area further cleans the methane and sells it to a natural gas company whose pipeline runs next to the farm.

A Tribe requested that EPA finalize legitimacy criteria that does not discourage the development of biogas technology since it is a clean carbon-neutral fuel needed to help address climate change. This Tribe explained that its renewable energy plans focus, in part, on production of biogas from animal, cheese, and other organic material, and requested that EPA either exempt biogas from the contaminant legitimacy criterion or require that, overall, contaminants in gaseous fuels not be "significantly higher" in concentration than contaminants found in traditional fuel products that the combustion unit is designed to burn. The Tribe is concerned that a direct numerical comparison of contaminant levels of biogas to natural gas that requires all contaminants in biogas to be equivalent or below the concentrations found in natural gas would discourage the development of biogas technology.

EPA's Response: First, based on the information provided to us, we could not make a blanket determination that all manure is a traditional fuel or that it is a solid waste. However, upon reviewing the few comments and data received, we conclude that animal manure that is used as a fuel "as generated" does not satisfy the legitimacy criteria, and thus, if combusted "as generated," is a solid waste. However, as we discuss in other parts of today's preamble, there are circumstances where manure would not be considered a solid waste when burned as a fuel for energy recovery. We discuss these circumstances below. In addition, we recognize that manure can have other beneficial uses and emphasize that we are not making a solid waste determination on those other uses through this rulemaking.

Specifically, we find that the levels of certain pollutants, such as nitrogen and chlorine, in certain types of manure, as generated, may not be comparable to those levels found in traditional fuels that otherwise would be burned. This is based on limited data found in a North Carolina State University[30] study that indicate some types of manure have higher levels of nitrogen and chlorine when compared to traditional fuels that otherwise would be burned in the energy recovery device.[31] Regarding the commenter's reference to pathogens, pathogens are not included as a contaminant in today's rule, since that definition focuses on those constituents identified in the CAA that EPA will be evaluating to determine whether to establish emission standards (*see* also the discussion in V.D.3).

We also find that manure, as generated, that is used as a fuel does not satisfy our meaningful heating value criteria, since the limited data we received shows that manure, as generated, has heating values lower than 5,000 Btus/lb, as-fired. In fact, one commenter noted that for manure to be

[28] This commenter reported poultry litter as having sulfur, chlorine, and nitrogen levels of 0.35%, 0.16%, and 3.3%, respectively, and a net heating value of 4,900 Btu/lb.

[29] USDA, June 2009. *Manure Use for Fertilizer and for Energy Report to Congress.* Economic Research Service. June 2009, pp. 32–39. *http://www.ers.usda.gov/publications/ap/ap037/ap037.pdf.*

[30] Animal and Poultry Manure Production & Characterization. North Carolina State University Cooperative Extension Service. Raleigh, NC. *http://www.bae.ncsu.edu/programs/extension/manure/awm/program/barker/a&pmp&c/.*

[31] Some manures were listed as having the following mean levels for chlorine and nitrogen: Cl—1% by weight and N—3.5% by weight reported as total Kjeldahl nitrogen as N. By comparison, coal contains chlorine levels ranging from as low as 0.01% to as high as 0.74 percent and nitrogen levels ranging from 0.6% to 1.9%.

considered to have fuel value, that it typically should have a moisture content of less than 25 percent, and manure, as generated, typically has a higher moisture content. We also note that to satisfy the legitimacy criteria, today's final rule requires that facilities that burn non-hazardous secondary materials with a heating value of less than 5,000 Btus/lb would need to demonstrate that such non-hazardous secondary materials have meaningful heating values by describing whether the energy recovery unit can cost-effectively recover meaningful energy from the manure (*see* Section V.D.2).[32] While one commenter provided data to show that a power plant that is dedicated to burning poultry litter would meet the meaningful heating value criteria, even though the Btu content of the poultry litter is less than 5,000 Btu/lb, as-fired, we believe that these limited data can't be used to suggest that all or most manure that has a heating value of less than 5,000 Btu/lb, as-fired, could meet this demonstration.

We acknowledge, however, that farms or other facilities may manage manure as a valuable fuel commodity and that this manure could also satisfy EPA's contaminant and heating value legitimacy criteria. Our limited data suggests that manure that is combusted has typically been collected, stored, and processed. Thus, today's final rule also says that manure would not be considered a solid waste when burned in a combustion unit as a fuel for energy recovery under the following circumstances:

- *Within the Control of the Generator:* Manure that is burned in a combustion unit as a fuel for energy recovery would not be a solid waste if the manure is burned in a combustion unit that is within the control of the generator and the manure meets the legitimacy criteria.
- *Processing of Manure:* Manure that is "sufficiently processed"[33] would not be considered a solid waste (after processing) when burned in a combustion unit as a fuel for energy recovery provided the processed manure meets the legitimacy criteria. This is a self-implementing provision, such that a petition would not need to be submitted to EPA and is not limited to "within the control of the generator." Thus, for example, a farm or third party could process the manure to remove or destroy contaminants that are not at levels comparable to those contained in traditional fuels or improve the materials heating value, and after processing, to the extent the processed manure meets the legitimacy criteria, the processed manure would not be a solid waste when burned as a fuel for energy recovery.[34] Also, as we discussed in the proposed rule, we expect that manure can be processed into a non-waste gaseous fuel (*e.g.,* via anaerobic digestion or gasification processes), as suggested by commenters. This gaseous fuel would also have to satisfy the legitimacy criteria, and while we did not receive data on contaminant levels of gaseous fuels that are, or could be, produced, we generally expect that a system could be designed to produce a clean gaseous fuel that would satisfy all of our legitimacy criteria.
- *Non-Waste Determination Petition Process:* Manure, as generated, that has been transferred to a third party for combustion as a fuel for energy recovery, but has been granted a non-waste determination from EPA would not be considered a solid waste. This provision establishes a case-by-case process that provides persons an administrative process for receiving a formal determination from EPA that, in this case, manure, as generated, that has not been discarded in the first instance and is indistinguishable in all relevant aspects from a fuel product, is not a solid waste. Any petition submitted to EPA requesting a non-waste determination would need to demonstrate that the manure has not been discarded in the first instance, satisfies the legitimacy criteria for fuels, and satisfies the following criteria: (1) Whether market participants treat the manure as a fuel rather than a solid waste; (2) whether the chemical and physical identity of the manure is comparable to commercial fuels; (3) whether the manure will be used in a reasonable time frame given the state of the market; (4) whether the constituents in the manure are released to the air, water or land from the point of generation to the point just prior to combustion of the manure are released at levels that are comparable to what would otherwise be released from traditional fuels; and (5) other relevant factors.

We partially agree with the commenter that was concerned about the legitimacy criterion that would require contaminants in biofuels to either be equivalent to, or lower than, levels found in natural gas. While we believe it is beneficial to promote the use of clean burning fuels, such as biofuels, non-waste fuels produced from secondary materials should have comparable or lower levels of contaminants relative to traditional fuels used today, since gaseous fuels that are produced from secondary materials have the potential to have elevated levels of contaminants (such as sulfur). As a result, we believe it is appropriate to require, as proposed, that contaminants be comparable, or lower than, those levels found in traditional fuels. However, as discussed in Section V.D.3, we are not defining comparable to mean "equivalent to or lower than" or "no higher than" the level of the contaminant in the traditional fuel. Rather, EPA is generally defining "comparable to or lower than" to mean contaminants can be present in non-hazardous secondary materials within a small acceptable range, or at lower levels, relative to the contaminants found in the traditional fuels. Thus, biofuels that are produced from non-hazardous secondary materials can have contaminants that are somewhat higher than the traditional fuel that otherwise would be burned and still qualify as being comparable, and would not be considered a solid waste.

Comment: Manure used as a fuel that would otherwise be applied to the land covered under a nutrient management plan[35] is in no way discarded.

[32] As we note elsewhere in today's preamble, this demonstration would be self-implementing and would not require a petition to EPA, but the person would be required to keep appropriate records as to the basis for this demonstration.

[33] Processing (as it relates to fuels) means any operations that transform the discarded non-hazardous secondary material into a legitimate fuel product, and includes, but is not limited to, operations that remove or destroy contaminants, operations that significantly improve the fuel characteristics of the material, e.g., sizing or drying the material in combination with other operations, and operations that chemically improve the as-fired energy content of the material. Minimal operations that result only in modifying the size of the material do not constitute processing for the purposes of this definition.

[34] As noted previously, one commenter described their operation and noted that "the mixed biomass fuel is lightly processed (*e.g.,* processed in a "de-lumper" followed by a disc screen) to break down clumps of material and remove incidental non-combustible tramp materials." This comment does not contain enough information to determine whether or not this would meet the regulatory definition of processing in today's rule. That is, processing is designed to produce or extract a product from a waste—not just to chop the waste up. However, to the extent that this level of processing is considered sufficient, the processed manure would not be a solid waste when burned in a combustion unit as a fuel for energy recovery.

[35] A nutrient management plan is defined in the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) Standard (590) as, "Managing the amount, source, placement, form and timing of the application of nutrients and soil amendments." The NRCS nutrient management standard (590) is the guidance provided to NRCS field staff and other planners when providing technical assistance to producers participating in voluntary programs. The purpose of the 590 standard is to meet the nutrient needs of the crop

Continued

EPA's Response: We recognize that manure may also be beneficially used in other end uses, such as a fertilizer. As we have noted elsewhere in the preamble to today's rule, EPA is not making any determination whether non-hazardous secondary materials are or are not solid wastes for other possible beneficial end uses. Such beneficial use determinations are generally made by the states for these other beneficial uses, and EPA will continue to look to the states to make such determinations.

Comment: Combustion of manure is simply one of the ways of realizing the carbon value of manure (for energy production/recovery rather than as a soil amendment) and should not be considered in any way as a means of "discard," since the inherent value of manure as a fertilizer is essentially preserved in the resultant ash. Further, since the ash from manure combustion is still suitable as a fertilizer, the commenter also believes that manure does not contain contaminants that are significantly higher in concentration than traditional fuels.

EPA's Response: Both wastes and non-wastes can be utilized as fuels and in this rule EPA is determining what is and is not a solid waste when combusted. As we have stated, there are circumstances when manure would not be considered a solid waste when combusted. In the commenter's case, it does not appear that manure being burned solely to improve soil would meet the legitimacy criteria.

Further, whether the resultant ash is suitable as a fertilizer is not directly relevant to EPA's solid waste determination for non-hazardous secondary materials used as a fuel since contaminants that are present in the manure "as generated" can also be destroyed (discarded) in the combustion process or be directly emitted to the environment, either prior to combustion (during storage and transportation) or if they are not sufficiently combusted and/or controlled by the combustion unit's air pollution control system. Contaminants in manure that may be used as a fuel must be present at comparable or lower levels relative to traditional fuels for the manure to satisfy the contaminant legitimacy criterion. As previously discussed, EPA concludes that manure, as generated, may not satisfy this criterion for nitrogen and chlorine.

Comment: Given the biological basis of agricultural products and by-products and the unique nature of the transfer of agricultural commodities among entities, the commenter requests that EPA presumptively grant a non-waste determination for manure that is used as a combustion fuel outside the control of the generator that would otherwise meet the legitimacy criteria. The commenter states that crops grown from a cropping operation may be sold/provided to an animal production operation as a feed input, with the manure from the animal production operation being sold/provided to a community based or regional energy production system as one of many fuel sources from that area, with the resultant ash from the energy production system sent back to the cropping operation as a fertilizer source. The commenter then explains that the cropping and animal production operator may be the same entity, and asserts that the transfer among entities in this instance is to facilitate energy recovery, not disposal.

EPA's Response: Unlike scrap tires and resinated wood residuals, information and data were not provided that would allow the Agency to presumptively grant a non-waste determination for all manure that is used as a fuel outside the control of the generator. As a result, we conclude that the final rule cannot presumptively grant a non-waste determination for manure that is used as a fuel outside the control of the generator. We note, however, that sources may petition the Agency for a non-waste determination for materials managed outside the control of the generator (*see* Section VII.G), or, as previously discussed, process (as codified in § 241.2) the manure into a non-waste fuel that meets the legitimacy criteria.

Comment: Modern manure management systems that are designed and operated in accordance with applicable Federal, Tribal, State, and/or local regulations and requirements for air and water quality should be considered to meet the "adequate containment" requirements.

EPA's Response: EPA does not agree with the commenter that the statement "manure management systems that are designed and operated in accordance with applicable Federal, Tribal, State, and/or local regulations and requirements for air and water quality should be considered to meet the 'adequate containment' requirements" in itself, is sufficient for EPA to conclude that these systems satisfy the containment requirements because these systems may not have been designed for the use of manure as a fuel. These Federal, Tribal, State, and/or local regulations and requirements would have to be examined on a case-specific basis to determine whether manure that is used as a fuel is managed as a valuable commodity pursuant to EPA's legitimacy criteria. EPA does not believe that it can conclude that the "adequate management" criterion is met based on the descriptions of management practices that have been provided to EPA, such as stockpiling manure in open lots to facilitate drying.

Comment: Manure satisfies EPA's meaningful heating value legitimacy criterion since it typically has energy contents ranging from 6,000 to 8,000 Btu/lb on a dry basis.

EPA's Response: The data provided by the commenter summarize heating values on a "dry basis," rather than on an "as-fired" basis that accounts for the moisture content of the material, and thus, these data are not relevant to the "meaningful heating value" legitimacy criterion. Except as otherwise noted, to satisfy the meaningful heating value criterion, the non-hazardous secondary material must have at least 5,000 Btu/lb, as fired (accounting for moisture), since the as-fired energy content is the relevant parameter that must be assessed to determine if it is being discarded rather than used as a fuel for energy recovery. *See* Section VII.H.1. As previously discussed, the data available to EPA on an "as fired" basis would suggest that much of the manure, as generated, would have heating value levels of less than 5,000 Btu/lb. If the non-hazardous secondary material has a [meaningful] heating value of less than 5,000 Btu/lb, "as fired," the secondary material may still be considered to have a "meaningful heating value," but the source must demonstrate that a meaningful heating value is derived from the manure, and appropriate records kept.

3. Other Biomass

The proposed rule preamble discussed many different forms of biomass, including cellulosic and non-cellulosic biomass.[36] How the final rule views clean biomass was addressed earlier in Section V.B.1, which addresses traditional fuel. Manure was discussed in the previous section (Section V.B.2), while pulp and paper sludges and resinated wood residuals will be discussed in more detail in Sections V.B.4 and V.B.6, respectively, of this preamble. This section discusses other biomass materials that may be burned as a fuel, and whether or not they would be considered a solid waste when combusted as a fuel. Specifically, the proposed rule identified lead-based painted wood, and wood treated with pentachlorophenol, copper-based and

to be grown, while minimizing the loss of nutrients to surface and ground water.

[36] 75 FR 31861–31863.

borate-based compound treatments as solid wastes due to elevated contaminant levels relative to traditional fuels. Moreover, the proposed rule explained that, to the extent that any treated wood is identified as a hazardous waste, it would not be eligible to be burned in a non-hazardous waste combustion unit. We also specifically requested comment on the levels of contaminants in creosote-treated lumber due to the uncertainty associated with the level of contaminants (*e.g.,* levels of polycyclic aromatic hydrocarbons present in creosote).[37] We received comments on construction and demolition (C&D)-derived wood, treated wood, and OCC rejects.

Comment: Since creosote is a derivative of coal, itself a traditional fuel, the comments argued that creosote-treated wood should also be considered a traditional fuel. They suggested that this material is treated as a valuable commodity and has been used as a fuel for over a decade. One commenter provided data that showed that the mobility of contaminants indicates that p-cresol leaches at 75 percent of the hazardous waste toxicity characteristic leaching procedure (TCLP) levels in new ties, but that this is reduced to less than 10 percent in ties that are over 10 years old. Another commenter provided the average results from 605 TCLP tests and 605 totals analyses for metals on creosote-treated wood. These results were below TCLP limits for all of the contaminants it contains (*i.e.,* cresol, m,p-cresol, o-cresol leached an average of 1.23 mg/L, 0.90 mg/L, 0.35 mg/L, respectively), although two compounds, 2,4-dinitrotoluene and hexachlorobenzene, leached at levels close to the toxicity characteristic (TC) regulatory level (both leached at 0.09 mg/L with a standard deviation of 0.03).[38] Another commenter submitted a compositional analysis that compared the levels of constituents in creosote (not creosote-treated wood) to crude coke oven tar, a traditional fuel. For example, creosote contains between 8.00–17.30% of naphthalene and 0.50–0.80% quinoline, respectively, while crude coke oven tar contains between 3.00–11.00% naphthalene and 0.18% quinoline). Besides naphthalene and quinoline, data was also submitted for other compounds on the CAA section 112 HAP list, including biphenyl and dibenzofuran. The data submitted showed that all contaminants were present in the creosote at levels greater than in crude coke oven tar.[39] Other studies compared metal contaminants (As, Cr, Pb, and Cu) in creosote- and pentachlorophenol-treated wood (<1.97 ppm As, <4.21 ppm Cr, <64.13 ppm Pb, and 7.65 ppm Cu) to that of wood chips, bark, yard waste, and forest residuals and found that the levels were comparable (<3.61 ppm As, 0.12–4.77 ppm Cr, <17.5 ppm Pb, and <6.44 ppm Cu).[40]

Finally, a study was submitted that demonstrated that the co-firing of creosote- and pentachlorophenol-treated wood (10/90 treated wood/coal mix) results in a reduction of 79–107 ppm of oxides of sulfur (SO_2), 78–100 ppm of oxides of nitrogen (NO_X), and 0.4–0.5 ppm of total hydrocarbon (expressed as propane) emissions compared to those from samples of Upper Freeport coal. The same study, however, found that there was an increase of 17–84 ppm in HCl emissions when co-firing with treated wood, although the study noted these levels of HCl emissions could be within the range from coal found in other areas of the U.S.[41] HCl is listed on the CAA 112 HAP list. Other data were submitted that showed that PAH emissions from a combustion unit are less when burning treated wood (50/50 mixture of creosote- and pentachlorophenol-treated wood) than when combusting untreated wood. Data were also provided that indicated that pentachlorophenol and total chlorophenols were destroyed by combustion at greater than 99.9% removal efficiency.[42]

EPA's Response: We do not agree with commenters that creosote-treated wood should be considered a traditional fuel (either an historically managed traditional fuel or an alternative fuel as codified in § 241.2) solely based on the fact that it is manufactured using coal tar and wood, which are considered traditional fuels. Creosote was not derived for the purposes of creating a fuel, or the wood treated with creosote to produce a fuel, but the creosote was produced and used as a wood preservative. It is not made from virgin materials, but is a secondary material. Creosote is derived from coal tar through a distillation process and, therefore, creosote has different chemical concentrations than coal tar. While we recognize that creosote-treated wood has been utilized as a fuel for over ten years, few markets are available for creosote-treated wood due to concerns about the contaminants. This strongly suggests that burning this material is a waste treatment activity.

The TCLP data generally indicates that the material, on average, is not a hazardous waste. This does not mean, however, that the material is not a non-hazardous solid waste. Leaching data is not relevant to determine whether or not the treated wood is being discarded. We do note that the average values and standard deviations provided for 2,4-dinitrotoluene and hexachlorobenzene suggest that a few samples actually failed the TCLP test and would be classified as a hazardous waste. Creosote-treated wood that is classified as a hazardous waste must be managed as a hazardous waste, which is outside the scope of this rulemaking. Even though most creosote-treated wood is non-hazardous, the presence of hexachlorobenze, a CAA 112 HAP, as well as the other HAPs, in creosote-treated lumber suggests that creosote-treated wood include contaminants at levels that are not comparable to those found in wood or coal, the fuel that creosote-treated wood would replace.[43] In fact, the data provided demonstrates that combustion of these materials results in significant destruction, which is an indication of incineration, a waste activity. Moreover, we would note that this concept involving destruction is also consistent with the legitimacy criterion for contamination, which is based on the input into the combustion unit—that is, the contaminant concentration in the secondary material itself and not what may be emitted into the environment. Accordingly, creosote treated wood, when burned, seems more like a waste than a commodity and does not meet the legitimacy criterion for contaminants and, therefore, should be considered a waste when burned as a fuel.

In regards to wood treated with pentachlorophenol, no additional

[37] 75 FR 31863.

[38] *See* document EPA–HQ–RCRA–2008–0329–0875.1.

[39] *See* document EPA–HQ–RCRA–2008–0329–0767.1.

[40] Holtzman, M.I. and R.S. Atkins, 1995. "Emissions from Combustion of Treated Wood Fuel and Tires in Industrial Boilers," Presented to the Air and Waste Management Association's Annual Meeting, June 18–23, 1995.

[41] Freeman, M.C., W.J. O'Dowd, T.D. Brown, R.A. Hargis, Jr., R.A. James, S.I. Plasynski, G.F. Walbert, A.F. Lowe, and J.J. Battista, Jr. "Pilot-Scale Air Toxics R&D Assessment of Creosote-Treated and PCP–Treated Wood Co-firing for Pulverized Coal Utility Boiler Applications." U.S. Department of Energy's National Energy Technology Laboratory. *http://www.netl.doe.gov/technologies/coalpower/cctc/cctdp/bibliography/misc/pdfs/haps/2002–710.pdf*

[42] Smith, S.T., 1996. "Stack Testing Report, Koppers Industries, Inc., Grenada Plant, Tie Plant, MS," Submitted to the Mississippi Department of Environmental Quality, May 6.

[43] *See Preliminary Characterization Study Prepared In Support of the Proposed Rulemaking—Identification of Nonhazardous Secondary Materials That Are Solid Waste: Traditional Fuels and Key Derivatives,* EPA–HQ–RCRA–2008–0329–0461.21.

contaminant data was provided that would reverse our position from the proposal, which determined that pentachlorophenol was a solid waste due to concerns of elevated levels of contaminants.[44] While some commenters pointed to data that indicates that pentachlorophenol-treated wood (as well as creosote-treated wood) would have similar or lower air emissions to non-treated woods, the issue to determine whether a material is burned as a waste or a commodity is based on input and consequent destruction of contaminants. This is consistent with the legitimacy criteria, under which to be considered a non-waste fuel, the non-hazardous secondary material itself must have contaminant levels that are comparable to (or less than) those in traditional fuels. Thus, the final rule will retain the proposed approach, which considered wood treated with pentachlorophenol a solid waste. Of course, this assumes that the pentachlorophenol treated-wood is not classified as a hazardous waste. Hazardous wastes are not covered under the scope of this rulemaking.

Comments: Comments were submitted that argued that wood treated with borate-based compounds or copper napthenate did not contain any contaminants, but only contaminant data was supplied for wood treated with borate-based compounds. That study indicated that the most prevalent borate treatment, disodium octaborate tetrahydrate, contained 1.5 ppm of As, <1 ppm of Cd, <2.5 ppm of Cr, <5 ppm of Co, <0.02 ppm of Hg, <2.5 ppm of Ni, and 0.67 ppm of Se.[45] Since these levels represent the contaminant concentration of the borate treatment, the comments argued that the resulting wood that is treated with this compound would contain even lower concentrations of contaminants.

EPA's Response: With respect to borate-treated wood, after reviewing data from the one commenter, which shows that the levels of contaminants in this material are comparable to those found in unadulterated wood for the seven contaminants for which data was presented, we believe that such treated-wood meets the legitimacy criterion on the level of contaminants and comparability to traditional fuels. Therefore, borate-treated wood could be classified as a non-waste fuel, provided they met the other two legitimacy criteria and provided that the contaminant levels for any other HAP that may be present in this material are also comparable to or less than those in traditional fuels. We would also note that such borate-treated wood would need to be burned as a fuel for energy recovery within the control of the generator. Finally, we are aware that some borate-treated wood is subsequently treated with other chemicals, such as creosote, to provide an insoluble barrier to prevent the borate compounds from leaching out of the wood. We did not receive data on the contaminant levels of the resulting material, but data presented on creosote treated lumber indicates that this non-hazardous secondary material would likely no longer meet the legitimacy criteria and would be considered a solid waste when burned as a fuel.

We do not have information generally about the transfer of borate-treated wood to other companies to make a broad determination about its use as a fuel outside the control of the generator. (See Section V.A.1 for a general discussion of the issue concerning use of non-hazardous secondary materials within and outside the control of the generator and the EPA's response.) Thus, under today's rule, borate-treated wood would need to be burned as a fuel for energy recovery within the control of the generator. With that said, we encourage the use of the non-waste determination petition process to address those instances where transfer of the non-hazardous secondary material to a different company meets the relevant criteria—that the secondary material has not been discarded in the first instance and is indistinguishable in all relevant aspects from a fuel product.

With regard to wood treated with copper napthenate, no additional contaminant data was provided that would reverse our position in the proposed rule, which considered wood treated with copper napthenate a solid waste because of concerns of elevated levels of contaminants.[46] We acknowledge today, as we did in the proposed rule, that we do not have sufficient information on the contaminant levels in wood treated with copper napthenate.[47] Thus, if a person can demonstrate that copper napthenate treated-wood is burned in a combustion unit as a fuel for energy recovery within the control of the generator and meets the legitimacy criteria or, if discarded, can demonstrate that they have sufficiently processed the material, that person can handle its copper napthenate treated-wood as a non-waste fuel.

Comments: Commenters argued that, although C&D-derived wood is discarded by construction and demolition sites, it is sufficiently processed into a non-waste fuel. It is received at a mixed C&D processing facility as part of loads from construction and demolition sites. Potential contaminants are removed as much as possible before it enters the plant. Clean C&D wood is then separated out from the rest of the incoming stream one of two ways; either through mechanical means or through humans sorting along a specially built picking line. Painted and treated wood is identified either visually or utilizing x-ray fluorescence (XRF) analyzers. After separation, the wood is ground to a specific size and density per the specification of the plant using the biomass product. The creation of natural wood products follows a similar processing path, except that C&D wood is more carefully prepared because of the chemical analysis the C&D product undergoes.

Commenters also stated that C&D-derived wood meets the legitimacy criterion for having a meaningful heating value. They stated that C&D-derived wood has a heating value of between 7,000–8,200 Btu/lb, and thus, should be considered a non-waste fuel. Data from one plant that combusts C&D-derived wood found that it had a heating value that ranges from 6,700–9,000 Btu/lb, with an average value of 8,200 Btu/lb.

One company provided chemical constituent data on C&D-derived wood that is utilized at their plant in order to demonstrate that the material meets the legitimacy criterion for contaminants. The results of this analysis found that the chemical constituents were comparable to or lower to those found in coal (of unknown source or type). See Table 1 below for the results of this study.

[44] 75 FR 31863.

[45] *See* document EPA–HQ–RCRA–2008–0329–1569.

[46] 75 FR 31863.

[47] 75 FR 31863.

TABLE 1—COMPARISON OF CONTAMINANT CONCENTRATIONS IN SAMPLES OF COAL AND C&D-DERIVED WOOD[48]

Material	Coal (unknown source or type)	C&D-derived wood
Sample Size	16	14–16
Median contaminant concentrations:		
Cl:		
(lb/billion Btu)	46.0	56.0
(ppm)	391–644	459.2
# of non-detects	0	0
Hg:		
(lb/billion Btu)	0.00622	0.0046
(ppm)	0.05287–0.08708	0.03772
# of non-detects	0	0
Pb:		
(lb/billion Btu)	0.374	0.488
(ppm)	3.18–5.24	4.00
# of non-detects	0	0
Cd:		
(lb/billion Btu)	0.00465	0.0218
(ppm)	0.03923–0.06510	0.17876
# of non-detects	7	2

Some commenters discussed studies that concluded that the use of appropriately processed C&D wood is similar in its emission profile to that of virgin wood, although some older studies indicated an increase in metals emissions (likely due to the inclusion of treated wood).[49] Another commenter submitted a life-cycle assessment that described how the recovery of C&D wood as a fuel decreased greenhouse gas emissions. This study found that combusting all C&D wood generated in New Hampshire per year (280,000 tons) will off-set energy from the northeast power grid and, therefore, result in 70,000–130,000 tons less of carbon emissions, 600 tons/year less of particulate matter, 430 tons/yr less of NO_X, 2,300 tons/yr less of SO_X, 890 tons/yr less of CO, and 10 pounds/yr less of lead. Even when compared simply to the combustion of virgin wood, it was found that the combustion of C&D-derived wood had lower impacts: 16,700 metric tons of carbon equivalents were offset, 50 tons/yr less of particulate matter, 200 tons/yr less of NO_X, 485 tons/yr less of SO_X, and 69 tons/yr less of CO.[50]

EPA's Response: The proposed rule included clean construction wood in the definition of *traditional fuels.* The final rule retains this conclusion, although clarifies the definition of *traditional fuels* to include alternative fuels. Clean cellulosic biomass is an alternative fuel as they are clean cellulosic materials that are indistinguishable in composition from wood that is commonly burned in combustion units (See the explanation in Section V.A). We note that the final definition of *traditional fuels* clarifies that this category includes clean demolition wood as well.

On the other hand, C&D-derived wood that is not clean would not be considered a traditional fuel, but a solid waste under today's rule. However, C&D-derived wood can be classified as a non-waste fuel if it has been sufficiently processed and meets the legitimacy criteria. C&D-derived wood is typically sorted to remove contaminants (*e.g.,* lead-painted wood, treated wood, non-wood materials), and size reduced prior to burning, producing material that likely meets the processing and legitimacy criteria for contaminants. (We would also note that the technology in use today to remove contaminants from C&D-derived wood has increased considerably.) The data provided by one company demonstrates that C&D-derived wood can be sufficiently processed to meet the legitimacy criterion for four contaminants, even when these contaminants are compared to untreated wood concentrations presented in the background document, *Preliminary Characterization Study Prepared In Support of the Proposed Rulemaking—Identification of Nonhazardous Secondary Materials That Are Solid Waste: Traditional Fuels and Key Derivatives.*[51] A complete determination, however, would also include the comparison of As and Cr concentrations. We would also note that based on the data presented, C&D derived wood also meets the meaningful heating value criterion.

With respect to those comments that argued that C&D derived wood have an emissions profile similar to that of virgin wood and that it would decrease greenhouse gas emissions, as we have noted previously, the criterion or test for determining whether a material is burned as a waste or a commodity fuel is the level of the contaminant in the secondary material itself—that is destruction of contaminants indicates a waste treatment activity rather than a commodity fuel. This is also consistent with the legitimacy criteria that would require that the non-hazardous secondary material, itself, must have contaminant levels that are comparable to (or lower than) those in traditional

[48] Source: EPA–HQ–RCRA–2008–0329–0774; Since the legitimacy criterion for contaminants compares concentrations per mass of the material (not per the heating value of the material), all concentrations reported in pounds per billion Btu (lb/billion Btu) were converted into parts per million (ppm) with the assumption that C&D-derived wood has a heating value of 8,200 Btu/lb (as fired) and that sub-bituminous and bituminous coal (the most common types of coal to be utilized in combustion units) have a heating value of 8,500–14,000 Btu/lb (per *Preliminary Characterization Study Prepared In Support of the Proposed Rulemaking—Identification of Nonhazardous Secondary Materials That Are Solid Waste: Traditional Fuels and Key Derivatives,* EPA–HQ–RCRA–2008–0329–0461.21).

[49] U.S. EPA, "Wood Products in the Waste Stream: Characterization and Combustion Emissions, Vol. 1," November 1996.

National Council for Air and Stream Improvement, Inc. Technical Bulletin (TB) 906, "Alternative Fuels Used in the Forest Products Industry: Their Composition and Impact on Emissions." September 2005.

Larsen, F.S., W.H. McClennen, X. Deng, G.D. Silcox-Person, and K. Allison, 1992. "Hydrocarbon and Formaldehyde Emissions from the Combustion of Pulverized Wood Waste." Combustion Science and Technology, 85 (1–6) p. 259–269.

[50] Jambeck, J., A. Carpenter, K. Gardner, and K. Wietz, 2007. "University of New Hampshire Life-Cycle Assessment of C&D Derived Biomass/Wood Waste Management," University of New Hampshire, Durham, NH, December 5.

[51] EPA–HQ–RCRA–2008–0329–0461.21.

fuels. In any event, because we had no information from the studies on the extent that these C&D materials were sufficiently processed to remove the contaminants of concern, we do not know what the emissions results from the submitted studies represent.

Comment: Some comments argued that there should be a *de minimis* exemption for C&D-derived wood that is processed to remove painted and treated materials, because while most of the contaminants are removed from the C&D derived wood, there still may be a small or *de minimis* amount remaining on it. Additionally, they also argued that while most non-wood contaminants are removed, there might still remain some small or *de minimis* amounts of other materials (*e.g.,* paper, insulation, etc.).

EPA's Response: C&D-derived wood can contain *de minimis* amounts of contaminants and other materials provided it meets the legitimacy criterion for contaminant levels.

Comment: Comments argued that OCC rejects, also known in the industry as "recycling process residuals," are never discarded, and therefore, should be considered a traditional fuel because they do not leave the plant, but are usually burned on-site as a fuel. In some cases, however, they do leave the plant to be burned in municipal or commercial energy facilities or employed as a fuel pellet ingredient.

In addition, while some commenters argued that they did not believe OCC rejects are ever discarded, they provided information on how OCC rejects are sufficiently processed to remove contaminants if they are determined to be discarded. For example, strings, wires, rags, and heavy objects are removed using manual and centrifugal force, while plastic and non-recyclable paper fibers are removed through screens.

Commenters also stated that OCC rejects meet the legitimacy criterion for contaminants as they have lower contaminants than traditional fuels. One comment provided data from 10 samples of OCC rejects from one company and 16 samples of coal (of unknown type or origin) to substantiate that claim (*see* Table 2).

TABLE 2—COMPARISON OF CONTAMINANT CONCENTRATIONS IN SAMPLES OF COAL AND OCC REJECTS [52]

Material	Coal (unknown type or origin)	OCC rejects
Sample Size	16	10
Median contaminant concentrations:		
Cl:		
(lb/billion Btu)	46.0	23.5
(ppm, estimated)	391–644	87.0
# of non-detects	0	0
Hg:		
(lb/billion Btu)	0.00622	0.00324
(ppm, estimated)	0.05287–0.08708	0.01199
# of non-detects	0	0
Pb:.		
(lb/billion Btu)	0.374	0.281
(ppm, estimated)	3.18–5.24	1.04
# of non-detects	0	1
Cd:		
(lb/billion Btu)	0.00465	0.00558
(ppm, estimated)	0.03923–0.06510	0.02065
# of non-detects	7	2

Commenters also claimed that OCC rejects meet the legitimacy criterion for being managed as a valuable commodity, as they are managed in the same manner as analogous fuels—bark. Prior to burning, this material is co-mingled with bark on the bark pile.

Furthermore, commenters stated that OCC rejects pass the legitimacy criterion for having a meaningful heating value. For example, a commenter submitted data that indicated that, on a dry basis, OCC rejects have a heating value of 9,100 Btu/lb, while, as fired, they have a heating value of 3,700 Btu/lb.[53] Another commenter submitted ten tests at plants from one company that found that the heating value of OCC rejects ranged from 8,700–13,600 Btu/lb on a dry basis.[54]

Another commenter submitted a study by the National Council for Air and Stream Improvement to demonstrate that air emissions from burning OCC rejects are comparable to burning wood. In this study, emissions results were provided from three plants that burned 4.4–30% OCC rejects with 70%–95.6% wood and compared it to emissions from the same three plants when they only burned wood. Emissions were tested for total particulate matter (TPM), SO_2, NO_X, CO, and HCl. The results found that burning OCC rejects did not result in increased emissions of TPM, SO_2, NO_X, or CO, but occasionally resulted in a small increase in HCl emissions.[55]

EPA's Response: We do not agree with the commenters that OCC rejects should be considered a traditional fuel or alternative fuel since this non-hazardous secondary material, consisting of recycled paper and paper products, has not historically been managed as a fuel—that is, the recycling of OCC and the subsequent use of OCC

[52] Source: EPA–HQ–RCRA–2008–0329–0774; Since the legitimacy criterion for contaminants compares concentrations per mass of the material (not per the heating value of the material), all concentrations reported in pounds per billion Btu (lb/billion Btu) were converted into parts per million (ppm) with the assumption that OCC rejects have a heating value of 3,700 Btu/lb (as fired) and that sub-bituminous and bituminous coal (the most common types of coal to be utilized in combustion units) have a heating value of 8,500–14,000 Btu/lb (per *Preliminary Characterization Study Prepared In Support of the Proposed Rulemaking—Identification of Nonhazardous Secondary Materials That Are Solid Waste: Traditional Fuels and Key Derivatives,* EPA–HQ–RCRA–2008–0329–0461.21).

[53] Source: EPA–HQ–RCRA–2008–0329–0871.1.

[54] Source: EPA–HQ–RCRA–2008–0329–0774.1.

[55] National Council for Air and Stream Improvement, Inc. Technical Bulletin (TB) 906, "Alternative Fuels Used in the Forest Products Industry: Their Composition and Impact on Emissions." September 2005.

rejects is a relatively recent activity, nor is it made from virgin materials. However, we believe that these materials are not discarded when used within the control of the generator, such as at pulp and paper mills, since these non-hazardous secondary materials are part of the industrial process.

The data submitted during the comment period would seem to suggest that it would or could meet the legitimacy criteria. For example, the data received indicated that OCC rejects have contaminant concentrations that are comparable to, if not less than, coal, wood, and bark, which are all traditional fuels used at pulp and paper mills. While the meaningful heating value of the OCC rejects is lower than 5,000 Btu/lb, as fired, it can still meet this criterion if it can be demonstrated that the unit can cost-effectively recover energy from a non-hazardous secondary material. The information submitted also demonstrates that OCC rejects are managed as a valuable commodity as they are managed in the same manner as the analogous fuel—bark.

With respect to the OCC rejects that are shipped off-site for use by another company, the limited information provided indicates that this material is burned in municipal or commercial energy facilities (which appears to be municipal or commercial incinerators) and thus, would clearly indicate discard, or processed to produce a fuel pellet ingredient, which may be a non-waste, if and after it is sufficiently processed. That is, such limited information would appear to suggest that when OCC rejects are shipped off-site, which may not happen very often, it is treated more like a waste than a non-waste fuel. Therefore, the Agency finds that OCC rejects shipped off-site for burning would be considered a solid waste. However, as already noted, if the OCC rejects are sufficiently processed to produce a legitimate fuel product, or if a person submits and is granted a non-waste determination for such OCC rejects, than such non-hazardous secondary material when combusted as a fuel for energy recovery would be considered a non-waste fuel.

4. Pulp and Paper Sludge

In the proposal, EPA determined that pulp and paper sludge[56] is not a waste when used as a fuel within the control of the generator. This was based on limited contaminant data and information that these sludges are generally used on-site by generators to fuel their boilers and are treated like valuable commodities. Comments on the ANPRM had stated that these residuals are primarily composed of biomass and that emissions from burning these non-hazardous secondary materials are essentially the same as emissions from burning other biomass fuels, such as bark or wood. Emissions data contained in one report indicated that when sludges were burned at levels below about 10 to 15 percent of total heat input, that such burning would not result in elevated levels of criteria or criteria-related pollutants, forty-eight organic compounds, and metals.

However, given the limited data, EPA requested additional comment on contaminant levels and the appropriateness of considering these sludges to be non-wastes. EPA also noted, as an alternative, that it could consider these sludges to be wastes because of chlorine levels in the sludge.[57]

Comment: Pulp and paper sludges should be considered a traditional fuel because it has been utilized as a fuel since the early 1960's. In 2004, 22% of the pulp and paper sludge was used as a fuel.

EPA's Response: We do not agree that pulp and paper sludges should be considered a traditional fuel. While some portion of the pulp and paper industry uses these sludges as a fuel, it is not the industry norm or used as a fuel by a majority of the industry. For example, in 2002, 52% of pulp and paper sludges was landfilled or stored in lagoons.[58] Thus, these materials have not been historically managed as fuels. Pulp and paper sludges also would not be considered an alternative fuel, since they are not derived from virgin materials. Pulp and paper mills burn these secondary materials for energy recovery, but also for waste minimization purposes.[59] Therefore, the Agency does not consider pulp and paper sludges a traditional or alternative fuel.

Comment: The proposed approach that pulp and paper sludges burned within the control of the generator as a fuel would not be considered a solid waste needs clarification. Specifically, clarification is needed to determine if pulp and paper sludges that do not leave the site and have not been discarded (1) can be used as a fuel and (2) must pass the legitimacy criteria.

EPA's Response: The final rule retains the proposed approach, which considered pulp and paper sludges that remain within the control of the generator—whether burned at the generating facility, or burned in combustion units that the generator controls—are considered a non-waste fuel. However, such pulp and paper sludges must pass the legitimacy criteria to demonstrate that these non-hazardous secondary materials are "legitimate fuels" in order to be considered a non-waste fuel.

Comment. Commenters argued that pulp and paper sludges are not discarded if used off-site as they are used as a legitimate fuel at other locations. One commenter, who identified itself as a power plant, utilizes pulp and paper sludges generated less than a mile away and stated that the material is loaded into trucks for the short haul to the steam boilers, dumped into the wood handling system, conveyed to covered storage where it is contained and burned in the boiler all within the span of several hours. They suggest that this is a legitimate use of pulp and paper sludges off-site and is, therefore, not a waste.

EPA's Response: We agree that the use of secondary materials off-site (which we assume the commenter means not within the control of the generator) is not always indicative of waste activity and would generally agree that the case of the power plant provides an example of when secondary materials may be legitimately used as non-waste fuels by a different company. However, information was not provided in the comments which would allow EPA to generally determine that the transfer of pulp and paper sludges to other companies should always be considered a non-waste fuel, particularly since a large percentage of these sludges are actually disposed. (See Section V.A.1 for a general discussion of this issue and the EPA's response.) Thus, we will retain the proposed approach that pulp and paper sludges that are transferred to a different company for use as a fuel will be considered a solid waste. With that said, we encourage the use of the non-waste determination petition

[56] Pulp and paper sludge includes both primary and secondary wastewater treatment sludges. Primary sludges consist of wood fiber and inorganic materials, while secondary sludges are primarily microbial biomass.

[57] 75 FR 31862–63.

[58] Thacker, W., 2007. "Recycling Paper Mill By-products on Forest Lands: By-product Composition, Potential Applications, and Industry Case Studies." Presentation to EPA Office of Solid Waste Staff, Washington, DC, January 23, *http://www.epa.gov/osw/conserve/rrr/imr/irc-meet/03-paper.pdf*.

[59] Someshwar, A.V. and A.K. Jain, 2006. "Alternative Fuels Used in the Forest Products Industry: Their Composition and Impact on Emissions," Technical Bulletin No. 906, National Council for Air and Stream Improvement, Gainesville, Florida.

Vance, E. 2000. "Recycling Paper Mill By-products on Forest Lands: By-product Composition, Potential Applications, and Industry Case Studies" *The Forest Alternative: Principles and Practice of Residuals Use.* University of Washington College of Forest Resources Publication, Seattle, WA, p. 193–207.

process to address those instances where transfer of the non-hazardous secondary material to a different company meets the relevant criteria—that the secondary material has not been discarded in the first instance and is indistinguishable in all relevant aspects from a fuel product.

Comment: Commenters stated that pulp and paper sludges are adequately processed, such that when discarded (*i.e.,* sent off-site to another pulp and paper mill or to a power plant), it is a non-waste fuel. Processing is primarily performed by dewatering. In fact, 84% of all pulp and paper sludges are dewatered using belt filter presses or screw presses.[60] One state commenter stated that some mills further process pulp and paper sludges into dried pellet products for use as a fuel.

EPA's Response: We do not agree that dewatering alone meets our definition of processing.[61] While dewatering does improve the fuel characteristics of the material, this action is not sufficient to make the material sufficiently processed into a non-waste fuel as it is generally part of normal waste management activities (*e.g.,* prior to landfilling, or prior to burning the sludge for disposal in an incinerator). In the case of pelletizing the material for use as a fuel, we do not have sufficient information to make a general determination on whether this would be considered sufficient processing. However, if the pelletizing process is used to process the sludge into a form that improves its fuel value, we would agree that this is indicative of fuel activity (similar to pelletizing sewage sludge, which was used as an example of sufficient processing in Section VII.D.4 of the proposed rule)[62] and we would consider those activities to meet the definition of processing. Of course, to be considered a non-waste fuel, the processed pulp and paper sludges would need to meet the legitimacy criteria.

Comment: To show that pulp and paper sludges meet the legitimacy criteria for contaminants, three commenters submitted a total of 24 characterizations of pulp and paper sludge cake from 16 pulp and paper mills. These characterizations show that contaminants were found at non-detect levels. For example, As, Cr, Hg, and Pb were at levels of <0.4 ppm, <21.4 ppm, <0.44 ppm, and <21.6 ppm, respectively.[63] Elevated levels (6.36–45.8 ppm) of methyl ethyl ketone (MEK) were found in five out of eight samples from one pulp and paper mill, although we do not know to what extent this data is reflective of pulp and paper sludges generally since eight other samples (three from the same mill and five from five other mills) had non-detect levels of MEK at a detection level of <0.013 ppm.

Chlorine levels among an unknown number of pulp and paper sludge samples were noted by one commenter to have an arithmetic mean of 465 ppm, a median of 318 ppm, a maximum level among mill means of 2,399 ppm, and a maximum among individual analyses of 4,800 ppm (all on a dry weight basis). This is compared to a USGS database on U.S. coals to have chlorine levels with an arithmetic mean of 614 ppm and a maximum among individual analyses of 8,800 ppm (both on an as-is basis, which has <10% moisture). However, one sample provided in the comments had a chlorine concentration of 16,550 ppm (as received), while another had a chlorine concentration of 23 ppm (as fired). Other samples had chlorine concentrations of between 1,050–4,800 ppm (dry basis). Commenters also argued that combustion of high chlorine content in some pulp and paper sludge is not a waste treatment activity. Sources that produce secondary materials that have heat value can increase their energy efficiency by re-using these materials as a fuel. Materials are chosen for their constituents that are beneficial to the combustion or manufacturing process; more often, the materials are chosen for extracting their energy value.

In terms of meeting the legitimacy criteria for a meaningful heating value, comments were submitted that pulp and paper sludges have a heating value of between 3,300–9,500 Btu/lb, on a dry basis; no information was submitted on the "as fired" heating value of pulp and paper sludges. Commenters also argued that pulp and paper sludges meet the legitimacy criterion for being managed as a valuable commodity as they are dewatered to increase their energy value, collected on a continual or frequent basis (as produced), further processed and consolidated, including the removal of biosolids. One state commenter stated that some mills make a dried pellet product from the sludges for use as a fuel. One power plant that utilizes pulp and paper sludge generated less than a mile away stated that the material is loaded onto trucks for the short haul to the steam boilers, dumped into the wood handling system, conveyed to covered storage where it is contained and burned in the boiler all within the span of several hours.

EPA's Response: The final rule will retain the proposed approach—pulp and paper sludges managed within the control of the generator are a non-waste fuel as they would seem to meet all of the legitimacy criteria, as discussed below.

The proposed rule acknowledged a general lack of data regarding contaminant levels in pulp and paper sludges and specifically requested data on the issue in order to make a determination of whether pulp and paper sludges meets the third criterion of comparable contaminant levels to traditional fuels. The information we received indicates that these non-hazardous secondary materials meet the contaminant legitimacy criterion. While commenters compared contaminant levels in pulp and paper sludges to those in coal and found lower levels, we also found it appropriate to compare the contaminant concentrations to untreated wood since wood is also burned in pulp and paper mills. Since levels of chlorine in untreated wood are as high as 11,890 ppm, even the high end of the range of chlorine in pulp and paper sludges is comparable to that in untreated wood. When comparing to the information that we have compiled on coal, we find that chlorine levels in coal are reported to be as high as 7,400 ppm, and that average chlorine values for bituminous and sub-bituminous coal are 1,200 ppm and 140 ppm, respectively. Thus, the average chlorine levels reported in most pulp and paper sludge are likely to be comparable with average chlorine levels found in bituminous coal.[64] We note that there is one sample in the submitted data set that has a chlorine concentration of 16,550 ppm. We do not consider this to be comparable to the levels found in coal and, where it is replacing coal, would consider this material to be a solid waste. However, since this was the only sample with such a high concentration of chlorine, we do not think that it is representative of pulp and paper sludges generally.

The levels of metals were also lower in pulp and paper sludges than untreated wood and coal. For example, untreated wood has levels of As, Cr, Hg, and Pb as high as 6.8 ppm, 130 ppm, 2

[60] *See* document EPA–HQ–RCRA–2008–0329–0871.

[61] *See* the discussion on dewatering of sewage sludge in Section VII.F of the proposed rule, 75 FR 31878.

[62] 75 FR 31878.

[63] Document EPA–HQ–RCRA–2008–0329–1395; National Council for Air and Stream Improvement, Inc. Technical Bulletin (TB) 906, "Alternative Fuels Used in the Forest Products Industry: Their Composition and Impact on Emissions." September 2005.

[64] *See* the Material Characterization Papers for Pulp and Paper Sludges and for Traditional Fuels that are located in the docket for today's rule (EPA–HQ–RCRA–2008–0329).

ppm, and 340 ppm, respectively, while coal has levels of As, Cr, Hg, and Pb as high as 80 ppm, 121.3 ppm, 2 ppm, and 80 ppm, respectively.[65] These levels are all greater than those submitted in the comments for pulp and paper sludges. We did receive data on some elevated levels of MEK in five samples from one mill, but we do not believe that this data changes are view that these sludges generally meet the contaminant legitimacy criterion, especially since EPA removed MEK from the CAA 112 HAP list in 2005,[66] and thus, MEK is no longer considered a "contaminant" in evaluating the contaminant legitimacy criterion.

While pulp and paper sludges can have a heating value below 5,000 Btu/lb, even on a dry basis, pulp and paper mills do try to improve the heating value through dewatering. Thus, we believe that pulp and paper sludges generally meet the meaningful heating value legitimacy criterion. Also, since pulp and paper sludges are handled promptly (*i.e.,* not stored for long periods of time and are contained in storage units along with traditional fuels (such as wood and bark) with minimal loss (similar to a valuable commodity), we agree that pulp and paper sludges are managed as a valuable commodity.

Comment: Emission tests from two states were said to have shown no significant change in emissions associated with the combustion of pulp and paper mill sludge, although the specific emission test results were not provided in these comments. One other commenter stated that any emissions from those materials will be accounted for in the source's emission limits in its permit. One other commenter submitted a study by the National Council for Air and Stream Improvement (2006), which summarizes many different studies on the emissions from the combustion of pulp and paper sludges. Some studies show that keeping the amount of pulp and paper sludges to no more than 10–15% of the total heat input will result in no increased emission impacts. However, two studies stated that dioxin and furan emissions could result from the burning of pulp and paper sludges and that the levels of these compounds in the emissions are directly relevant to the amount of chlorine in the sludges. Thus, chlorine levels should not be greater than those in found in wood.[67]

EPA's Response: First, we would note that emissions testing results is not the criterion or test for determining legitimacy as combustion systems vary greatly and this rule aims to determine what is a solid waste. To be considered a legitimate non-waste fuel, the non-hazardous secondary material itself must have contaminants at levels that are comparable to (or lower than) those in traditional fuels. From the data available, it shows that chlorine levels in pulp and paper sludges, for example, are typically at levels that are lower than those found in coal and wood, as noted above. Nevertheless, we also recognize that high chlorine levels are an indicator that the combustion of such materials may result in increased emissions of dioxins and furans, such that if chlorine levels in pulp and paper sludges are excessively high, it may be an indication that the burning of those sludges is more reflective of waste management. Thus, chlorine levels in pulp and paper sludges should particularly be monitored and evaluated as part of a plants determination that their pulp and paper sludges meet the contaminant legitimacy criterion.

5. Scrap Tires

In the proposal, EPA stated that whole used tires, including those collected from tire dealerships and automotive shops and overseen by a state tire collection oversight program, are initially abandoned and thus meet the plain meaning of discard. As a result, whole used tires that are not processed into a legitimate fuel or ingredient (*e.g.,* shredded/chipped with steel belts removed) were considered a solid waste. EPA acknowledged that whole tires can be legitimately burned as a fuel, but because they have been discarded, were considered solid wastes and subject to the incinerator requirements in section 129 of the CAA, unless processed into a non-waste fuel product, in which case it would be subject to the section 112 requirements of the CAA.

However, EPA requested comment in the proposed rule on the discard interpretation stated in the ANPRM regarding scrap tires that are managed under the oversight of a state tire collection program, such that these non-hazardous secondary materials collected and sent for legitimate use as fuels are not discarded and are not solid wastes. EPA also solicited comment on the processing requirements for whole tires, as well as fuel contaminant data on whole tires or tire-derived fuel (TDF) chips as compared to coal, the replacement fuel.

In order to clarify the context of the proposed rule comments, the Agency describes the background below in "a. Background; Scrap Tire Approach in ANPRM and Proposal." The comments and EPA's responses are listed in "b. Scrap Tire Comments."

a. Background; Scrap Tire Approach in ANPRM and Proposal

ANPRM Scrap Tire Approach.[68] As part of its discussion regarding non-hazardous secondary materials used as legitimate "alternative" fuels that have not been previously discarded, the ANPRM noted that scrap tires used as tire-derived fuel, which include whole tires or tires that have been processed and have not been previously discarded, are legitimate non-waste fuels if they meet the legitimacy criteria *i.e.,* they are handled as valuable commodities, have a meaningful heating value, and do not contain contaminants that are significantly higher in concentration when compared to traditional fuel products (see Materials Characterization Paper on Scrap Tires in the docket for today's rule for a complete discussion on contaminants in TDF [EPA–HQ–RCRA–2008–0329]). We noted that in many cases, scrap tires that are collected pursuant to state tire oversight programs (*e.g.,* scrap tires from tire dealerships that are sent to used tire processing facilities) are handled as valuable commodities, and, therefore, have not been abandoned, disposed of, or thrown away (not discarded). We also noted that because State Agencies typically regulate these programs under their state solid waste authorities, it was not the Agency's intent to undercut the states' authority in this area. We, therefore, requested comment on whether scrap tires collected pursuant to state tire oversight programs have been discarded, and whether an EPA designation specifying that scrap tires, for example, managed pursuant to state tire collection programs are not solid wastes, would adversely impact a state's ability to manage such a program.

Proposed Rule Scrap Tire Approach.[69] The proposal took a different approach regarding the use of scrap tires when used as a fuel, based on comments received on the ANPRM.

[65] *Ibid.*

[66] The Agency removed MEK from the list of HAP because it concluded that the potential exposures to MEK emitted from industrial processes may not reasonably be anticipated to cause human health or environmental problems.

[67] National Council for Air and Stream Improvement, Inc. Technical Bulletin (TB) 906, "Alternative Fuels Used in the Forest Products Industry: Their Composition and Impact on Emissions." September 2005.

[68] The ANPRM was published in the **Federal Register** on January 2, 2009 (74 FR 41). This reference can be found on page 57 of the FR notice.

[69] The proposed rule, published on June 4, 2010 in the **Federal Register** (75 FR 31844) has numerous references to scrap tires. The statement described under "*Proposed Rule Scrap Tire Approach*" can be found on pages 31874 and 31875 of the proposed rule.

Specifically, some states argued that non-hazardous secondary material fuels that are transferred to a third party have entered what is traditionally considered to be the "waste stream" (and have been regulated by the states as wastes) and therefore should appropriately be considered wastes. Scrap tires, regardless of whether they were collected and managed pursuant to state programs or recovered from legacy waste piles, would be an example of such materials. As a result, the Agency re-examined its position of how the concept of discard applies to scrap tires. Whereas the ANPRM had indicated that there may be some number of secondary materials that would not be considered discarded even if the original generator sent them to another entity outside of its control, the proposed rule took the position that non-hazardous secondary materials that are used as fuels and are managed outside the control of the generator are solid wastes unless they were processed into non-waste fuel products or a case-by-case non-waste determination petition was granted by EPA.

Proposal Kept ANPRM Scrap Tire Approach as an Option. In the ANPRM, we considered scrap tires (except from tire dumps) that were collected under state tire collection programs as non-waste as described above. We reconsidered that position in the proposed rule as follows: "* * * tires collected under these recycling programs are discarded and are solid wastes. EPA proposes this formulation for tires, but is asking for further comment on the ANPRM formulation that secondary material collected and sent for legitimate use as fuels are not discarded and are not solid wastes.* * * EPA may issue a final rule containing either set of provisions depending on information received in the comment period and other information available to the Agency."

The Scrap Tire Approach in the Final Rule. Based on the proposed rule comments and all other relevant information in the rulemaking record, EPA has modified its approach for scrap tires in this final rule. Under today's rule, scrap tires are considered a non-waste when used as a fuel under the following scenarios:

(1) Scrap tires that are removed from vehicles and collected and managed under the oversight of established tire collection programs (as codified at § 241.2) are non-waste fuels [70] when burned as a fuel in a combustion unit. *See* details at § 241.3(b)(2)(i).

(2) Scrap tires that undergo a sufficient level of processing (as codified at § 241.2 and detailed in the scrap tire response to comments) are considered a non-waste fuel, when used as fuel in a combustion unit, independent of whether they have been previously discarded. *See* details at § 241.3(b)(4).

All other scrap tires are considered a waste when combusted, unless a non-waste determination petition is granted per the requirements in § 241.3(c).

The comments that led to this approach are further described in the response to comments below and in Section VII.C.

b. Scrap Tire Comments

Comment: Many of the commenters that compared the approach for whole scrap tires in the ANPRM (described previously in this section) with the proposed approach, preferred the ANPRM approach and believed it was an accurate assessment of how scrap tires are managed. Many of those commenters argued that whole scrap tires that are handled in this situation have not been discarded when removed from vehicles for use as a fuel if there is a process or network that ensures their safe handling prior to use as a fuel. In addition, many commenters listed the attributes that make it a good fuel, in particular they noted that the heat value for TDF is higher than typical solid fuels, including coal.

Commenters disagreed with the assumption that we made in the proposed rule that off-site/third party use of scrap tires equated to discard. Other comments on "transfer to third parties" apply to other non-hazardous secondary materials in addition to scrap tires and are addressed in section V.A.1. In addition, commenters said that the owner of the car does not abandon, dispose of, nor throw away the tire when a tire is changed at a tire shop. These tires are destined for a beneficial use and are managed as a valuable product. Commenters disagreed with EPA's statement in the proposal that scrap tires are "discarded" when removed from the automobile because the generator has relinquished control and the entity receiving the tires may not have the same incentives to manage them as a useful product. For example, one scrap tire commenter summarized the discard issue and suggests that if transfer to a third party does not equate to discard for hazardous secondary materials in specific instances, then EPA is able to make distinctions for non-hazardous secondary materials like scrap tires. Specifically, the commenter states, with respect to tire derived fuel:

"EPA's proposed approach stands in stark contrast to EPA's approach to hazardous secondary materials * * *. In the Subtitle C regulation, EPA was careful to identify circumstances where discard would occur based on a record of damages arising from cases of hazardous material recycling. EPA then shaped its transfer-based exclusion from the definition of solid waste to regulate only transfers where discard is taking place. *See* 73 FR at 64677–78. In contrast, with respect to non-hazardous secondary materials, EPA has no record identifying circumstances where discard may occur and yet is proposing to determine that all transferred material is discarded. Any definition of solid waste that sweeps so broadly exceeds EPA's authority under RCRA. EPA's proposed approach also stands in stark contrast to the approach and guiding principle outlined in the ANPRM. In the ANPRM, EPA did not assume that all non-hazardous secondary material that is transferred outside the control of the generator is discarded. Instead, as in its Subtitle C regulations, EPA was guided by the "overall principle * * * that materials treated as a commodity, rather than as a waste, are not discarded and are not solid wastes so long as they are legitimately recycled." 74 FR 53. If such an approach is appropriate for hazardous substances, a similar or perhaps less demanding determination would be still more appropriate for non-hazardous secondary materials. First, the dangers of sham recycling are far less. Second, the fact that industrial boilers are similar and are regulated in similar manner from industry to industry makes distinctions between industries uniquely hard to justify. EPA offers no persuasive evidence to overcome these considerations. As noted earlier, EPA says only that it "believes" that such materials have been discarded and that third parties "may not" have the same incentive to manage these materials properly as the generator. EPA offers a few off point examples but makes no effort to investigate this issue in any detail. Furthermore, EPA's approach ignores the fact that there is an established market infrastructure for the sale and purchase of secondary fuels such as TDF. As a result, TDF is subject to

[70] As described elsewhere, these tires do not need processing (as described in § 241.3(b)(4)), in order to be considered non-waste since they were not "discarded in the first place." Since these tires were "not discarded in the first place," boilers and cement kilns can use them as non-waste fuel as whole tires, shredded, or fully processed TDF at their discretion (provided they meet the legitimacy criteria). Regardless, most types of combustors require TDF chips, cement kilns are the notable exception.

normal business practices, including contractual arrangements that establish specifications for TDF. Just as a fuel supplier needs to provide a specific type of fuel oil to meet a customer's demands, so does the supplier of secondary fuels. The supplier will comply with the specification demanded by the customer or they will lose the business. As a matter of company policy, most generators of secondary material fuels take reasonable precautions to evaluate where their materials are going as part of risk management."

Commenters also disagreed with our assumptions that led to the Agency's discard position in the proposal with regard to third party use of scrap tires as follows.

• They disagreed that third party handlers would lack an incentive to manage them as a useful material [71] because, scrap tire derived materials have an exceptionally high rate of use in various markets and are sold as valuable products.

• Commenters also disagreed that scrap tires have the same market incentives for misuse as does hazardous waste, which EPA referenced in the proposal,[72] because, in part, hazardous waste are likely to have a relatively negative monetary value. They said that those EPA arguments based on hazardous waste are not relevant to scrap tire markets and usage and is inappropriate to use the rationale based on hazardous waste cases. Scrap tires do not have the environmental and economic risks associated with hazardous waste.

• Furthermore, commenters disagreed that there was currently a pattern of discard at third party scrap tire reclaimers [73] that can be processed and generating stockpiles as possible evidence of the lack of incentive to perform actual recycling).

• Commenters did acknowledge that there were problems in the past with tire dumps, but since tires are now effectively managed and brought to markets, the over-accumulation, disposal, and dumping that occurred in the past (as mentioned in the proposal) [74] is less of an issue now. In justifying this statement, many commenters discussed the success of eliminating tire dumps. Specifically, they argued that fewer than one million tires remain in stockpiles, compared to an estimate of one billion tires in 1990. It is clear the total number of tires discarded in tire dumps is being reduced annually, not increasing due to the improper management which the proposal postulated regarding the current management practices at third party sites. Also, they argued that of the 300 million scrap tires that are generated each year, scrap tires are reported to have the second lowest disposal rate at 10.7% in 2007, with lead acid batteries having the lowest disposal rate.

• Commenters, mainly from industry, also disagreed with our statement in the proposal that scrap tires that are transferred to a third party have entered what is traditionally considered to be the "waste stream" and therefore should appropriately be considered solid wastes. Refer to Section V.A.1 for the discussion on related comments (not specific to scrap tires). Some commenters (including some states), however, agreed that states tend to initially regard tires as waste until they are beneficially used.

EPA's Response: In the first place, to the extent these comments refer to EPA's general approach to secondary material transferred to another party, the Agency refers commenters to Section V.A.1. As discussed in that section, EPA has evaluated whether certain categories of materials are discarded or not. The Agency has not adopted the extremes of saying that all burning of secondary material, regardless of ultimate use, is waste treatment or that any secondary material that is recycled for legitimate fuel value is a commodity and not a waste. Wastes may have value, but are still wastes.

Between these broad parameters, EPA has examined a number of specific materials, recycled on-site and transferred to third parties for recycling, and determined whether they would be appropriately placed within the waste or non-waste categories. EPA would consider transferred materials not to be wastes if it could make the appropriate findings for those categories. In fact, the Agency does so with respect to scrap tires harvested from vehicles and resinated wood residuals. Any of EPA's decisions regarding specific materials, if challenged, must stand or fall based on its individual merit.

With respect specifically to how the Agency is dealing with scrap tires in this rule, the ANPRM noted that scrap tires that are collected pursuant to tire programs (*e.g.,* scrap tires from tire dealerships that are sent to used tire processing facilities) are collected and handled as valuable commodities, and, therefore, have not been abandoned, disposed of, or thrown away. The ANPRM had indicated that there are instances where non-hazardous secondary materials would not be considered discarded even if the original generator sent them to another entity outside of its control.

The proposed rule took an approach that assumed non-hazardous secondary materials that are used as fuels and are managed outside the control of the generator are solid wastes, unless they were processed into legitimate non-waste fuel products or a non-waste determination petition was granted by EPA. However, in the proposed rule, the Agency was open to an alternate interpretation and requested further comment on the ANPRM formulation that scrap tires collected and sent for legitimate use as fuels are not discarded and are not solid wastes, and specifically indicated that the Agency "may issue a final rule containing either set of provisions depending on information received in the comment period and other information available to the Agency."

After careful consideration of the comments and all the material in the rulemaking record, including documents cited in the ANPRM and the preamble to the proposed rule, the Agency agrees that a system where scrap

[71] The comments are in regard to this statement in the proposal: "When non-hazardous secondary material fuels are transferred to another party, we generally believe that the material is discarded since the generator has relinquished control of the secondary material and the entity receiving such materials may not have the same incentives to manage them as a useful product, which results in the materials being discarded." *See* EPA's statement in the proposal at 75 FR 31844, page 31875.

[72] The comments are in regard to this statement in the proposal, as well as other references to hazardous waste: "This lack of incentive to manage as a useful product has been well documented in the context of hazardous secondary material recycling as evidenced by the results of the environmental problems study performed in support of the DSW [hazardous waste] final rule. (This scenario does not apply to transfers taking place under the transfer based exclusion for hazardous secondary materials that are generated and then transferred to another company for the purpose of reclamation.) However, this finding also holds true for non-hazardous secondary materials that are used as fuel." *See* EPA's statement in the proposal at 75 FR 31844, page 31875.

[73] The comments are in regard to this statement in the proposal: "As discussed in the DSW final rule, this pattern of discard at off-site, third party reclaimers appears to be a result of inherent differences between commercial recycling and normal manufacturing. As opposed to manufacturing, where the cost of raw materials or intermediates (or inputs) is greater than zero and revenue is generated primarily from the sale of the output, secondary materials recycling, including when used as a fuel, can involve generating revenue primarily from receipt of the secondary materials. Recyclers of secondary materials in this situation may thus respond differently than traditional manufacturers to economic forces and incentives, accumulating more inputs (secondary materials) than can be processed and generating stockpiles with sometimes little incentive to perform actual recycling."

[74] *See* EPA's statement in the proposal at 75 FR 31844, page 31875.

tires are removed from vehicles [75] and are collected and managed under the oversight of established tire collection programs are not "discarded in the first instance." Such tires (including both whole tires and tires that have been shredded—with or without metal removal)[76] are non-waste when used as a fuel in combustion units. These programs ensure that the tires are not discarded en route to the combustor for use as fuel and are handled as a valuable commodity as required in the legitimacy criterion in today's rule at § 241.3(d)(1)(i).

Consistent with other non-hazardous secondary materials that are considered to be non-wastes, scrap tires also meet the rest of the legitimacy criteria for fuel. They meet the requirement for meaningful heating value, required per § 241.3(d)(1)(ii) in that scrap tires have a higher heating value (12,000 Btu/lb to 16,000 Btu/lb) as compared to coal (the replacement fuel).

Scrap tires also meet the requirement specified at § 241.3(d)(1)(iii) for the non-hazardous secondary materials to have comparable (or lower) levels of contaminants as compared to the traditional fuel it is replacing. Refer to the specific response to comments on contaminants.

Established tire collection programs promote the collection of scrap tires and coordinate with tire dealerships, haulers, processors, and end users. The existing tire collection programs form an established collection infrastructure. These established tire collection programs together with state bans on landfilling in most states [77] effectively result in the beneficial reuse of tires (as fuel or used in other scrap tire markets) as the sole [78] end use option for scrap tires in those states.

While the Agency recognizes that there will be differences between the various established tire collection programs, at a minimum, the following components would need to be included as part of any established tire collection program: (1) A comprehensive system that prevents tires from being abandoned when the scrap tires are harvested from vehicles and collected at the various businesses where they are removed; these tires are not considered "discarded in the first instance" per this rule; and (2) standards for the scrap tires to be managed as a valuable commodity. These programs should ensure storage does not exceed reasonable time frames, the scrap tires are managed in a manner consistent with the analogous fuel (coal), and a system is in place to prevent scrap tires from being discarded (according to the plain language definition) en route to the combustor (and during any processing prior to combustion).

An example of this type of program is a tire dealership that has prearranged agreements where the combustor pays for the delivery of the tires harvested from vehicles and can track the delivery and has contractual obligations for a safe delivery. Another example is the Texas system where tires are not seen as waste, but have specifications for tracking and safe delivery to the end use markets.

These programs neither allow an opportunity for tires intended as a fuel to be discarded in the first place nor discarded while in transit. The definition of an established tire collection programs is codified in today's rule at § 241.2. These tires have not been "disposed of, abandoned, or thrown away" through the initial process of removing them from cars or collecting them under established tire collection programs.

It is the combustor's responsibility to confirm that the whole tires are not discarded and were handled appropriately under the established tire collection program. Notification and recordkeeping requirements with regard to the use of non-hazardous secondary materials under CAA 112 and 129 rules, including whole tires managed under established tire collection programs, are outlined in Section VII.I.

This approach for scrap tires is supported by comments from auto maintenance shops, tire retailers, and others in the automotive business. These commenters discussed the management of tires collected from tire and auto-related shops under established tire collection programs. Typically, the state and private programs work together to encourage the processing, reuse, and/or recycling, which results in a market demand for scrap tires to be collected, but the use as fuel is more independently sustainable in the free market.[79] In the event the combustor is disposing via combustion (*i.e.,* not utilizing the energy from combustion), it is a waste.

With the approach described in today's rule, EPA is recognizing that some specific types of secondary materials are more like valuable commodities than solid wastes, and the act of transferring them to a third party does not automatically involve discard. As commenters noted, the mere relinquishing of ownership does not make something a waste.

Furthermore, as EPA notes below, the fact that states may consider tires as wastes under state programs does not affect EPA's determination in this rule that certain scrap tires are not wastes for purposes of tire combustion under CAA sections 112 and 129. States may regulate tires as wastes while EPA, for purposes of the federal regulations, may consider them to be commodities.

We also recognize that the basis for the final position on scrap tires is different from the proposal and is more in line with our original position in the ANPRM. As we noted many commenters disagreed with the basis for the position on scrap tires in the proposal, in addition to stating a preference for the ANPRM position on scrap tires. The overall rationale for the position in the final rule regarding scrap tires is included in Section VII, entitled "Detailed Discussion and Rationale for Today's Final Rule."

Comment: A number of commenters stated that the concentration of contaminants that are found in tire-derived fuel TDF chips (or whole tires) are comparable (or less than) those found in the traditional fuels that it would be replacing. In the proposed rule, we requested data on the TDF contaminants that are HAP, as listed in section 112(b) of the CAA and the nine pollutants, as listed in section 129(a)(4) of the CAA. Some commenters provided independent test results that correlated to those contaminants and the results showed a trend that the contaminants were generally comparable to or lower than coal, the replacement fuel, (although individual tests and comparisons vary). In addition to independent data, some commenters referenced EPA's Materials Characterization Papers (used to support the proposed rule), and the TDF

[75] For purposes of today's rule, the term "vehicle" is meant to include any mechanical means of conveyance that employs the use of tires.

[76] If scrap tires are not discarded in the first place, they do not have to be processed per the standards in today's rule, but they can be converted to rough shreds or processed into TDF chips at the discretion of the combustor and still be a non-waste fuel. If the scrap tires were discarded, they have to be processed (with metal removal) per the standards in today's rule in order to be a non-waste fuel.

[77] A few states allow tires cut up in smaller pieces to be landfilled, while fewer states still allow whole tires in landfills.

[78] Note, a commenter has indicated that some states are considering revoking their tire landfill ban if combustors are no longer choosing to use tires for fuel based on the outcome of this rule.

[79] The recovery and management of tires that are removed from tire piles are largely supported or subsidized by State Agencies and these whole tires are considered discarded and waste when used as a fuel. This is not the case for the tires we are calling non-waste that are annually generated and are collected off the vehicles and sent for use as fuel.

American Society for Testing and Materials (ASTM)[80] data on chemical constituents and fuel characteristics. The TDF and coal data were typically reported as elemental analyses.

Specifically, commenters provided the following TDF concentrations for CAA section 112(b) HAP (some are also CAA 129 pollutants):[81] [82]

- Cadmium—less than 5 up to 6 ppm (also on the CAA 129 pollutant list);
- Calcium—3,780 ppm (although listed as "calcium cyanamide" in the HAP list);
- Chlorine—non-detect to 1,490 ppm (also listed in the CAA 129 pollutant list as "hydrogen chloride");
- Chromium—less than 5 up to 97 ppm;[83]
- Lead—51–65 ppm (also on the CAA 129 pollutant list);
- Manganese—less than 100 ppm;[84] and
- Mercury—non-detect up to levels in low-mercury coals (also on the CAA 129 pollutant list).

These contaminant levels, the commenters argue, are at or below documented levels in coals. Although barium and zinc are not CAA 129 pollutants or HAP, commenters also mentioned that barium was non-detectable and one commenter mentioned that data available from the USGS database showed coal can have much higher concentrations of zinc[85] than TDF. It was also reported that the steel wire in tires is 98.5% iron (which is not a HAP). As noted previously, many commenters argue that the small amount of steel wire in typical TDF is not considered a contaminant that could result in emissions. Rather, it presents a handling concern when used as boiler fuel; specifically, the TDF needs to have the exposed wire removed so that it is "flowable" like coal. One commenter went on to say that they can recycle metals from TDF post-combustion. A large number of commenters stated that the metal from tires is a necessary ingredient in the formation of clinker in cement kilns and becomes part of the clinker product, and is in no way considered a "contaminant" in cement kilns.[86]

Many of the commenters also reiterated that the constituents in TDF fuel product do not lead to emission problems as evidence by comparable or lower emissions for the following CAA 129 pollutants according to their tests: carbon monoxide (some higher some lower, but comparable), dioxins/dibenzofurans (some commenters stated no significant difference, while others claimed emission reductions), hydrogen chloride (specifically mentioned reduction in cement kilns), oxides of nitrogen (usually combustors witness the greatest reductions in this pollutant when using TDF[87]), and sulfur dioxide (usually reduced when using TDF). Many commenters thought that we should also take into consideration the reduction in greenhouse gases and the emissions improvements.[88] On the other hand, a number of commenters voiced concerns about emissions from scrap tires used as fuel, anticipating that they increased emissions (including those pollutants listed in section 129 of the CAA). A commenter cited that emissions increases were expected for a paper mill that was testing a substitution of TDF for wood.

Although we requested data on fuel contaminants, some contaminant data was reported as emission results. Results of a rather large study were reported by a commenter: "In 2008, PCA member companies completed a study on the impact of TDF firing on cement kiln air emissions. The study's data set included emission tests from thirty-one of the cement plants presently firing TDF. Dioxin-furan emission test results indicated that kilns firing TDF had emissions approximately one-third of those kilns firing conventional fuels—this difference was statistically significant. Emissions of particulate matter (PM) from TDF-firing kilns were 35% less than the levels reported for kilns firing conventional fuels (not statistically significant due to the low PM emissions reported for essentially all cement plants). Nitrogen oxides, most metals, and sulfur dioxide emissions from TDF-firing kilns also exhibited lower levels than those from conventional fuel kilns. The emission values for carbon monoxide and total hydrocarbons were slightly higher in TDF versus non-TDF firing kilns. However, none of the differences in the emission data sets between TDF versus non-TDF firing kilns for sulfur dioxide, nitrogen oxides, total hydrocarbons, carbon monoxide, and metals were statistically significant. Separate studies conducted by governmental agencies and engineering consulting firms have also indicated that TDF firing either reduces or does not significantly affect emissions of various contaminants from cement kilns."

EPA's Response: The Agency assessed the contaminants in TDF using the data submitted and the proposed rule data (referenced above) and compared it to the concentrations in coal, the traditional fuel that scrap tires would be replacing.[89] While the level of contaminants in TDF or tires vary slightly[90] between test results for the scrap tires and for the type of fuel that was used for comparison purposes (*i.e.,* coal, the replacement fuel), this data supports the commenters' position that the level of contaminants in TDF (or whole tires) are comparable to (if not less than) those found in the traditional fuel that it would be replacing.[91] Coal has a number of contaminants that are not present in TDF. See the Materials Characterization Papers on Traditional Fuels and on Scrap Tires in the docket for today's rule for a complete discussion on contaminants in TDF (EPA–HQ–RCRA–2008–0329).

The metal wire in tires is 98.5 percent iron, but it is a small component of the TDF when processed. The Agency has determined that the concentration of iron in the processed TDF chips is comparable to those in coal. However, iron is not a HAP, nor are the other components of the wire expected to be released to the emissions in a typical boiler. Rather, the wire ends up in the bottom ash such that, according to one commenter, the metal can be recovered.

[80] ASTM (American Society for Testing and Materials) or ASTM International, is a globally recognized leader in the development and delivery of international voluntary consensus standards.

[81] This is the available data for the elements or the compounds (that are among the nine CAA section 129(a)(4) pollutants or are on the 187 HAP listed in CAA section 112(b)) that were reported in comments, as well as data from the scrap tire Materials Characterization Paper referenced by commenters. Since TDF is usually co-fired with coal, the results can include contaminants that originated from the coal.

[82] Refer to the Materials Characterization Papers for traditional fuels in the docket for today's rule.

[83] If this is present from the steel wire, it is not expected to be released during typical boiler combustion.

[84] If this is present from the steel wire, it is not expected to be released during typical boiler combustion.

[85] The commenter said the coal sample was 51,000 ppm zinc, while coal is usually less than 100 ppm. TDF usually has higher concentrations of zinc than the average in coal.

[86] *See* the comment on cement kilns for more information relative to cement kiln usage.

[87] Commenters often said this is the biggest benefit in using TDF. State regulators are said to suggest the use of TDF if a combustor has a problem with NO_X emissions.

[88] Refer to the Materials Characterization Papers for a detailed summary of the contaminant data for TDF, including data provided by commenters.

[89] The "contaminants" are the nine CAA section 129(a)(4) pollutants and the 187 HAP listed in CAA section 112(b).

[90] The elemental constituents in coal vary regionally so the test result comparisons to TDF also vary. For example, the relative percentage of some elements is sometimes slightly higher in some tests and lower in others. Overall, we find that TDF and coal have a comparable level of contaminants.

[91] While zinc has been reported to have higher levels in TDF than in coal, zinc is neither a HAP or one of the nine pollutants identified in section 129(a)(4) of the CAA and thus, would not be a contaminant for consideration.

If the scrap tires were discarded (*i.e.,* recovered from a tire dump), they would need to be processed into TDF chips with some removal of the metal wire (per the processing specifications described in a response to comments below) in order to be a non-waste fuel. Based on the comments, we recognize that this is more important for handling, than for emissions. We would also note that the steel wire in the whole tires used in cement kilns is regarded differently since it is needed to become part of the cement. That is, if the non-combustible ingredient in feedstocks that are necessary (*e.g.,* iron) for clinker production are no longer used, those materials must be replaced.

Finally, although we focus on the contaminants in fuel since that is the relevant criterion as it relates to the legitimacy criteria, and for deciding whether a material is a waste or a commodity, we do recognize the value of the greenhouse gas, as well as other criteria pollutant improvements using scrap tires as stated in the proposal and also raised by commenters. Specifically, the use of secondary materials as alternative fuels and/or ingredients in manufacturing processes using combustion not only recovers valuable resources, it is known to contribute to emissions reductions. For example, GHG has been reduced as a co-benefit of the use of secondary materials—the GHG rate associated with the combustion of scrap tires is approximately 0.09 $MTCO_2E$ [92] per million Btu of scrap tires combusted, while the GHG emissions rate for coal is approximately 0.094 $MTCO_2E$ per million Btu. Combined with the avoided extraction and processing emissions 0.006 $MTCO_2$ E/million Btu for coal, the total avoided greenhouse gas is 0.019 $MTCO_2$ E per million Btu. Also, substituting TDF for coal would avoid an estimated 0.246 Lbs/million Btu of particulate matter associated with the extraction and processing of the coal.

Relative to criteria pollutants, historical EPA and test program data demonstrate that, while emission rates vary over different TDF levels at different facilities, criteria pollutant emissions from combusting TDF have been found a majority of the time to be reduced or not significantly different than those from other conventional fossil fuels, provided combustion occurs in a well-designed, well-operated and well-maintained combustion device. In fact, results from a dedicated tires-to-energy (100% TDF) facility indicate that it is possible to have emissions much lower than those produced by existing solid-fuel-fired boilers (on a heat input basis) with a specially designed combustor and add-on controls.[93] Typically boilers use a mix of TDF and coal; they have comparable emissions with or without TDF with the same air pollution control device. We are not aware any small area sources that are able to use TDF for fuel. (See the Materials Characterization Papers in the docket for further details on these GHG estimates, and other estimates of avoided emissions associated with burning tires and other secondary materials as fuel.)

Finally, we would also note that the use of secondary materials, such as use as a fuel in industrial processes may also result in other benefits, including reduced fuel imports, reduced mining impacts, and reduced negative environmental impacts caused by previous dumping (*e.g.,* tires).

Comment: Some industry commenters claimed that the proposed rule would increase the costs for facilities that use scrap tires as a fuel due to the imposed costs for unnecessary processing, and would negatively affect them and existing tire recycling programs. According to the many comments by tire retailers, tires are a material handled as a commodity. Under the third party processing requirements in the proposed rule, they estimated substantially increased costs to remove the tires they handle from their shops. This would also have the effect of causing the tires to be seen as "waste-like" since their monetary value would be reduced.

EPA's Response: As a result of the changes made to the final rule concerning scrap tires that are collected as part of an established tire collection program, we anticipate that there will be no or minimal changes, to the current system that prevents scrap tires from being discarded. Thus, the costs for the tire retailers are not expected to increase, as anticipated by the commenters.

Comment: A number of state environmental agencies recommended that scrap tires not be considered a solid waste when combusted, because of potential impacts on their state programs. These state environmental agencies, however, typically preferred EPA to consider scrap tires a waste at least until it arrives at the combustion unit (or otherwise reasonably processed into a product according to some State Agency commenters). Many of these states noted the beneficial aspects of using whole scrap tires as a fuel and were concerned with the negative impacts and possible interference to the success of their beneficial use programs (typically for non-combustion determinations) and requested clarification on the scope and impact of this rule for all non-hazardous secondary materials, including scrap tires. For instance, they asked if the rule would affect or interfere with state solid waste regulations, laws, and beneficial use programs. They also requested that EPA clarify the implications to a state program if the scrap tires are considered non-waste when used as fuel for federal purposes, but are considered waste according to the state recycling and waste management programs (until beneficially used or made into a non-waste product).

EPA's Response: As discussed, the Agency has decided to identify scrap tires that are removed from vehicles and collected as part of an established tire collection program as a non-waste fuel when combusted. Thus, we believe that the concerns or impacts on the effective collection and use as a tire-derived fuel product should no longer be a concern. However, this approach would not address the request from state agencies that we identify scrap tires as a waste until combusted. As discussed previously, existing RCRA case law on hazardous wastes would not allow EPA to declare that a discarded material ceases to be a waste solely by the fact that it is beneficially used. Wastes may be used beneficially. Accordingly, once a non-hazardous secondary material (such as scrap tires retrieved from waste tire piles) is identified as a waste, its arrival at a facility for combustion would not change its status. EPA has also expressed the belief that case law would not prevent wastes from being processed into materials that are no longer wastes. However, that would require changing the material sufficiently so that a new fuel product is created.

In response to the states question concerning conflicting and concurrent interpretations of state and federal waste status (when used as fuel), EPA would like to clarify that non-hazardous secondary materials may be simultaneously regulated as a non-waste fuel or ingredient for use in combustion units under the federal program, but as a solid waste by the state's solid waste programs. That is, non-hazardous secondary materials that are designated as a non-waste by today's rule, while

[92] Metric tons of carbon dioxide equivalent ($MTCO_2E$)

[93] *See,* for example, Reisman JI (1997) Air Emissions from Scrap Tire Combustion, Appendix: Emissions Data from Controlled Tire Burning. Technical Report prepared for USEPA. Office of Research and Development, Washington, DC EPA 1997 at *http://www.epa.gov/ttn/catc/dir1/tire_eng.pdf*

not subject to the section 129 CAA standards, could be subject to the state standards that identify the same non-hazardous secondary material as a solid waste. The federal rule does not affect the state waste determination in this case. For more information about state agency concerns with regulating non-hazardous secondary materials, not just scrap tires, refer to Section IX.A, "Applicability of State Solid Waste Definitions and Beneficial Use Determinations."

Finally, we would note, and as stated elsewhere in this preamble, this rule only addresses those non-hazardous secondary materials that are burned in combustion units as a fuel or ingredient. Thus, we are not making any determination that non-hazardous secondary materials are or are not solid wastes for other possible beneficial uses. Such beneficial use determinations are generally made by the states for these other beneficial uses, and EPA will continue to look to the states in making such determinations.

Comment: One commenter stated that "[b]urning in incinerators, kilns, boilers, etc. is not the highest best use of scrap tires," and that with proper processing, they can be used in many value-added recycling processes. Many other commenters were opposed to the combustion of any non-hazardous secondary materials as a fuel, including scrap tires in CAA section 112 regulated units, and support the recycling or reuse of scrap tires for other uses instead of combustion.

EPA's Response: The issue that EPA is addressing in this rule is whether the burning of non-hazardous secondary materials, including scrap tires (whether whole or as TDF) is considered waste management. This is critical since the status of scrap tires—that is, whether they are a waste or not, determines which CAA emission standards the non-hazardous secondary material would be subject to. With that said, EPA supports the broad use of scrap tires in many different markets (*e.g.,* recycled rubber products, use in asphalt, and in civil engineering projects). The Agency also believes that the use of scrap tires as a fuel is a valuable use and should remain a component in the overall suite of recycling/management options provided the combustion units are subject to appropriate standards. In some cases, other recycling markets may not be available if TDF was not used a fuel. For example, in the standard process of shredding tires for tire-derived fuel (TDF), finer pieces are created as a by-product appropriate for recycled rubber products. In most cases, it would be too expensive to process the scrap tires solely for the recycling of this rubber (according to sources in the scrap tire program). Comments on the ANPRM and the proposal led us to believe that the non-combustion markets for scrap tires could not handle the surplus and will reverse the trend in cleaning up tire dumps and will lead to many tires being disposed of in scrap tire piles.

Specifically, in 2007, 89.3% percent of the scrap tires generated in the U.S. by weight were collected and consumed in end-use markets. The total volume of scrap tires consumed in these end use markets reached approximately 4,105.8 thousand tons of tires out of an estimated 4,595.7 thousand tons of tires generated in the U.S. By comparison, in 1990, only eleven percent of the scrap tires were consumed on a per tire basis.[94] Of the scrap tires that are collected annually and used in beneficial use end markets, about half are used for their fuel value, while the remainder are used in value-added recycling processes as the commenter preferred. We recognize that regionally, there are sometimes scrap tire shortages in an area that could support more non-combustion uses (as compared to the market demand for scrap tire usages). That is, some states are net importers and have very healthy markets using scrap tires as commodities, while other states do not have as much demand for scrap tires. The EPA supported scrap tire program is described on our Web site (*http://www.epa.gov/osw/conserve/materials/tires/index.htm*).

Comment: EPA describes coal and petroleum coke as traditional fuel. Based on the extensive use developed over the last 20–30 years in the industry, many of the alternative fuels, such as TDF can also be considered traditional. A number of commenters cited that scrap tires have been used as a fuel for a long time (since the late 70's) which should qualify as "historical use" and should be regarded as a traditional fuel. The cement industry's goals have emphasized use of alternate fuels and raw materials based on the industry increasing its reliance on this type of material since the 1980s. The use of TDF is a long-standing and customary practice now characteristic of cement manufacturing fuel options. In fact, commenters have argued that the number of major industrial boilers and cement plants utilizing TDF as a supplemental fuel has risen dramatically over the last 19 years and decreased the dependence on virgin fuel sources.

Other commenters mentioned that the components of tires are derived from hydrocarbons (like fossil fuels, such as coal, oil, and natural gas) and natural "biogenic" sources (the rubber), and therefore, they should be considered a traditional fuel. Still other commenters mentioned that TDF should be considered a traditional fuel since it should qualify for the same reasons as on-spec used oil. Finally other commenters argued that scrap tires should be considered a traditional fuel based on the comparable contaminant content and superior Btu value (at 12,000 Btu/lb to 16,000 Btu/lb), as compared to coal.

EPA's Response: We do not agree with the commenters that scrap tires should be considered an historically managed traditional fuel or alternative fuel. In fact, until this rulemaking, we are not aware that anyone has considered or identified scrap tires as a traditional fuel. While we recognize that scrap tires may have been used as a fuel since the 1970's, we would also note that tires are not produced for their fuel value, even though the components of tires are derived from hydrocarbons and natural biogenic source. Further, scrap tires are not derived from virgin material fuels (*e.g.,* as is the case of coal refuse derived from virgin coal).

Comment: Some commenters regarded the combustion of non-hazardous secondary materials, including scrap tires, as waste disposal and therefore the combustion unit that burns these secondary materials should be regulated as an incinerator. Another commenter was concerned with a combustor accepting fees to accept non-hazardous secondary materials and argued that waste-burning boilers can receive a pass-through portion of tipping fees and can also collect fees "to dispose of" the material through combustion at "clean energy" projects. The commenter went on to say that the fuel at these facilities is in no way sold in the marketplace the way that traditional fuels are sold for profit. In fact, the economic model is reversed, so that the combustion facility is paid to take the secondary material.

EPA's Response: The question of whether or not a non-hazardous secondary material, including scrap tires is or is not a solid waste, depends on whether it has been discarded, and whether it could legitimately be considered a fuel-like material, by meeting the legitimacy criteria. As we have discussed elsewhere in this preamble, we have determined that scrap tires, when collected as part of an

[94] These tire figures are compiled by RMA and are developed jointly with state scrap tire programs and listed in "U.S. Scrap Tire Markets 2007." The report can be found at *http://www.rma.org/scrap_tires/.*

established tire collection program and sent to a combustion unit for use as a fuel, or when sufficiently processed to produce a tire-derived fuel, have not been discarded and are not solid wastes. These secondary materials are more akin to non-waste fuels in these instances. Thus, we disagree with the commenters who argue that the combustion of non-hazardous secondary materials, including scrap tires, always constitutes waste management.

On the other hand, where scrap tires or any other non-hazardous secondary materials are disposed of (part of the plain meaning of discard) via combustion, they are a waste. For example, if a combustion unit's main purpose is to provide heat to dry a product, but they consistently have a surplus of tires received with a tipping fee and operate the unit without a product being dried, they are in effect destroying the scrap tires. In this case, they would be considered solid wastes, and the combustion unit would be subject to the CAA 129 standards. With respect to the situation where a facility accepts scrap tires for a tipping fee (as opposed to paying for the fuel), that can be an indicator that disposal may be occurring, but is not determinative to indicate that such transactions always constitute waste management. For example, the tipping fees could encourage over-accumulation leading to combustion for disposal versus being used as a valuable replacement fuel. Thus, this factor should be considered, in light of the other circumstances, in determining whether or not scrap tires when combusted as a fuel are or are not a solid waste.

Comment: A commenter described the associated environmental justice impacts that would occur at sites that would receive scrap tires if the proposed rule went into effect, as compared to the current environmental justice impacts associated with cement kiln sites. The commenter provided an analysis that they said showed a decreased chance of impacting environmental justice communities based on the demographic analysis at cement kilns versus the alternative sites. The commenter claimed that the processing described in the proposed rule would effectively prohibit them from using scrap tires as a fuel and will result in more scrap tires being disposed of or unnecessarily processed at sites that are more likely to be in environmental justice communities, as EPA's environmental justice analysis indicates.

The commenters' analyses indicated that cement kilns tend to be located in areas with fewer minorities than the national average, as well as fewer minorities as compared to the larger set of sites that use non-hazardous secondary materials that may become CISWI facilities, tire processors, and RCRA subtitle D facilities (as EPA assessed in the "Review of Environmental Justice Impacts" [95]). The commenter stated that "EPA's data shows vividly that there are no Environmental Justice issues at any of the cement plants in its CISWI database." The commenter also argued that land disposal (or processing) sites already have environmental justice issues and that the proposed rule would make it worse by having more scrap tires diverted to waste tire piles or processors. Another commenter indicated that states are considering removing landfill bans on whole tires if this rule goes into effect, and argued that the proposed rule would cause an increase in the number of tires going to landfills or stockpiles and would have a disparate impact on adjacent communities and mentioned the risks of fires and mosquito born vectors at tire piles.

EPA's Response: In the evaluation regarding the use of whole scrap tires (predominantly used as a fuel in cement kilns) and whether or not they should be considered solid wastes if collected as part of an established tire collection program, we considered the environmental justice demographics and impacts that would result at cement kilns. Based on our review of the demographics at cement kilns, on average, they are located in areas with fewer minorities and less poverty than RCRA subtitle D disposal sites, processing sites, and facilities assessed to become CISWI CAA section 129 incinerators.

Whole scrap tires can be used as a non-waste fuel in cement kilns under today's rule when they were harvested from vehicles and managed under the oversight of an established tire collection program prior to being delivered to the combustion unit. Based on our most recent demographic data, we agree with the commenter that sending whole tires to cement kilns as a non-waste fuel is not expected to have a negative impact on environmental justice communities. In fact, it appears that it would have benefits since RCRA subtitle D disposal sites, processing sites, and facilities assessed to become CISWI CAA 129 incinerators (the sites that would be accepting scrap tires if not burned as a fuel in cement kilns) are more likely to be located in environmental justice communities. Thus, while this was not the primary basis on which this decision was made, the Agency believes it important that its decision would lessen the impacts on environmental justice communities.

Comment: EPA never explains why it believes that, in the context of a secondary material that does not need processing or perhaps needs only minimal processing to serve as a wholly bona fide fuel, that scrap tires cannot be considered sufficiently "processed" unless they are physically shredded and undergo metals removal processing. We note that whole tires that have long been buried or stacked in aging piles may need minimal processing for use in cement kilns, such as removal of excess water and dirt, mud, and debris. Whole tires from newer stacks or piles often need no physical processing whatever. EPA never explains why it thinks this much processing is necessary for tires to escape the "discard" rubric and serve as bona fide fuels in portland cement kilns. The result of this faulty logic is that beneficial reuse of significant amounts of non-hazardous secondary materials will be greatly discouraged, and there will be no health or environmental benefits (only detriments). We believe it is obvious that EPA's proposal represents a "classic case of arbitrary and capricious rulemaking."

The portland cement industry simply cannot afford to jeopardize its product by using alternate fuels that affect cement quality. EPA justifiably had a concern (reflected in the earlier RCRA subtitle C rulemaking and policy documents it cites) that unscrupulous parties seeking to avoid the expensive subtitle C cradle-to-grave regime had incentives to claim that the hazardous waste they were burning was a bona fide fuel. At that stage in RCRA subtitle C development (mid 1980s), burning of hazardous materials for bona fide energy recovery purposes was exempt. This concern simply does not apply to the situation in which non-hazardous secondary materials are being burned in fully regulated industrial furnaces such as portland cement kilns.

Ironically, EPA has long recognized that products from portland cement kilns burning hazardous waste fuel are not adversely affected in any manner. In 1995, after reviewing exhaustive data presented in a petition filed under the Toxic Substances Control Act (TSCA), EPA rejected the petitioners' request that products produced from cement

[95] EPA's "Review of Environmental Justice Impacts" that the commenter referenced, can be found in the docket for today's rule (EPA–HQ–RCRA–2008–0329–0519). Cement kilns and other combustors that use non-hazardous secondary materials were included in the CISWI database used for EPA's demographics (many of the units in the CISWI database were not regulated as incinerators).

kilns that burn hazardous waste fuel carry warning labels because EPA found there was no difference in contaminant levels (or risks) in the product. 60 FR 39169 et seq., August 1, 1995. As recently as 2007, EPA's Assistant Administrator for Solid Waste and Emergency Response (OSWER) stated in a letter to the Center for Maximum Potential Building Systems that "there is no difference in the cement from kilns burning hazardous waste compared to cement produced by kilns not burning hazardous waste."

Moreover, NSF International has reviewed data from several portland cement kilns burning hazardous waste fuel to assess whether the product from such kilns could be safely used in concrete water pipes and water storage tanks. These studies have uniformly concluded that there is no statistical difference in contaminants between clinker or products made from kilns burning hazardous waste fuel as compared to kilns using only fossil fuels.

The commenters representing cement kilns also noted that a cement kiln is not a boiler or an incinerator. One of the commenters went on to say that "in enacting CAA section 129, Congress was focused exclusively on "incinerators." Incinerators burn waste materials solely for the purposes of destruction. They do not use "ingredients," and they make no product. Moreover, in all the rulemaking and litigation that prompted this proposed rule—culminating in the *NRDC* case * * * EPA, the parties, and the Court were focused exclusively on incinerators and boilers. Like incinerators, boilers do not use "ingredients." Unlike incinerators, boilers may burn waste materials for energy recovery purposes. But the only product they make is steam, and the steam that they make never comes in contact with the fuel they burn.

A portland cement kiln is significantly different from an incinerator or a boiler in key respects. First, it is one type of "industrial furnace" which, unlike boilers and incinerators, which makes a marketable product. All materials that are placed in the kiln—including fuels—come into mutual contact in the manufacturing process. The product the kilns produce must meet strict quality standards. EPA's RCRA regulations have long recognized these key distinctions among industrial furnaces, boilers, and incinerators. The commenter referred to 40 CFR 260.10.

Despite the fact that there was absolutely no issue with portland cement kilns producing ingredients in the development of CAA section 129 or the rulemaking and litigation leading to this rulemaking, the commenter stated that portland cement kilns have been included in this proposal in a manner that could have very adverse impacts on a kilns' ability to use non-hazardous materials beneficially; the commenter went on to argue that a significant flaw in the proposal is its failure to recognize the key differences between portland cement kilns as compared to incinerators and boilers.

EPA's Response: These comments may express legitimate policy concerns. However, they are essentially irrelevant to the decisions that EPA is making in this rulemaking. Tires from tire dumps are clearly wastes because they have been disposed for a long time. The tires were clearly abandoned if they were left in a tire dump. EPA understands the commenter's remarks that cement kilns are not "boilers" nor were designed to be "incinerators," but cement kilns are clearly "combustors" under the CAA and the Agency needs to decide whether CAA section 112 or 129 standards would apply.

With respect to the comments regarding "processing," EPA's intention is to provide a standard for turning clearly discarded material into a non-waste. EPA acknowledges that there is no direct case on point in which a court has opined on how a material may lose its status as a waste.[96] The comment assumes all fuel is not a waste. As EPA has repeatedly stated in this preamble, a waste may be used beneficially and may, indeed, be a bona fide fuel. This is consistent with the DC Circuit's opinion in *NRDC* v. *EPA.* A combustor that burns solid waste, even for energy recovery, must be regulated under CAA 129. If the kiln is regulated under CAA 129, no processing is needed for a waste scrap tire to be burned as a bona fide fuel.

Given the statutory provisions and case law, EPA is constrained to argue that discarded materials are solid wastes and would need to be burned under CAA section 129 standards. EPA notes that environmental groups would argue that all units combusting tires must be subject to emissions standards issued under section 129 of the CAA even if the tires have been processed into a separate TDF, and the comments include policy arguments to support this contention. The point of the comment is that requiring units to meet emissions standards issued under section 129 of the CAA would discourage burning of tires as an environmentally beneficial replacement for non-renewable fuels, yet environmental groups would argue that scrap tires should nevertheless be subject to such standards. EPA's focus, however, must be on the definition of solid waste under RCRA and the comment gives the Agency no basis to determine what kind of activity would make the waste a non-waste. Whether the material is a bona fide fuel does not provide the answer to that inquiry.

EPA sees no reason based on these comments to eliminate the processing requirement for this final rule.

Comment: The commenters that addressed the specific level of processing for whole scrap tires disagreed with EPA on the amount of processing required before TDF should be considered a non-waste fuel. In addition, many of the commenters had different interpretations of our proposed wire removal requirements and on the term "relatively wire free" (since some incorrectly believed that the proposed standard was up to 99% or absolutely no wire). Furthermore, many of these same commenters argued that the proposed processing requirements for units that use TDF chips were unrealistic and would dramatically increase processing costs, while a few commenters cited that many processors could not even achieve the specified level of wire removal. These changes would significantly deter facilities from using TDF that they regarded as a product. In fact, a number of commenters, including some state agencies, questioned the value of requiring unnecessarily costly processing of whole scrap tires that are to be used as a fuel in units, such as cement kilns, since the wire in the scrap tires can be beneficial due to the properties of the iron oxide resulting from the tire combustion in cement kilns. Other commenters noted that the presence of steel in the whole scrap tires or TDF should be irrelevant to their waste status since the wire removed is for improvement in handling—that is, the TDF needs to have the exposed wire removed so that it is "flowable" like coal within the combustion unit, as well as any loose wire removed since it can also cause handling issues in the units, not emissions.

A few commenters claimed that TDF processed to two-inch pieces was seen as the higher end TDF product and that this should be our standard. In particular, one commenter that markets TDF as a product, "request that the EPA use the widely accepted nominal two-inch minus, 90%+ wire free standard that has been standard in the industry

[96] Although we recognize that some states have systems in place where materials lose the waste status if beneficially used according to the state's standards.

for years" since this would accurately define a product. The commenter said that "TDF meeting this 90%+ wire free standard typically has a wire content of between 2% and 8% by weight." In addition, some state agencies have been known to specify two-inch TDF as a product rather than a waste, while rough shreds used for fuel in some combustors (bigger than two inches) are seen as a waste material (not a product) by those states. The size restriction is more prevalent in specification for TDF than specifying a percentage of metal.

Other commenters argued that a product is created when tires are processed at any level that makes it "TDF" and mentioned that the ASTM describes a process that creates a "product" called TDF. Another commenter mentioned that a necessary component in the processing of shredded tires is to remove the protruding wire from the shreds and to sort the rubber pieces from the wire remnants called "free wire." The commenter said that this part of processing is typically necessary in order for it to be sold as a TDF product to boilers. The commenter went on to say that the completion of this last step can be tested by spreading out the TDF chips in a single layer and passing a very strong magnet over them to see if any free wire remains. That commenter reasoned that TDF chips that pass the magnet test and had the free wire removed should qualify as a non-waste TDF product.

EPA's Response: In the situation where tires are discarded in the first place or otherwise do not meet the legitimacy criteria, processing is needed before it is considered a non-waste fuel (*i.e.,* tires that are not collected from vehicles as part of an established tire collection program per § 241.3(b)(2)(i)). We disagree with those commenters who addressed the level of processing needed before TDF is considered a non-waste as these commenters are answering a different question: How much processing is necessary before whole scrap tires can be burned properly in any particular combustion unit?

However, the question that EPA needs to answer is how much processing is sufficient before whole scrap tires are considered a non-waste fuel where the scrap tires are not collected as part of a scrap tire collection program? Examples of sufficient processing for other non-hazardous secondary materials include the processing of used oil to produce on-specification used oil and the processing of construction and demolition (C&D) wood into a fuel by sorting to remove contaminants (*e.g.,* lead-painted wood, treated wood, non-wood materials), and sizing it. In all these instances, the non-hazardous secondary material is being sufficiently changed, either chemically or physically to produce a non-waste product.

Thus, while insufficiently processed discarded tires can be burned in boilers as a fuel, such TDF would still be considered a waste-derived product because the Agency does not believe that simply shredding or quartering whole tires, or removing some dirt, is adequate to produce a non-waste product for use as fuel according to today's rule (refer to the processing definition in § 241.2 Definitions). While the extent of processing that may be required may vary for different types of non-hazardous secondary materials, the Agency contends that a sufficient amount of processing must occur to produce a non-waste product from secondary materials.

One commenter mentioned, boiler operators are able to recycle the metal from the wire post-combustion (although minimal). This is after it has been cleaned of the rubber particles via the combustion process, so this iron can be recovered and recycled (not disposed in emissions). However, whether or not the metal from the wire (post-combustion) can be recycled does not go to the question of whether or not the non-hazardous secondary material has been "sufficiently processed" to produce a non-waste product.

With respect to the technical question of how much wire must be removed before the amount of processing is considered sufficient, the specific unit types that use TDF chips require different levels of metal removal for handling concerns as noted by commenters. The ASTM Standard D 6700 "Standard Practice for Use of Scrap Tire-Derived Fuel"[97] describes the process for "dewired" and has a helpful guideline on the appropriate amount of wire removal for different unit types under the topic titled "Handling Considerations Conveying, Grate and Ash." However, the ASTM standard is concerned with proper dewiring and not whether the resultant material is a waste or non-waste fuel.

In the proposed rule, EPA referred to the level of processing in varied terms ("relatively wire free," "processed to the Standard Practice for Use of Scrap Tire-Derived Fuel ASTM Standard D 6700–01," "wire removed," "steel belts removed," and "sufficiently processed"). While ASTM was not deciding whether this material would be a waste, or not, EPA in the proposal was suggesting that such material would be sufficiently processed to render the new material a commodity fuel. Thus, to be considered sufficiently processed, there has to be metal removed and, it should be at the level of wire removal that is specific to the combustion unit as mentioned above. EPA agrees with the commenter who stated that TDF that has been chipped/shredded, sorted and dewired (or at least 90%+ wire free) would be considered sufficiently processed. However, this may not be the only standard, to the extent that other unit types require different levels of metal removal.

With respect to the commenter that suggested the removal of free wire as an indicator of sufficient processing, we would agree that the removal of free wire (as described by the commenter) is a necessary component of processing scrap tires into a non-waste product for the purposes of this rule, but that alone, may not be sufficient to meet our definition of processing. It could qualify if, according to product specifications appropriate for the particular combustion unit, it is processed into TDF chips and enough wire is removed from the TDF and the loose free wire is removed (to the degree practical) appropriate to the unit.

However, we would also note, as is the case for all types of solid fuel, proper characterization of the size and composition of TDF are important factors that combustion unit operators assess to determine if the TDF is a suitable fuel for their specific combustion unit design.[98] For example, ASTM Standard D 6700, describes standard practices for using TDF as fuels, and also specifies sampling and analysis methods and procedures that apply to TDF that cover composition and fuel characterization analyses. The standards also address the size of the tire pieces and metal content in order to optimize combustion. The ASTM Standard D 6700 "Standard Practice for Use of Scrap Tire-Derived Fuel" also describes the process for "dewired" TDF and has a helpful guideline on the appropriate amount of wire removal for different unit types under the topic

[97] ASTM Standard D6700–01, 2006, "Standard Practice for Use of Scrap Tire-Derived Fuel," ASTM International, West Conshohocken, PA, 2003, DOI: 10.1520/C0033–03, *http://www.astm.org.* This standard can be obtained through the following Web site: *http://www.astm.org/Standards/D6700.htm.*

[98] With regard to the legitimacy criteria discussed in Section V.D., the heating value of scrap tires (12,000 Btu/lb to 16,000 Btu/lb) is the highest of all non-hazardous secondary materials, except used oil (17,800 Btu/lb), and higher than typical coal values. Contaminants of potential concern have been measured for both materials: The constituents are comparable.

titled "Handling Considerations Conveying, Grate and Ash." In summary, EPA considers that previously discarded tires that have been made into TDF (shredded/chipped, sized, sorted, and with a significant portion of the metal belts or wire removed, at a level appropriate for the unit), meets the definition of "sufficient processing."

Finally, as discussed above, the final rule also allows for scrap tires that have been harvested from vehicles (as part of an established tire collection program) to be used as a non-waste fuel. The question of processing into TDF or the "extent of processing" is only relevant if they are using scrap tires that have first been discarded.[99] Scrap tire processors typically enter into contracts with the end users of these products that specify that the processed tires meet certain specifications (*i.e.,* size of chips and possibly other considerations) to ensure that the product that is produced consistently meets the needs of that particular end use. Boilers, unlike cement kilns,[100] benefit from TDF that has been processed into small chips that feed in the combustion unit like coal and the reduction of metal to improve its handling and operational qualities in the combustion unit. For instance, the removal of the exposed wire around the perimeter of the tire chips makes it "flowable" like coal in the combustion unit.

EPA notes that merely harvesting tires from vehicles does not render the material a non-waste. If the tires are used in a combustor for which they are not suitable, which can be determined through the analysis of the legitimacy criteria, they would be wastes.

6. Resinated Wood Residuals

The proposed rule described resinated wood products as those generated during the manufacture of particleboard, medium density fiberboard, and hardboard and includes materials, such as board trim, sander dust, and panel trim. The proposal indicated that such resinated wood products were considered a non-waste fuel when burned in a combustion unit because this secondary material generally meets the legitimacy criteria. We acknowledged, however, that we had limited data on the level of contaminants in resinated wood products, but the data we had did generally indicate that this non-hazardous secondary material would meet the legitimacy criterion for contaminants. In order to gather additional information on which to base our decision, we requested comment and data on the contaminant levels contained in these secondary materials, as well as the appropriateness of calling them a non-waste.

Comment: The *American Mining Congress* v. *EPA* case states that secondary materials beneficially used within the generating industry, not within the generating plant, is part of a continuous industrial process and thus, not a solid waste. Therefore, transfer of materials within the generating industry would have to be considered a non-waste fuel.

Some commenters contend, however, that any secondary material burned for energy recovery is a solid waste, regardless of whether it remains within the control of the generator. These commenters object to allowing control by the generator to be relevant to rendering secondary material a non-waste, even if burned under the legitimacy criteria, claiming that these secondary materials are wastes. The commenter goes on to note that EPA itself admits that a secondary material could still be a waste even if it is recycled on-site or within the control of the generator and cites the court's holding in *API II.*

EPA's Response: EPA needs to correct some of the industry and environmental group misrepresentations of the cases on the definition of solid waste. In *AMC I,* the court was only noting that secondary materials reclaimed within a continuous process are not wastes and are not subject to EPA's jurisdiction as solid wastes. The case is actually a narrow discussion of one basic principle regarding what is not discarded. The court does not even state whether any particular material is discarded. For example, while there is a reference to used oil that could be discarded, the court in no sense was saying that all used oil is discarded. In fact, in *API II* the court specifically noted that in *AMC I* they "did not address the discard status of any of the particular materials discussed in the briefs." 216 F.3d at 56. The court freely admitted in *API II* that its "prior cases have not had to draw a line for deciding when discard has occurred," but only dealt with the extreme cases of materials that were either wastes or non-wastes. 216 F.3d at 57.

As the various definition of solid waste cases hold, the ultimate issue for deciding when most materials are discarded is whether EPA's determination complies with the arbitrary and capricious standard of the Administrative Procedure Act (APA). Sweeping formulations involving whether a process is within an "industry" is not helpful, nor is it consistent with the case law. EPA, and the courts, reject any formulation that under *AMC I* the statement that discard cannot be found in the case of immediate recycling within a continuous industrial process means ipso facto that any material transferred within an "industry," even between companies located in New York and California, is not a waste. EPA's decision on whether resinated wood is a waste (within the control of the generator or if transferred) is based on the circumstances under which the material is handled and combusted. Merely keeping material on-site will not render it a non-waste, nor will mere transfer make the material a waste.

Comment: Trim, sawdust, shavings, sander dust and other residual materials from producing panels and other engineered wood products containing resins have been widely used as fuels by wood product plants since the industry began in the 1950s and should, therefore, be classified as a traditional fuel. In fact, the wood product plants have been designed so as to specifically utilize these residuals that the process creates and would not be able to operate as designed without this material. The commenters argue that there are no significant contaminants in resinated wood residuals that are used as fuels. None of the constituents are among the contaminants controlled under CISWI. This fact provides sufficient justification to accept resinated fuels as traditional fuels from the standpoint of contaminants.

EPA's Response: We do not agree with those commenters who argue that resinated wood residuals should be considered a traditional fuel, since it can have contaminants at levels greater than traditional fuels (as discussed below). We recognize, however, that much of the resinated wood residuals are used as a product fuel, and that the plants have been designed to catch and then burn these residuals to supply energy and heat to other parts of the plant. EPA recognizes that some specific types of non-hazardous secondary materials, such as resinated wood residuals, are more like valuable

[99] Since scrap tires that are harvested from vehicles (as part of an established tire collection program) can be burned as whole tires and still be considered a non-waste fuel, the Agency does not believe it appropriate to require such tires to meet the level of processing (as codified in § 241.2). However, other scrap tires, e.g., those that are removed from tire piles would need to be processed (as codified in § 241.2) in order to be burned as a non-waste fuel.

[100] We note that most cement kilns use whole tires as fuels, as opposed to TDF chips, because their process does not require the TDF to be in the form of small chips to use it as a fuel, and does not require removal of the metal (since they use the metal as an ingredient).

commodities than solid wastes. Resinated wood is a secondary material that, upon examination, is not discarded when used on-site or transferred off-site to a different company. Thus, EPA would consider resinated wood residuals used as a fuel in a combustion unit as not being a solid waste, provided these materials satisfy the specified legitimacy criteria for fuels.

Comment: Commenters argued that resinated wood residuals are often used off-site in a manner that does not constitute discard and the secondary materials should not be classified as solid waste when transferred between facilities or companies. As much as 6% of resinated wood residuals are sold into the fuel market and are routinely transferred between either intra- or inter-company facilities and used as either "furnish" (*i.e.,* raw materials) or fuel at the receiving facilities. Inter-company transfers are typically managed through buy-sell contracts that likely do not specify how the materials will be used because the receiving facility likely mixes the purchased material with self-generated materials. Those combined materials are either used as furnish or fuel in accordance with the needs of the facility at the time. Because these resinated materials are bought and sold and used in a manner—either as furnish or fuel—similar to how self-generated resinated materials are used, this transaction does not constitute discard and the materials should not be classified as solid waste simply due to the transfer between facilities or between companies.

EPA's Response: We agree that transferring secondary materials between companies or facilities does not necessarily mean that the material has been discarded. As resinated wood residuals transferred off-site are utilized in the same manner as self-generated resinated wood residuals (*i.e.,* contained in the same bins as furnish materials used in the product, transferred via conveyors or ducts), which the plants are specifically designed to burn as a fuel, we agree that this does not constitute discard. Thus, we have determined that resinated wood residuals are not solid waste when transferred off-site for use as fuel, provided the material meets the legitimacy criteria and has not been otherwise deemed to be discarded. We have codified this concept under 40 CFR 241.3(b)(2)(ii).

Comment: Processing should not be necessary when utilizing the material on-site or off-site to be considered a non-waste fuel. However, resinated wood residuals are generally chipped or hogged to reduce its size before burning. This should be sufficient to meet the processing requirement.

EPA's Response: We generally agree with the commenters that resinated wood residuals do not need to be processed, but if processed, such as by chipping or hogging, this level of processing would not affect the status of this material.

Comment: Resinated wood residuals have contaminants that are comparable to traditional fuels. The list of resins and adhesives include constituent chemicals that are on the hazardous air pollutant list. Notably, phenol, formaldehyde, methylene di-isocyanate and epichlorohydrine are HAP. However, these individual components react completely within the resin curing process, leaving, in the worst case, only trace amounts of the HAP. With the exception of formaldehyde, undetectable or extremely low levels of these HAP remain behind after the resin/adhesive cure. As noted in the comments referenced in the proposal, miniscule amounts of formaldehyde remain in some resinated wood residuals, less than 0.02%, a number that is expected to fall as the California Air Resource Board (CARB) Composite Wood Airborne Toxic Control Measure (ATCM) is implemented nationwide, per the new Public Law 111–199 (which establishes consistent standards for wood products across the country). Further, since formaldehyde is found in natural wood, it should not be considered a contaminant in resinated wood.

EPA's Response: The proposed rule acknowledged a general lack of data regarding the levels of formaldehyde in these non-hazardous secondary materials and specifically requested data on this issue. While we received only limited contaminant information during the comment period, the data we do have suggests that the levels of formaldehyde in these resinated wood residuals is at non-detect levels. The existing data we have is that resinated wood residuals contain "free" formaldehyde at levels less than 0.02 percent (or 200 ppm). In addition, new rules, as mandated by the CARB Composite Wood ATCM, per new Public Law 111–199, will reduce the formaldehyde levels even further to levels that are comparable to unadulterated wood. We also have limited data on the formaldehyde levels in traditional fuels. Specifically, we have limited data that natural wood has between 0.6 and 8.5 ppm of formaldehyde,[101] but we have no data on formaldehyde levels in other traditional fuels, such as coal, oil, and natural gas. We do know, however, that organic materials produce formaldehyde. For example, studies have shown that formaldehyde is generated from coal piles.[102]

Thus, considering the fact that new rules will reduce the amount of formaldehyde to levels comparable to unadulterated wood, we have concluded that resinated wood residuals when burned as a fuel by the generator or outside the control of the generator and not discarded should be considered a non-waste fuel. However, as we have noted elsewhere, the generator of these secondary materials would still need to demonstrate that such residuals meet the legitimacy criteria. Thus, they would need to show that the levels of formaldehyde, as well as other possible contaminants, in the resinated wood residuals are at levels comparable to those found in traditional fuels, which in this case would be natural wood. We would note that we would not consider levels of formaldehyde of 200 ppm or slightly less to be comparable since the levels in unadulterated wood are at least two orders of magnitude lower. The levels would need to be lower to be considered comparable to those found in natural wood.

Comment: The comments indicated that resinated wood residuals have about 5 percent moisture content, with heating values typically between 8,500–9,000 Btu/lb (as fired). This fuel value is equal to or better than unadulterated wood, which has higher moisture content.

The comments also argue that resinated wood residuals are managed as a commodity as they are typically pneumatically transferred through ducts, stored temporarily in a fuel silo, and then utilized in boilers to provide heat to hot presses and dryers. In fact, wood product plants have been designed so as to specifically utilize

[101] Weigl, M., R. Wimmer, E. Sykacek, and M. Steinwender, 2009. "Wood-borne formaldehyde varying with species, wood grade, and cambial age," Forest Products Journal 59(1/2) 88–92.

Meyer, B. and C. Boehme, 1997. "Formaldehyde Emission from Solid Wood," Forest Products Journal 47(5) 45–48.

Killiam, B. "Background Formaldehyde Emissions for Solid Wood," Temple-Inland Forest Products Corporation, Diboll, TX.

[102] Cohen, H. and U. Green, 2009. "Oxidative decomposition of formaldehyde catalyzed by bituminous coal," Energy Fuels 23(6) 3078–3082. Nehemia, V., S. Davidi, and H. Cohen, 1999. "Emission of hydrogen gas from weathered steam coal piles via formaldehyde as a precursor: I. Oxidative decomposition of formaldehyde catalyzed by coal—batch reactor studies," Fuel, 78(7) 775–780.

Nehemia, V., 1997. "Oxidative decomposition of formaldehyde catalyzed by coal," Fuel and Energy Abstracts 38(6) p. 386.

these residuals that the process creates and would not be able to operate as designed without this material.

EPA's Response: The heating value range presented (8,500–9,000 Btu/lb) indicates that resinated wood residuals meet the meaningful heating value criterion as it is greater than the heating value of unadulterated wood. We also agree with the commenters that resinated wood residuals meet the legitimacy criterion for being managed as a valuable commodity since these residuals are managed as a primary fuel for wood products manufacturers. We acknowledge that wood products manufacturing plants were specifically designed to burn these resinated wood residuals to power the facility. In addition, wood product manufacturers have designed their plants to use their residuals (including placing the material in silos and transferring the material via conveyor belts and ducts) that supply the process both as a raw material and as a fuel, indicating that the resinated wood residuals are managed as a valuable commodity.

Comment: Commenters referred to studies that show that the combustion of resinated wood residuals does not produce adverse air emissions. Specifically, EPA's "Wood Products in the Waste Stream—Characterization and Combustion Emissions" (1996) describes studies that were conducted to determine if various types of wood produce more non-criteria air pollutants than typical wood sources. Air emissions and fuel materials were sampled at six different processors and boilers. Fuel materials that were used at the boilers were a mixture of wood produced at construction and demolition sites at the time: Unadulterated lumber, treated wood (including CCA-treated wood), resinated wood residuals, and painted wood (including lead-based paint). The study concludes that organic compounds that are emitted include aldehydes, benzene, phenol, and polynuclear aromatic hydrocarbons (PAH). These compounds are formed as products of incomplete combustion and did not appear to be a function of the woods composition or source. Instead, they appear to be an indicator of combustion inefficiency. "Good" combustion conditions appear to minimize organic emissions. Metals usually found in wood combustor particulate include As, Cr, Cu, Pb, Zn, Al, Ti, Fe, and Mg. Metals were found to be higher in samples taken, although this could be a result of the inclusion of treated wood in the samples combusted. Metals control efficiency appears to be roughly equivalent to total particulate control efficiency. Chlorinated organic compounds, such as dioxins, furans, polychlorinated biphenyls, chlorinated phenols, and chlor-benzenes were measured at extremely low concentrations or were reported to be less than minimum detection limits.

One commenter argued that, since resins contain only carbon, hydrogen, oxygen, and nitrogen, the wood and its adhesives will convert to carbon dioxide, water, and nitrogen oxides (which would be produced even if nitrogen is not present in the fuel, since nitrogen represents approximately 80% of air) under normal conditions that normally occur in industrial wood combustion units. Thus, the products of combustion from wood are the same from the adhesives. Adhesives are expected to be more combustible than wood, due to their simpler structure and lower molecular weights. Conditions which assure the complete combustion of wood are adequate to assure the complete combustion of these adhesives. Although it is possible that different types of compounds could be produced from the adhesives than from wood and that more of certain types of compounds might be produced from one fuel or another, there does not appear to be any scientific basis for a presumption that emissions from incompletely combusted adhesives are more harmful than emissions from incompletely combusted wood. In fact, the results of toxicity studies commissioned by National Forest Products Association in response to New York State law which requires manufacturers to provide data on the toxicity of smoke from their products indicate that smoke from glued wood products is no more toxic than wood smoke. There are a few halogen-containing synthetic polymers, such as polytetrafluorethylene, which can produce more hazardous fumes, but they are not normally used in wood products.

The commenter also submitted data on HCl and NO_X emissions from burning sander dust that was not yet published. Emissions from five combustion systems that burned a combination of sander dust and hog fuel were sampled. One test was run only using hog fuel (which consisted primarily of bark). Results are presented in Table 3. The commenter argued that these results prove that HCl and NO_X emissions from the combustion of resinated wood residuals are comparable to the combustion of hog fuel alone. In fact, the three samples that contained the lowest percentages of sander dust (0%, 15%, and 25%) produced the greatest percentages of chloride in the fuel emitted as HCl and nitrogen in the fuel that was subsequently emitted as NO_X.

TABLE 3—EMISSIONS DATA FROM SIX COMBUSTORS THAT BURNED HOG FUEL OR A COMBINATION OF HOG FUEL AND SANDER DUST

Sample number	1	2	3	4	5	6
Fuel mixture, %Hog fuel/Sander dust	100/0	75/25	85/15	60/40	60/40	60/40
Hog Fuel content (%, dry basis):						
Chloride	0.02	0.01	0.01	0.02	0.02	0.02
Nitrogen	0.58	0.56	0.56	0.51	0.58	0.56
Sulfur	0.02	0.04	0.04	0.04	0.05	0.03
Sander dust content (%, dry basis):						
Chloride	.....	0.18	0.18	0.16	0.15	0.15
Nitrogen	.....	3.7	3.7	3.2	3.4	3.8
Sulfur	.....	0.05	0.05	0.06	0.04	0.03
Total Fuel Content (lb/hr):						
Chloride	1.7	3.3	2.1	6.0	6.4	5.6
Nitrogen	49	84	60	136	151	143
HCl	0.17	0.19	0.08	0.09	0.11	0.16
NO_X	26	53	31	45	48	53
Emissions (lb/MMBtu):						
HCl	0.0024	0.0038	0.0017	0.0012	0.0015	0.0023
NO_X	0.38	1.08	0.69	0.62	0.64	0.75
% of Cl in Fuel Emitted as HCl	9.6	5.5	3.5	1.4	1.7	2.8
% of N in Fuel Emitted as NO_X	16.1	19.3	15.7	10.1	9.7	11.2

EPA's Response: We recognize that the studies have shown that there are decreased HAP emissions from burning resinated wood residuals. As we have stated previously, however, the criterion or test in determining the legitimacy criterion is based on the level of contaminants in the secondary material itself, and not by comparing the differences in emissions. We believe that in order for a non-hazardous secondary material to be considered a non-waste fuel, it must be similar in composition, whereas comparing the emissions profiles between combustion units that burn traditional fuels and non-hazardous secondary materials only tells one how well the combustion unit is operating, not what the material is that is being burned. Thus, while the Agency recognizes that such emissions data can be useful in determining whether or not burning such material presents a risk to human health or the environment, we believe it says nothing in terms of whether or not the non-hazardous secondary material is a legitimate non-waste fuel (see also Section V.D.3 discussion on legitimacy criteria).

In response to some of the specific comments made, we would note that none of the studies or data provided information on formaldehyde emissions, the HAP that we identified that we were most concerned with in the proposal.[103] While the EPA study did state that organics were not detected above typical wood fuel, it is not possible to ascertain what percentage of the material that was burned was represented by resinated wood residuals. Thus, we do not know how much resinated wood materials were in the samples that were tested and how it correlates to the emissions data.

We also acknowledge that resins are made from H, N, C, and O. However, our concern rests with the amount of formaldehyde (which is a HAP and also is made of H, C, and O) that is generated in the stack. While formaldehyde may be generated as a product of incomplete combustion, it may also be emitted from the stack if it is present in the fuel material and is not combusted at all. In other words, if some of the formaldehyde escapes combustion while in the fuel chamber and is emitted in the stack, more formaldehyde is likely to escape. A unit combusting 10 tons of formaldehyde is likely to result in more formaldehyde emissions than a unit combusting one ton of formaldehyde simply due to the fact that there is more formaldehyde in the fuel. Therefore, none of the information provided addresses our concern regarding formaldehyde emissions. However, given that Public Law 111–199 will decrease formaldehyde levels in the resinated wood residuals, the combustion of resinated wood residuals should not increase the amount of formaldehyde that is emitted.

7. Used Oil

In the ANPRM, EPA had stated that off-specification (or "off-spec") used oil that is collected from repair shops is generally thought to be originally discarded, but that on-specification (or "on-spec") used oil was considered to be a product fuel, not a waste, because it meets the fuel specification requirements of 40 CFR 279.11.[104] However, between the ANPRM and the proposal, EPA modified its view of on-spec used oil and identified it as a traditional fuel because the Agency had decided that the on-spec used oil is similar in composition to virgin fuel oil and has been historically managed as a valuable fuel product rather than as a waste.[105]

While EPA considers on-spec used oil to be an alternative fuel and thus, within our definition of traditional fuel (*see* Section VII.A), the Agency finds that the rationale in the ANPRM also provides a valid reason for considering on-spec used oil to be a legitimate product fuel and not a solid waste. The proposal also referred to the provisions of 40 CFR Part 279 that allows off-specification used oil to be processed into on-specification used oil.[106] Used oil may be rendered on-specification, therefore, either by being generated that way or by being processed under existing EPA regulations. These circumstances are not changed by EPA's issuing today's rule.

On the other hand, based on the information received and the record established for this rulemaking, we still consider off-spec used oil to be a solid waste, as off-spec used oil contains contaminants at levels that are not comparable to those in traditional fuels. Under the existing used oil regulations promulgated under RCRA, off-spec used oil can only be used in limited devices, as identified in 40 CFR 279.61, including small oil-fired space heaters provided the burner meets the provisions of 40 CFR 279.23.

EPA reiterates that the determination as to the waste status of used oil does not reopen the regulations in Part 279. Those regulations remain in place. This rule considers the waste status for purposes of CAA sections 112 and 129 based on the existing regulations. Further, EPA is specifically clarifying in this final rule that used oil combusted in an oil-fired space heater that meets the provisions of 40 CFR 279.23 need not be tested to establish whether or not such oil is on or off-spec. This includes used oil generated by small facilities such as auto repair shops and machine shops that have such units, and used oil-generated by homeowners who change their own oil (referred to as "do-it-yourself" or "DIY" oil) that are burned in such units. This is because the CISWI regulations promulgated elsewhere in the **Federal Register** today do not establish emissions limits for such units, and therefore the concerns of the commenters that such units would have to comply with CAA Section 129 standards have been addressed for this population of combustion units.

Comment: Many argued that all used oil is a traditional fuel and should not be considered a solid waste regardless of its chemical composition, as it is treated as a valuable product no different than virgin fuel oil. Thus, some commenters agreed with EPA that on-spec used oil is a traditional fuel, but disagreed with the Agency's determination that off-spec used oil is a solid waste.

Other commenters believe that that used oil, both on- and off-spec, falls within the "ordinary everyday sense" of discarded materials whether they are burned or not and that all used oil should be classified as a solid waste. Indeed, EPA does not identify any situation in which these secondary materials are not wastes, except when they are burned for energy recovery. Thus, EPA is essentially claiming that non-hazardous secondary materials, including used oil, which would otherwise indisputably be wastes become non-wastes solely because they can be burned with energy recovery. Neither RCRA nor any of the case law interpreting RCRA lends the slightest support to that notion.

EPA's Response: We disagree that off-spec used oil should be considered a traditional fuel, or even a non-waste fuel, since as we have discussed elsewhere in the preamble, such used oil contains contaminants at levels that are not comparable to (or lower than) in traditional virgin refined fuel oil. In fact, off-spec used oil may contain contaminants at levels that are significantly higher than those in traditional virgin refined fuel oil. On the other hand, used oil that has been determined to be on-spec contains contaminants at levels below the maximum concentration limits established in the standards, levels that

[103] 75 FR 31862.

[104] *See* 74 FR at 58.

[105] *See* 75 FR 31855, 31861, 31864.

[106] 75 FR 31865, 31877.

EPA considers to be comparable to (or less than) those in traditional virgin refined fuel oil.[107] In accordance with 40 CFR part 279, once used oil is determined to be on-spec, it is no longer regulated under the used oil management standards.[108]

We also disagree that we are defining the use of used oil as fuel oil as the only situation where used oil is not a solid waste. RCRA is silent on the issue of whether or not used oil is or is not a solid waste. This rulemaking effort is the first to determine in which situations used oil would be considered a solid waste. Additionally, 40 CFR part 279 puts no restrictions on the use of on-spec used oil once it has been determined to be on-spec, which indicates that the Agency has historically viewed this material as a commodity and not a waste. We are also simply not opining on other situations where used oil is used beyond its use as fuel as it does not matter for federal law. States may make their own decisions on whether other uses are solid wastes.

Comment: Industry commenters argue that off-specification used oil should not be considered a solid waste for a number of reasons relating to the statute and EPA regulations, as well as policy preferences. (We elaborate and respond to each of the comments separately, below. The comments also refer to on-specification used oil in much of the argument, but we have dealt with on-specification used oil above. Thus, the comments and responses below only deal with off-specification used oil issues.)

Comment: Section 3014 of RCRA did not classify used oil as a waste and instead established a separate regulatory program for used oil. This section provides EPA with authority to regulate used oil that is recycled, independent of any determination whether or not used oil is a waste. Moreover, RCRA section 1004(37) defines used oil to include "recycled oil" that is "burned." Consistent with this provision, the used oil regulations in 40 CFR part 279 state "EPA presumes that used oil is to be recycled unless a used oil handler disposes of used oil, or sends used oil for disposal." 40 CFR 279.10(a). The commenters claim that these provisions mean that "disposal" is separate from "burning" because "disposal" must be separate from "recycling." Thus, "recycling" is separate from "solid waste" because the two terms are mutually exclusive.

In addition, the 40 CFR part 279 regulations already define what is legitimate used oil recycling under section 3014 of RCRA, which includes recycling of off-specification used oil with appropriate environmental safeguards. EPA cannot now reverse this determination without a reasoned analysis.

Another provision of EPA's hazardous waste regulations, 40 CFR section 261.33, supports this position with respect to whether off-specification used oil is a solid waste. Under this provision, commercial chemical products and intermediates and off-specification variants listed as hazardous wastes in 40 CFR 261.33, as well as some other materials not relevant here, are solid wastes when burned for energy recovery unless the commercial chemicals are themselves fuels. Commercial chemicals that are themselves fuels are not wastes when burned for energy recovery. According to the comments, even off-specification variants of the commercial chemical products may be burned as fuels and not be considered solid waste. See 40 CFR 261.33(a) and (b); 40 CFR 261.2(c)(2)(B)(ii). The argument is that off-specification used oil should also be treated as a non-waste when burned for energy recovery. That is, used oil, even if off-specification, should be considered a product and not a waste under the rationale that used oil is a commercial chemical product. Further, EPA should not treat off-specification potentially hazardous wastes different from off-specification non-hazardous wastes.

EPA's Response: EPA disagrees that this analysis of the statute and regulations shows that off-specification used oil is not a solid waste. The Agency agrees that section 3014 of RCRA does not classify used oil as either a waste or a commodity. However, section 1004(37), also, does not define "recycled oil" as either a waste or a commodity. As EPA has explained elsewhere in this preamble, the recycling of secondary materials, per se, does not mean that such materials are either wastes or not. Wastes may have value and may be recycled, but they are still wastes. Used oil may be recycled by being "burned," as provided under 1004(37), or may be recycled in any number of other ways. The mere fact that the secondary material is recycled is not dispositive for determining whether it is a waste. Thus, under the statute, contrary to the commenter's view, "recycling" and "solid waste" are not mutually exclusive. This means that EPA must decide whether the secondary material is a waste based on the definition of solid waste in RCRA 1004(27) by deciding whether material is "discarded" in the plain meaning of the word.

Similarly, part 279 does not provide that the terms, "recycling" and "solid waste," are mutually exclusive. Section 279.10(a) does distinguish between materials that are clearly "disposed of" by, for example, being thrown into a landfill, but makes no determination as to whether recycled secondary material is "discarded" in any other sense. Both *ILCO* and O*wen Steel,* for example, provide examples of recycling of wastes. As EPA continues to emphasize, wastes may be recycled even by being burned for energy recovery, but they are still wastes.

As mentioned above, based on the information received and the record established for this rulemaking, we have concluded that off-spec used oil does not meet the legitimacy criteria. EPA has determined that off-specification used oil is a solid waste when burned for energy recovery because it has greater contaminant levels than fuel oils and its markets are limited due to this contamination. In particular, 40 CFR part 279 restricts the burning of off-specification used oil to industrial furnaces, industrial boilers, utility boilers, certain used oil-fired space heaters, and hazardous waste incinerators and specifically excludes non-industrial boilers, such as those located in apartment and office buildings, schools, and hospitals. For a more detailed discussion of off-spec used oil, see 75 FR 31865. On-specification used oil, on the other hand, is not a waste because it has contaminant concentrations similar to fuel oils. Due to this, 40 CFR part 279 does not restrict where on-specification used oil can be burned. The definitions cited by the commenters in the statute and regulations do not affect these determinations.

Section 261.33, also, does not affect EPA's interpretation of the waste status of used oil. That provision deals with hazardous wastes and EPA has repeatedly stated that it is not reopening its RCRA subtitle C regulations for comment. In any event, however, section 261.33 provides that chemicals manufactured as a fuel may be burned for energy recovery. It does not apply to secondary materials that may later be used as fuels when their original use was different.

[107] *See* Used Oil Final Rule, 50 FR 49181 (November 29, 1985).

[108] Once used oil is claimed to be on-spec and the marketer complies with the requirements for analysis and record retention, notification, and record tracking shipment to on-specification burners, it is no longer subject to other management standards. We note that today's rule does not change any of the regulations in place that regulate on-spec used oil.

Furthermore, EPA is not making any changes to 40 CFR part 279 by virtue of this rule. The Agency is not reversing itself on any part of 40 CFR part 279. Also, 40 CFR part 279 makes no determination regarding the nature of the CAA regulations for any facilities that burn used oil and EPA is not amending 40 CFR part 279 to state whether any used oil is a waste or not. Based on the current provisions of 40 CFR part 279, it is entirely reasonable for the Agency to find that on-specification used oil is not a waste, while off-specification used oil is a waste. Also, we would note that off-spec used oil may still be burned in the same types of facilities provided in 40 CFR part 279, but the CAA must determine how they are to be controlled based on the fact that the off-spec used oil is a waste.

Comment: If EPA classifies burning off-specification used oil as a waste, it will no longer be covered by the Part 279 Used Oil Management Standards. As EPA noted when it promulgated the Part 279 Used Oil Management Standards, section 3014 only authorizes the regulation of oil that is destined for recycling, not oil that is "discarded."

EPA's Response: EPA disagrees with this comment. As noted above, EPA is not changing the used oil regulations and off-spec used oil burned as a waste would still be subject to 40 CFR part 279. The commenter is conflating the clear disposal of used oil—throwing it in a landfill, for example—with the concept of "discard." "Discard" is not used in 40 CFR part 279 and "disposal" is not a congruent term to "discard." That is, the regulations at 40 CFR part 279 do not discuss or address whether used oil has been discarded; rather the requirements ensure that used oil that is recycled is done so in a manner that protects human health and the environment.

Also, as noted repeatedly in the rulemaking record, wastes may be recycled as a fuel, but they would still be wastes and would be discarded. The determination in this rule that off-spec used oil is a waste only means that the facilities that burn it are burning it as a waste and they will be subject to the appropriate CAA authorities. EPA has not previously opined as to the consequences under the CAA of the various facilities that burn used oil.

Comment: If EPA fails to classify off-specification used oil as a product, it will be in violation of the Congressional mandate to promulgate regulations that "do not discourage the recovery or recycling of used oil, consistent with the protection of human health and the environment." 42 U.S.C. 6935(a).

EPA's Response: EPA disagrees with this comment. The Agency is constrained by the provisions of RCRA that define solid waste as material that is discarded. Furthermore, we feel the definitions established in this rulemaking in fact do not discourage the recovery or recycling of used oil. For example, EPA is specifically clarifying in this final rule that used oil combusted in an oil-fired space heater that meets the provisions of 40 CFR 279.23 need not be tested to establish whether or not such oil is on or off-spec. This includes used oil generated by small facilities such as auto repair shops and machine shops that have such units, and used oil-generated by homeowners who change their own oil (referred to as "do-it-yourself" or "DIY" oil) that are burned in such units. This is because the CISWI regulations promulgated elsewhere in the **Federal Register** today do not establish emissions limits for such units, and therefore the concerns of the commenters that such units would have to comply with CAA Section 129 standards have been addressed for this population of combustion units.

Comment: Commenters argued that contaminant concentrations found in "off-spec used oil" is comparable to traditional fuels. While commenters submitted studies that looked at both on-spec and off-spec used oil to support this assertion, Table 4 only summarizes data presented in the comments on the contaminant levels in off-spec used oil as compared to fuel oil and coal. In U.S. Study 1, 55 samples were collected "throughout the USA" from facilities that combust used oil in space heaters and/or small boilers. Two of the 55 samples were off-spec; one was off-spec for total halogens and the other was off-spec for cadmium. The researchers identified the off-spec used oil for total halogens was an industrial oil that contains non-hazardous chlorinated paraffin and the other was from a military operation. Table 4 presents the data on the two samples that were off-spec. In the U.S. Study 2, researchers looked at a database of used oil samples maintained by a national commercial laboratory. The database contained over 3,500 used oil samples from the U.S. and other countries on which over 17,000 analyses were performed from 2008 to present. Between 24 and 53 samples in this dataset exceed the specification for one of the contaminants—specifically for total halogens and chromium. The researchers speculated that the high levels of halogens were due to non-hazardous chlorinated paraffin which is used (added to the oil by lubricant manufacturers) in industrial oils designed to encounter high pressure. The researchers did not speculate on the reasons for the high levels of chromium. Table 4 presents the data on the off-spec samples, only. In the Canadian study, 230 samples of used oil were collected from various businesses in Ontario, Canada between 2003 and 2010. Of those samples, four were off-spec for arsenic, but not by significant amounts. The commenters did not speculate on the reasons for the high levels of arsenic. Table 4 presents the results of the analysis of the four off-spec samples.

TABLE 4—CONTAMINANT CONCENTRATIONS IN OFF-SPEC USED OIL AND TRADITIONAL FUELS

Material	U.S. study 1 [109]	U.S. study 2 [110]	Canadian study [111]	Fuel oil No. 1,2,4,6 [112]	Coal [113]
# Samples	2	24–53	4	Unknown	Unknown.
Year	2010	2010	2003–2010	Unknown	Unknown.
Containment Concentrations:					
Total Halogens (ppm):					
Minimum	2,700	NR	42.2	<500	13,140
Maximum	6,170	NR	151.0		
Median	4,435	6,642	80.5		
Average	4,435	9,409	88.6		
As (ppm):					
Minimum	<1.0	NR	5.1	<2.3	1.0—120

TABLE 4—CONTAMINANT CONCENTRATIONS IN OFF-SPEC USED OIL AND TRADITIONAL FUELS—Continued

Material	U.S. study 1 [109]	U.S. study 2 [110]	Canadian study [111]	Fuel oil No. 1,2,4,6 [112]	Coal [113]
Maximum	<1.0	NR	6.7		
Median	<1.0	<1.0	6.1		
Average	<1.0	1.95	6.0		
Cd (ppm):					
Minimum	0.30	NR	<0.92	<1.2	0.2—5.0
Maximum	2.60	NR	<1		
Median	1.45	0.13	0.97		
Average	1.45	0.69	0.97		
CR (ppm):					
Minimum	<4.0	NR	<1.2	<2.3	1.0—90
Maximum	<4.0	NR	2.2		
Median	<4.0	16.0	2.0		
Average	<4.0	20.9	2.0		
Pb (ppm):					
Minimum	14	NR	<4.6	7–57	0.5–0.9
Maximum	15	NR	17.0		
Median	15	11.0	5.6		
Average	15	35.2	8.2		

NR = Not Reported.

EPA's Response: While data was submitted regarding higher levels of contaminants in coal than in off-spec used oil, coal is not an appropriate comparison for used oil since some combustion units that burn used oil can alternatively only burn fuel oil and not coal (such as space heaters). Thus, used oil should be compared to fuel oil. The specifications promulgated under 40 CFR 279.11 were developed by looking at contaminants in fuel oil and the risks posed by those contaminants. The data submitted states that the average total halogen content of off-spec used oil from one study is 9,409 ppm (with the on-spec concentration of 4,000 ppm maximum). Also, off-spec used oil contains as much as 21 ppm of Cr, on average, (with the on-spec concentration of 10 ppm maximum). Thus, off-spec used oil does not meet the legitimacy criterion for contaminants.

When EPA created the specification levels set in 40 CFR 279.11, it identified those levels as being comparable to fuel oils. EPA maintains that these levels are appropriate standards to measure what should and should not be burned in CAA section 112 and 129 units. Thus, off-spec used oil (those oils that do not meet the specification levels set in 40 CFR 279.11) is deemed to have more contaminants than fuel oils produced for burning and, therefore, are a solid waste.

Comment: EPA is ignoring the fact that the level of contaminants in a secondary material is not dispositive of whether or not a secondary material is a waste. It is merely an indicator of whether or not EPA should look more closely at the recycling activity when making the waste determination. Levels of contaminants only insignificantly higher than those found in traditional fuels hardly imply a purpose of disposal, assuming the secondary material being combusted is otherwise a valuable fuel. Only when a material contains contaminants at significantly elevated levels does it begin to become reasonable to presume that there may be an intention to discard.

EPA's Response: We agree that contaminant levels are an indicator of waste activity and we have investigated the case of off-spec used oil to fully assess if its use in a combustion unit is truly a waste activity. As a result of our investigation, it is clear from the data in Table 4 that off-spec used oil does not contain comparable levels of contaminants to fuel oils.

Comment: In the context of determining whether a hazardous secondary material is a solid waste, EPA recognizes that legitimate recycling can occur even if the material has higher levels of toxics than virgin materials. To show this, the comment cites a discussion by the Agency in an earlier rule in which foundry sands are reused for mold making in a facility's sand loop. The comment argues that it is relevant that the sands used to make the molds may have significantly higher concentrations of hazardous constituents than virgin sand. However, because the sand is part of an industrial process where there is little chance of the hazardous constituents being released into the environment or causing damage to human health and the environment, these levels would not affect the legitimacy of the recycling process.

EPA's Response: EPA disagrees with this comment. In the first place, the Agency is not reopening its hazardous waste regulation. EPA's identification of the legitimacy criteria is based on the record for today's action, and does not address hazardous waste. In any event, the discussion of foundry sand contamination, even though it would be a hazardous waste without application of the legitimacy criteria for that rule, presents what appears to be a vastly different recycling situation. In this rule, combustion will result in releases to the air. This is why the rule calls for restrictions on burning. The foundry sand example is a closed loop system and is not implicated by contamination problems that releases lead to the atmosphere. We would also note that in a March 28, 2001 letter from Elizabeth Cotsworth, then Director of the Office of Solid Waste and Eric Schaeffer, then Director of the Office of Regulatory Enforcement to Amy Blankenbiller of the American Foundry Society, we also discussed the use of foundry sand as part of the sand loop for mold-making being part of a continuous industrial

[109] *Source:* EPA–HQ–RCRA–2008–0329–0799.2

[110] *Source:* EPA–HQ–RCRA–2008–0329–1273.1 Attachment B

[111] *Source:* EPA–HQ–RCRA–2008–0329–0799.4

[112] *Source:* EPA–HQ–RCRA–2008–0329–0799.2, EPA–HQ–RCRA–2008–0329–1273.1, Attachment B

[113] *Ibid.*

process.[114] However, the letter also made clear that the letter did not address the thermal processing of sand, which would be a combustion unit, and would be more equivalent to a scenario that is addressed in today's final rule.

Comment: Commenters argued that processing of off-spec used oil is contrary to the goals of energy efficiency and wise resource utilization. They argued that the rule should continue to allow/follow the rules set forth in 40 CFR 279.11 as it pertains to used oil as a viable and not discarded fuel. That is, if off-spec used oil is blended with virgin oil or on-spec used oil to meet the 40 CFR part 279 used oil specs, the resulting oil should be considered a legitimate fuel product.

Other commenters argued, however, that when these materials are distilled into fuel, they are still wastes, regardless if they have been blended or processed to obtain an on-spec material. Wastes are always wastes and their status cannot be changed through simple processing.

EPA's Response: Whether or not processing of used oil is contrary to the goals of energy efficiency, off-spec used oil contains more contaminants than traditional fuels, and thus, is not a traditional fuel. In addition, as we have stated previously, the regulations at 40 CFR part 279 do not discuss or address whether used oil has been discarded, as commenters have claimed, but rather ensure that used oil that is recycled is conducted in a manner that protects human health and the environment. To that end, we encourage, and the RCRA used oil regulations currently allow, the processing of off-spec oil to create on-spec used oil as per 40 CFR 279.50, which states that processing "includes, but is not limited to: blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation, chemical or physical separation and re-refining." There is nothing in today's rule that would change this requirement.

We also disagree with commenters that processing of off-spec used oil into on-spec used oil still renders it a waste. EPA's regulations at 40 CFR 279.11 state that, once oil is determined to be on-specification in accordance with the regulations in Part 279, the used oil regulations do not apply to the material. On-specification used oil is for all intents and purposes the same as oil refined as a product fuel in the first instance and the Agency is not reopening its 40 CFR part 279 regulations.

Comment: Commenters argued that used oil, particularly from automobiles, is on-specification and facilities that burn automobile oil should be allowed to burn them under CAA section 112, along with other on-spec used oil. Comments base this determination on the elimination of leaded gasoline. Commenters also supplied studies to support this assertion.[115]

EPA's Response: The data provided in the comments indicates that a very small portion of used oil is off-spec. Assuming the data is representative of used oil, most used oil will be an alternative fuel (within the definition of a traditional fuel). This does not allow us to make a broad classification that, because only a small portion of used oil is off-spec, used oil can be generally classified as on-spec. On the other hand, the data in the studies submitted by commenters indicate that used oil obtained from small, private automobiles serviced by DIYers and auto repair shops will be on-spec, which would not be a solid waste. In addition, as we describe elsewhere in today's preamble, persons can submit a non-waste determination petition if they believe that their used oil is not a waste.

Comment: Many commenters stated that there are numerous auto repair shops that use used oil to fuel their space heaters, which do not (or would not likely) meet the air pollution controls required by the CAA section 129 standards. The commenters argue that such auto repair shops will no longer be able to use off-spec used oil in their space heaters if off-spec used oil is determined to be a solid waste.

Moreover, commenters assert that auto repair shops will likely not want to take on the additional burden of testing the used oil to determine if it is on-spec in order to use some portion of the material in their space heaters without having to comply with the CAA section 129 standards. They further assert that these shops may illegally dispose of used oil if they cannot burn it in their space heaters and they are not located near a processor. Commenters expressed concerns that they may also stop collecting used oil from individuals who remove their own used oil (do-it-yourselfers, or DIYers) as they have no incentive to take the DIYers oil, which may lead to DIYers illegally disposing of their used oil.

EPA's Response: In this rule, EPA determined whether off-specification used oil is a solid waste. However, EPA's regulations promulgated today under CAA 129 do not apply to space heaters. Thus, today's rule would not in any way change the current regulatory scheme or operations for burning of used oil in space heaters since the Agency is not promulgating emission standards for such units.

In particular, EPA is specifically clarifying in this final rule that used oil combusted in an oil-fired space heater that meets the provisions of 40 CFR 279.23 need not be tested to establish whether or not such oil is on or off-spec. This includes used oil generated by small facilities such as auto repair shops and machine shops that have such units, and used oil-generated by homeowners who change their own oil (referred to as "do-it-yourself" or "DIY" oil) that are burned in such units. This is because the CISWI regulations promulgated elsewhere in the **Federal Register** today do not establish emissions limits for such units, and therefore the concerns of the commenters that such units would have to comply with CAA Section 129 standards have been addressed for this population of combustion units.

EPA also points out that anyone wishing to show that the material is on-spec does not have to test the used oil, but can use other information besides analyses. Specifically, the existing regulation under 40 CFR 279.72 states that used oil fuel can be determined to be on-spec by "performing analyses or obtaining copies of analyses or other information documenting that the used oil fuel meets specifications."

8. Coal Refuse [116]

Coal refuse refers to any by-product of coal mining or coal cleaning operations. Coal refuse is generally defined by a minimum ash content combined with a maximum heating value, measured on a dry basis. Coal refuse consists primarily of non-combustible rock with attached coal that could not be effectively separated in the era in which it was mined. Due to advances in coal preparation technology over the past century, the processing of coal has evolved such that materials that are now generated in the coal mining process, which would have been considered coal mining rejects in the past and discarded in waste piles, are now handled and

[114] A copy of this letter can be found in the docket to today's rule.

[115] *See* documents EPA–HQ–RCRA–2008–0329–0799; EPA–HQ–RCRA–2008–0329–1273.1; EPA–HQ–RCRA–2008–0329–1686.

[116] The proposed rule differentiated between coal refuse and mined landfill ash. For a discussion regarding the use of mined landfilled ash as a fuel, see the coal combustion residuals section for fuels (Section V.B.9); for a discussion regarding the use of these non-hazardous secondary materials as ingredients, *see* the coal combustion residuals section for ingredients (Section V.C.2).

processed as coal. In the early twentieth century, coal preparation involved simple size segregation into lump coal for domestic use and intermediate-sized coal for industrial use. Coal fines were considered unfit for use and were disposed of as mine rejects in discarded coal refuse piles. Today, however, coal preparation plants are much more capable of separating coal from mineral matter through processes, such as density separation and froth flotation.[117]

Thus, the proposed rule differentiated between coal refuse that is currently generated and coal refuse that was generated in the past and placed into "legacy" piles. The proposed rule considered coal refuse that is currently generated and used as a fuel as not being abandoned or disposed of and, therefore, is not considered a solid waste. On the other hand, the proposed rule stated that coal refuse placed in legacy piles has clearly been discarded, thus meeting the definition of a solid waste material. With regard to coal refuse from legacy piles, the proposed rule described the processing of this non-hazardous secondary material as involving separation through the use of screens or grizzlies, blending, crushing, or drying. Although we understand that virgin coal is similarly processed, the proposal stated that the Agency believes that such operations would constitute "minimal processing" and would not meet the processing definition, as proposed. Thus, under the proposed rule, coal refuse abandoned in legacy piles would be considered solid waste, as would the coal refuse that has been processed and used as a fuel in what was considered to be a minimal set of sizing activities.

The proposal also noted one commenter who contended that coal refuse contained elevated levels of mercury, chromium, and lead when compared to other coals. Because the proposal already determined coal refuse in legacy piles to be a solid waste (discarded and insufficiently processed), we did not believe it was necessary to determine whether coal refuse from legacy piles would satisfy the contaminant legitimacy criterion. However, the proposed rule noted that although coal refuse can contain metals concentrations that are higher than found in virgin coal, data also show that emissions levels from some facilities burning coal refuse (namely those equipped with circulating fluidized beds (CFBs)) are lower than most existing pulverized coal utility boilers. For the proposed rule's characterization of coal refuse, see 75 FR 31865–6.

Accordingly, the Agency seems to have faced a dilemma in deciding how to treat the "legacy" piles. This dilemma was reflected in the comments, described below, which shows an inherent illogic in treating coal refuse generated from mining operations today and used as fuel differently from coal refuse mined from the "legacy" piles, which seem to be no different.

Comment: Responding to EPA's request for comment regarding whether other fuels in use today should also be classified as traditional fuels, several commenters argued that coal refuse should be considered a traditional fuel, regardless of when generated, as it has been used as a fuel for approximately 30 years. Citing the preamble to the proposed rule, commenters stated that EPA recognized that "changes in technology and in the energy market over time may result in additional secondary materials being economically viable to be used as 'traditional' fuels," and that the advancement of technology, specifically the advent of circulating fluidized beds (CFBs), has allowed coal refuse to be used as fuels for decades.[118] Thus, these commenters reason, it is most appropriate to consider coal refuse to be a traditional fuel.

EPA's Response: We begin by recognizing that we have several difficulties in dealing with coal refuse. We are faced with a statute that places limits on the Agency's ability to cover "discarded" material. Case law indicates that a material may not lose its waste status merely because it has value. As technology advances, material that has been a waste may be no different from material that may today be used as a product. EPA, in fact, has no jurisdiction to consider as wastes currently mined coal that was formerly "refuse."

Coal refuse is unique, however, from other non-hazardous secondary materials addressed in this rulemaking, as it is generated in the process of producing fuels (*i.e.,* the mining of coal for use as fuel) and its subsequent use and value as a secondary material is also as a fuel. Since the primary product of a coal mining operation is itself fuel, we consider coal refuse to be more akin to a raw material that is subsequently processed and utilized to produce a fuel. In other words, coal refuse is different from other non-hazardous secondary materials, such as used tires or resinated wood residuals, in that it is generated in the production of fuel and can be used itself as a fuel (and in fact has never been used for anything else).

The two materials that are used in major quantities today as valuable fuels, but have formerly been discarded are coal refuse and tires. A major difference between these two materials that EPA finds relevant is that the coal refuse in the legacy piles has never been used for anything else and is mined as fuel in the first place. Tires, on the other hand, are originally produced for a use that is fundamentally different from its current use as a fuel. Cement kiln users do not ask tire manufacturers to produce tires for burning in the kilns. Coal, however, was never used for any other activity. It was mined years ago to produce a fuel, but may now be used itself as fuel. Therefore, coal refuse is fundamentally different from tires, as well as the other non-hazardous secondary materials that are discussed in the preamble to this final rule.

Responding to commenters that also noted that coal refuse has been used as a fuel for thirty years due to advances in technology, we find this information useful, but not determinative in our analysis of whether or not coal refuse meets our definition of a traditional fuel. However, the fact that coal refuse has been used and managed as a fuel for thirty years when coupled with the fact that coal refuse is unique from other non-hazardous secondary materials in that it is a byproduct of fuel production processes and is itself a raw material that can be used as a fuel leads us to determine that coal refuse that is currently generated and used as a fuel should be considered a traditional "alternative fuel." However, coal refuse that has been abandoned long ago in legacy coal refuse piles would not be considered a traditional fuel that is not subject to coverage and assessment in this rule, since it is clearly a material that has been discarded in the first instance.

We note that other non-hazardous secondary materials have also been used as fuels for similar lengths of time or even longer, but would not be considered traditional fuels. We again emphasize that our decision to classify coal refuse as an alternative fuel is based both on the fact that it has been used and managed as a fuel for thirty years combined with the fact that we find coal refuse to be distinctive among the other non-hazardous secondary materials at issue in today's rule; *i.e.,* coal refuse is in fact raw material coal that is generated as a result of coal

[117] *See* National Research Council of the National Academies (NRC), "Coal Research and Development," 2007, accessed on May 14, 2008 at: *http://www.nap.edu/catalog.php?record_id=11977. See* generally "Materials Characterization Paper on Coal Refuse," a copy of which is included in the docket for today's rulemaking.

[118] Referenced citation can be found at 75 FR 31856.

mining operations whose primary product is fuel.

We also note that our characterization of coal refuse that is currently generated as an alternative fuel is not inconsistent with the proposed rule's characterization of this material. The proposed rule stated that currently generated coal refuse would not be abandoned or disposed of and, therefore, not a solid waste. The proposed rule did not, however, specifically state that coal refuse that is currently generated is a traditional fuel. For clarity, it is appropriate to do so today, and will amend our definition of traditional fuels to also include alternative fuels that reflect this determination.

As previously discussed, coal refuse that has been placed in legacy piles would not meet the definition of traditional fuels, as they clearly have not been historically used and managed as a fuel. It is clear that coal refuse abandoned in legacy piles has been discarded and managed as a waste. Our rationale for this distinction between coal refuse that is currently generated and coal refuse that was placed in legacy piles is further discussed in the comment response below. Thus, coal refuse that has been placed in legacy piles would be considered solid waste unless it is processed into a legitimate fuel product. We respond to comments received regarding the processing of coal refuse later in this section.

Comment: Many commenters stated that all coal refuse should be considered a "fuel," regardless of when the coal refuse is generated and urged EPA to eliminate the "false distinction" based on when the coal was mined (*i.e.,* coal refuse that is mined from legacy piles shares the same characteristics as coal refuse that is generated today).

At least one commenter cited 40 CFR 60.41 as defining "fossil fuel" as "natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat." The commenter went on to cite 40 CFR 60.41b, which states that "Coal means * * * coal refuse * * *"[119] and argues that this definition in the regulation has nothing to do with when the coal refuse was generated and should always be considered a fuel.

EPA's Response: We disagree with the comments contending that coal refuse placed in legacy piles should be characterized and regulated the same as coal refuse that is generated currently, as this fails to acknowledge that such coal refuse has been discarded. As has been discussed, the statutory definition of solid waste turns on whether or not a material has been discarded in the first instance. Courts have consistently held that the term "discard," is to have the ordinary, plain-English meaning (*i.e.,* "disposed of," "thrown away," or "abandoned"). As coal refuse placed in legacy piles have clearly been abandoned, we cannot ignore the fact that these materials have been discarded in the first instance and, therefore, do not agree with the contention that this construct represents a "false distinction." The resulting distinction may lead to results that some may find illogical, but we are faced with the definition of "discard" and the fact that the mere fact that discarded material may have value does not allow the material to lose its waste status.

Although we recognize that all coal refuse is (and was) generated during the fuel production process and are more akin to raw materials, coal refuse that has been abandoned in legacy piles have not been historically used and managed as a fuel and therefore cannot be considered a traditional fuel. Because the technology did not exist that could effectively make use of the fuel value of these materials at the time of their generation, they were managed as wastes and abandoned in legacy piles. While we find that currently generated coal refuse should now be considered alternative fuels for the reasons stated above, we cannot ignore that coal refuse that has been placed in legacy piles have clearly been discarded and, thus, unless these materials are "sufficiently processed" and satisfy all legitimacy criteria for fuels, these secondary materials would be considered solid wastes when burned as fuels in combustion units.

Regarding the comments that argue that EPA has previously defined coal to include coal refuse, we note that this information was helpful, but disagree the cited regulatory definitions control in this rulemaking. The cited definitions, which are included in the standards of performance for new stationary source regulations, were developed pursuant to the CAA and do not address the issue of discard. Today's rulemaking is being promulgated under RCRA, which, as mentioned above, hinges on the whether or not the non-hazardous secondary material at issue has been discarded. EPA also reemphasizes that the distinction is not between "fuel" and "waste," but between fuel that is a commodity (not a waste because it has not been discarded) and waste fuel that has value, but is still a waste.

In the same CFR sections cited by commenters which define coal as including coal refuse, we note that coal refuse is defined as meaning "waste-products of coal mining, cleaning, and coal preparation operations (*e.g.,* culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material"[120] and "any byproduct of coal mining or coal mining operations with an ash content greater than 50 percent, by weight, and a heating value less than 13,900 kJ/kg (6,000 Btu/lb) on a dry basis."[121] These definitions highlight the uniqueness of coal refuse and in fact support the distinction we are making between coal refuse that is currently generated and coal refuse that has been placed in legacy piles. That is, it may be appropriate to consider coal refuse to be within the definition of coal because it may now be used as coal, while at the same time, it may also be appropriate to consider coal refuse to be a "waste-product" or "byproduct" of coal mining operations. EPA's evaluation that coal refuse that is currently generated and used as a fuel has never been discarded and should be considered an alternative fuel, while discarded coal refuse should be considered a solid waste, is consistent with these regulatory definitions.

Comment: Most commenters addressing the issue of processing coal refuse stated that coal refuse from legacy piles is processed the same way as is virgin coal; that is, the processing of these materials includes the use of grizzlies, screens, and blending to improve the quality, remove metal objects, reduce the ash content, reduce the sulfur content, and reduce concentrations of various constituents. These comments maintained that this level of processing should satisfy EPA's definition of "processing" because the processing that occurs is designed specifically to improve the fuel quality and remove contaminants in the process (for example, metals that are removed with ash that is screened out).

One commenter stated that it is illogical and problematic for EPA to propose a minimal level of processing that requires additional activities than are used to prepare virgin materials for use. This commenter provides the example of a company that recovers coal refuse from previously discarded piles, screen the refuse to remove large pieces of slate and rock, conducts a chemical

[119] "Coal means all solid fuels classified as anthracite, bituminous, sub-bituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, *see* Sec. 60.17), coal refuse, and petroleum coke * * *" *See* 40 CFR 60.41b.

[120] *See* 40 CFR 60.41.

[121] *See* 40 CFR 60.41b.

analysis to identify Btu, ash, and sulfur characteristics, hauls the coal refuse to its preparation plant where it is cleaned just like mined coal, and then sold as is or blended with mined coal to meet contractual orders. This commenter argues that EPA did not provide adequate justification in the proposed rule for why this process would be insufficient to turn a once discarded non-hazardous secondary material into a non-waste fuel product.

Additionally, commenters noted that in the case of facilities burning coal refuse, regardless of whether it is generated currently or was placed in legacy piles, the engineering design of a CFB is based on the quality of the coal refuse available to be burned in the boiler. In other words, considerations for use of the coal refuse as a fuel precede facility construction and directly impact boiler design and application. Therefore, coal refuse from legacy piles that is processed in this manner (*i.e.,* in the same manner as currently generated coal refuse) should not be considered a solid waste.

EPA's Response: As finalized in § 241.2, the term "processing" is defined as meaning "any operations that transform discarded non-hazardous secondary material into a non-waste fuel or non-waste ingredient product. Processing includes, but is not limited to, operations necessary to: remove or destroy contaminants; significantly improve the fuel characteristics of the material, *e.g.,* sizing or drying 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 purposes of this definition." We have determined that this definition encompasses an appropriate level of processing necessary to render a discarded material into a non-waste product.

As several commenters noted, the processes that are employed to recover coal refuse that has been placed in legacy piles in order to be used as fuels are the same as the processes that virgin coal is subject to. As discussed above, coal refuse is unique from other non-hazardous secondary materials in that it is a byproduct of fuel production processes and is itself a raw material that can be used as a fuel. Because coal refuse is essentially raw material coal, which is generated in the production of fuel and can be used itself as fuel, we agree with the commenter who stated that it would be illogical to require a different level of processing for discarded coal refuse than is used for virgin coal. Therefore, coal refuse that is recovered from legacy piles and used as fuel that is subjected to the types of operations that are used to process virgin coal, which serve to both increase energy values as well as reduce contaminants, would meet our definition of processing and would not be considered solid waste, provided these materials satisfy our legitimacy criteria, which they do since currently mined coal is certainly a legitimate fuel and is the same as those from the legacy piles.

Comment: EPA received comments providing new contaminant data for coal refuse. However, some commenters acknowledged that coal refuse can have higher levels of some metals, but agreed with EPA that coal refuse is typically used as a fuel in newer boilers equipped with CFBs, which have emissions levels lower than most existing coal utility boilers.[122] One commenter stated that notwithstanding the higher metals content of coal refuse, CFBs typically capture between 90–99 percent of mercury and other metals. While most commenters noted that emissions levels associated with burning coal refuse are similar to those found when burning virgin coal, one commenter did provide a comparison in concentration levels of various contaminants between coal refuse and regional coal samples. A selection of the specific data provided by the commenter is replicated in Table 5 below:

TABLE 5—COMPARISON OF TRACE METAL CONTENTS (PPM) OF REGIONAL COAL SAMPLES AND COAL REFUSE FROM LEGACY PILES, AS PROVIDED IN COMMENTS ON THE NHSM PROPOSED RULE

Sample description	Sample ID	Sb	As	Be	Cd	Cr	Co	Pb	Mn	Hg	Ni	P	Se
Coal samples from USGS database—Cambria, Indiana, and Somerset Counties, PA [123].	No. Samples	244	244	244	244	244	244	244	244	244	244	244	244
	Minimum	0.11	0	0.6	0.01	2	1.5	0.8	2	0.00	3.4	22	0.68
	Maximum	7.80	200	9.5	1.00	65	34.0	44.0	390	2.90	86.0	3400	20.00
Samples of coal refuse from legacy piles located in Cambria, Indiana, and Somerset Counties, PA.													
	Sample 1	1.5	50.7	2.1	0.3	80.2	22.7	33.1	134	0.644	44.7	718	7.8
	Sample 2	1.7	53.4	2.1	0.3	84.5	23.8	35.2	139	0.748	50.5	719	8.6
	Sample 3	1.5	47.3	2.1	0.3	84.7	22.8	33.1	144	0.613	47.1	745	8.6
	Average	1.6	50.5	2.1	0.3	83.1	23.1	33.8	139	0.668	47.4	727	8.3

This data indicates that the concentration of the various contaminants in the coal refuse samples were lower for almost all constituents (including mercury and lead) when compared to regional coal samples. According to this data set, only chromium was consistently higher in the coal refuse samples than the regional virgin coal, which also indicates that the difference in concentration may be much closer than previously indicated in the preamble to the proposal.[124] Therefore, provided

[122] CFBs ability to achieve lower emissions levels is due to several factors: (1) CFB boilers are often newer than many existing pulverized coal utility boilers and may be equipped with better particulate matter (PM) controls; (2) CFBs utilize lower operating temperatures, which result in lower metal and NO_X emissions; and (3) CFB boilers often add limestone to their feed to control SO_2 emissions, which results in greater fixation to the ash.

[123] Coal sample data found in the U.S. Geological Survey—National Coal Resources Data System. For more information, *see http://energy.er.usgs.gov/coalqual.htm*).

[124] Data provided by the commenter indicated that the average chromium levels of coal refuse was 83.1 ppm, whereas the range of chromium levels for the regional virgin coal samples was between 2–65

Continued

that coal refuse from legacy piles are sufficiently processed, this commenter asserts that coal refuse would pass the contaminant legitimacy criterion and should therefore not be classified as a solid waste.

EPA's Response: Regarding the contaminant levels in coal refuse in legacy piles, we agree with those commenters who acknowledged that coal refuse can have higher concentrations of some metals than is found in virgin coal. As noted in the proposed rule, at least one commenter on the ANPRM contended that coal refuse could have up to four times more mercury and chromium, and three times more lead than virgin coal.[125] We note that this commenter did not provide primary sources for this data, a point which was raised by at least one commenter. We generally recognize, however, that available data show that coal refuse placed in legacy piles often has higher metals concentrations than non-refuse coal concentrations, but we would presume that the levels of contaminants are the same as in currently mined coal that would have been placed into these piles in the past. We also recognize that contaminant levels will vary significantly depending upon the region and type of coal at issue.[126]

As discussed above, we now determine that coal refuse that is currently generated should be considered an alternative fuel. On the other hand, coal refuse that is recovered and processed from the discard environment would need to pass the legitimacy criteria in order to be considered a non-waste fuel. As coal refuse is recovered from legacy piles are subject to the same processes as currently-generated coal refuse in order to meet the same fuel specifications, they would contain any potential contaminants at levels that are comparable to or lower than coal refuse that is currently generated.

We would further note that the contaminant data provided by the one commenter demonstrates that there are also examples of coal refuse taken from legacy piles satisfying the contaminant legitimacy criterion when directly compared to contaminant levels in coal. Given the regional variations in coal compositions, the analysis is on point given the fact that the commenter compared similar regional coal refuse and virgin coal samples. Therefore, we agree with the commenter that there are instances when coal refuse would also satisfy the contaminant legitimacy criterion when compared to virgin coal as well.

Finally, we would note that although emissions comparisons are not a direct indicator of whether these materials satisfy the contaminant legitimacy criterion, the emissions from CFBs that use coal refuse as fuel typically have lower levels of emissions than typical pulverized coal burners.

Comment: Several commenters contended that the management of coal refuse at mining sites is already regulated under the Surface Mining Control and Reclamation Act of 1997 (SMCRA) and that defining coal refuse as a solid waste would be inconsistent with SMCRA. Specifically, some commenters point out that although the term "solid waste" under RCRA includes mining waste in the definition, EPA determined, in accordance with section 1006(c) of RCRA that provides for the integration of RCRA with SMCRA, that materials and products associated with coal mining activities should not be regulated as hazardous wastes.

EPA's Response: RCRA section 1006(c) pertains to hazardous wastes under RCRA subtitle C. As such, it is inapplicable for today's rulemaking, which is solely concerned with non-hazardous secondary materials. Thus, we disagree with those commenters who cited section 1006(c) of RCRA and argued that regulation of coal refuse found in legacy piles should be deferred to SMCRA. In addition, SMCRA is concerned with the management and removal of coal refuse piles at mining sites. It does not address the issue of "discard," which is critical to the definition of solid waste under RCRA, and as such, which emission standards coal refuse that is in legacy piles and burned in a combustion unit is subject to under the CAA.

9. Coal Combustion Residuals [127] [128]

Coal combustion residuals (CCRs) are formed during coal-burning processes in power plants and industrial boilers, and are produced in various forms that are categorized by the process in which they are generated. The proposed rule differentiated between CCRs (which include such secondary materials as fly ash, bottom ash, and boiler slag), that are currently generated from those CCRs that have been previously disposed of (such as, mined landfill ash) and are used as fuels in combustion units. Under the proposed rule, currently generated CCRs that have not been discarded in the first instance and satisfy the legitimacy criteria would not be considered a solid waste when used as a fuel in combustion units provided the CCRs were burned in units within the control of the generator. For example, the proposal described a situation where currently generated, high-carbon fly and bottom ash that is taken directly from existing boilers is burned within the control of the generator at power generating stations. On the other hand, CCRs recovered from landfills or other disposal units would clearly have been discarded in the first instance and would therefore have to be sufficiently processed into a non-waste fuel product and meet the legitimacy criteria in order not to be considered a solid waste when used as a fuel.

The proposed rule also noted comments received on the ANPRM describing patented processes that separate the carbon from the fly ash in order to produce a new fuel product. Although this level of processing appeared likely to meet the proposed definition of processing, the proposed rule solicited comment on how CCRs are processed. The proposed rule also requested comment regarding the extent to which CCRs are recovered from the discard environment (*e.g.,* landfills) and used as fuels. For the proposed rule's discussion of CCRs used as fuels, *see* 75 FR 31865–6.

Comment: Most commenters argued that CCRs, when used in combustion units, should be classified as ingredients rather than as fuels. The commenters often contended that classifying all CCRs as ingredients would simplify waste determinations for these secondary materials by clearly establishing the appropriate legitimacy criteria that apply (*i.e.,* facilities would not need to determine whether the fuel or ingredient legitimacy criteria apply based on the primary purpose of the secondary materials). Some commenters acknowledged, however, that CCRs can be combusted (*e.g.,* by electric utilities) for energy recovery of its carbon content

ppm. The proposed rule noted that chromium levels of coal refuse can be up to four times higher than virgin coal.

[125] *See* 75 FR 31865.

[126] *See* our Materials Characterization Paper on Coal Refuse, located in the docket for today's final rule.

[127] In a separate rulemaking effort, EPA has proposed regulations that will provide for the safe disposal and management of coal combustion residuals from utility coal-fired power plants (the "Coal Combustion Residuals Proposed Rule"). The proposed rule was published in the **Federal Register** on June 21, 2010. See 75 FR 35127. Today's final rule does not affect that rulemaking effort, as our rule considers the use of coal combustion residuals in combustion units as fuels or ingredients, while the coal combustion residual proposed rule is concerned with the safe disposal and management of these residuals in landfills and surface impoundments. For more information on the coal combustion residual proposed rule, *see* Docket ID No. EPA–HQ–RCRA–2009–0640.

[128] For a discussion of CCRs used as ingredients, *see* Section V.C.2 of this final rule.

or combustion in carbon burn-out (CBO) units for processing marketable fly ash products.

One commenter described CBO units, which they explained burn "unwanted carbon" from fly ash to produce a low-carbon fly ash that is more suitable for use as an ingredient in Portland cement, as being typically integrated with power plants. The CBO unit combusts fly ash from the power plant in a fluidized bed, extracts the residual energy content of the fly ash to fuel the CBO, and returns useful heat to the power plant. The commenter stated that the major equipment that comprises the CBO unit includes a fluidized bed combustor and heat exchanger to recover heat from the fly ash combustion. This same commenter described the heat generated from the combustion of the carbon in the fly ash as "valuable" and is typically recovered from the CBO and used to heat the host plant's condensate stream, which reduces the amount of extraction steam required. In reasoning that this high-carbon fly ash should be considered an ingredient, however, the commenter notes that energy generated from burning the secondary material is of secondary importance to the production of the valuable low-carbon fly ash to be sold to cement kilns.

EPA's Response: We do not agree with commenters that all CCRs, when used in combustion units, should categorically be defined as ingredients. As some commenters acknowledged, some CCRs are indeed used for their fuel value as opposed to their ingredient value, especially when re-burned, as in the case of their use in combustion units by electric utilities. Therefore, we cannot categorically classify CCRs as ingredients when it is clear that, in some cases, these secondary materials are being burned for their fuel value and/or to produce a new secondary material (*i.e.,* low-carbon fly ash). In cases where the primary purpose of using CCRs is for their fuel value and not for the ingredient value (*e.g.,* by electric utilities in utility boilers), the secondary materials must meet the requirements for fuels, including the legitimacy criteria, in order to not be considered a solid waste. In other words, to the extent that CCRs are used as fuels, these secondary materials must remain within the control of the generator and meet the legitimacy criteria for fuels or be sufficiently processed into a new fuel product in order not to be considered a solid waste. We note, however, that sources may petition the Agency for a non-waste determination for secondary materials managed outside the control of the generator, including CCRs. *See* Section VII.G.

Regarding CBO units that burn high-carbon fly ash, creating both energy, as well as a new marketable ingredient (*i.e.,* low carbon fly ash), this activity would not constitute use of these secondary materials as ingredients. When the fly ash goes into a CBO unit, it is clearly not being used as an ingredient, but is used to produce an ingredient. It is less clear, however, whether this activity represents a legitimate use of these secondary materials as fuels or should be considered a type of waste management. The commenter states that burning of this fly ash in CBO units provides "valuable heat" and indicates that the energy is used in turn to power the CBO or returned to the power plant, which indicates that the burning of the fly ash could constitute a legitimate use as a fuel. On the other hand, the same commenter also noted that the fuel value is "secondary" to its value as an ingredient and the CBO process as removing "unwanted carbon" from the fly ash, which may suggest that the fly ash is being burned as a waste activity (*i.e.,* the destruction of the unwanted carbon in order to generate a marketable product).

Unfortunately, from the comments received, we are not able to make a categorical determination whether or not the burning of fly ash in these units would constitute "discard," as it is unclear whether the carbon is being destroyed or whether it is actually used for its fuel value. In other words, the CBO unit is either "destroying" the carbon, which would make these materials a solid waste, or the carbon is being recovered and used as a fuel, in which case these materials would not be considered a solid waste provided they meet the legitimacy criteria.

While the CBO units are burning the ash to create a marketable product, in so doing they may also be utilizing the separated carbon for its fuel value. The commenter indicates that use of high carbon-fly ash in these CBOs may have more than marginal energy value and can even be a source of additional power to an adjoining power plant. While we do not have sufficient information to make a categorical determination regarding the use of fly ash as a fuel in these CBO units, it is appropriate for these units to consider the legitimacy criteria in order to determine whether or not the fly ash is being burned for discard or burned legitimately for its fuel value.

As discussed in Section VII.H, legitimacy criteria are critical to ensuring that non-hazardous secondary materials are being legitimately used. To the extent that a CBO unit can determine that it meets the legitimacy criteria for fuels (including whether the fly ash has meaningful heating value and is used as a fuel in a combustion unit that recovers energy), we would consider such a use to be legitimate. We emphasize, however, that mere destruction of the unwanted carbon would clearly represent discard and would by definition fail the meaningful heating value legitimacy criterion. We also note that it is not clear from the comments how the CBO unit recovers energy and whether it would meet our definition of a legitimate energy recovery device. For a discussion of legitimate energy recovery devices, see the Response to Comments on Sewage Sludge (Section V.B.10). If these units do not legitimately recover energy, they would not meet the meaningful heating value criterion. *See* also Section VII.I, which discusses the types of notification and recordkeeping requirements, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, that a facility using these secondary materials as fuels that remain within the control of the generator are subject to.

Finally, we note that the resulting low-carbon fly ash would be considered a new secondary material, which would be considered an ingredient if it is later used in the production of cement.

Comment: One commenter, a utility, stated that the proposed rule's setting of minimum energy content values for a secondary material to be used as a fuel and not be considered a solid waste (*i.e.,* the meaningful heating value legitimacy criterion) is inappropriate for the re-burning of fly ash when producing concrete quality fly ash, as the coal ash used for re-burn is selected based on its mineral content, combined with the mineralogy of the coal currently being used as a fuel. The fuel value of the fly ash is only one technical consideration when introducing coal ash in combustion systems for creating concrete quality fly ash and requiring a minimum heating value may restrict the use of high quality fly ash for use in concrete and other applications.

EPA's Response: We appreciate that the fuel value is only one of several considerations made when selecting fly ash for re-burn; however, in order for fly ash that is re-burned to not be a solid waste under today's final rule, it would need to either remain within the control of the generator and meet the legitimacy criteria for fuels, including the meaningful heating value criterion, or, if discarded, be processed into a new, legitimate fuel product. Some

commenters stated that the energy content of fly ash when burned is returned as useful heat. Based on the comments received, however, it is unclear whether the fly ash in that instance would meet the meaningful heating value criterion, as these comments do not include enough information about how much energy is being recovered from the use of these secondary materials as fuels. In order to not be considered a solid waste, the facility must determine whether the fly ash meets the legitimacy criteria, including whether the fly ash has meaningful heating value and is used as a fuel in a combustion unit that recovers energy.

We also note that we are not establishing a bright line test for satisfying the meaningful heating value test. Rather, for purposes of meeting the legitimacy criteria for fuels, we would consider non-hazardous secondary materials with an energy value greater than 5,000 Btu/lb, as-fired, to have a meaningful heating value, and satisfy this legitimacy criterion. However, for facilities with energy recovery units that use non-hazardous secondary materials as fuels with an energy content lower than 5,000 Btu/lb, as fired, we believe it is also appropriate to allow a person to demonstrate that a meaningful heating value is derived from the non-hazardous secondary material if the energy recovery unit can cost-effectively recover meaningful energy from the non-hazardous secondary materials used as fuels. *See* Section VII.H.1 for a discussion of how non-hazardous secondary materials can satisfy the meaningful heating value criterion for fuels.

Comment: Some commenters argued generally that EPA should not restrict the source of coal ash that is re-burned and should allow coal ash that is used as a fuel to be transferred between facilities and retrieved from landfills because it is being beneficially used. One of these commenters described how one of its power plants re-burns coal ash that it receives from two other power plants that it also owns. This same commenter also noted that it re-burns coal ash in one of its power plants that it has retrieved from an off-site landfill.

EPA's Response: As discussed in Section V.A.1, EPA is not making a sweeping arbitrary assumption in categorizing transferred secondary materials as discarded. Instead, EPA has evaluated whether certain categories of materials are discarded or not. The Agency has not adopted the extremes of saying that all burning of secondary material, regardless of ultimate use, is waste treatment or that any secondary material that is recycled for legitimate fuel value is a commodity and not a waste. Wastes may have value, but are still wastes.

Between these broad parameters, EPA has examined a number of specific materials, recycled on-site and transferred for recycling, and determined whether they would be appropriately placed within the waste or non-waste categories. EPA would consider transferred non-hazardous secondary materials not to be wastes if it could make the appropriate findings for those categories. In fact, the Agency does so with respect to scrap tires harvested from vehicles and resinated wood residuals.

Commenters discussing scrap tires and resinated wood residuals, however, provided specific information regarding how these secondary materials were managed when they no longer remained within the control of the generator and the frequency with which these materials were collected and transferred off-site. For example, resinated wood residuals are routinely transferred between either intra- or inter- company facilities and used as either "furnish" (*i.e.,* raw materials) or fuel at the receiving facilities. The material being transferred off-site is used and handled in the same manner that resinated wood residuals are used when generated on-site (such that it is impossible to distinguish between materials that are being used as a raw material and those that are being used as a fuel).

On the other hand, commenters discussing the use of CCRs as fuels outside the control of the generator did so only in general terms. Commenters provided legal arguments that case law holds that transfer of such materials between companies were irrelevant for determining whether a recycled material was properly viewed as a solid waste. *See* Section V.A.1 for our response to these legal arguments on the issue of "transfer" as it relates to the concept of discard. However, these commenters did not specify how the proposed rule's presumption that non-hazardous secondary materials that are used as fuels and are managed outside the control of the generator are solid wastes was inappropriate for CCRs. In general, the DC Circuit has not accepted such presentations in "broad abstraction." *See ABR* at 1056.

Because commenters did not provide sufficient information detailing how CCRs are managed when transferred outside the control of the generator, we are unable to determine whether such movement of CCRs outside the control of the generator is or is not indicative of discard. Thus, such a determination is best left to the non-waste petition process, as finalized in today's rule. As we've discussed, we believe this petition process is essential because many non-hazardous secondary materials are recycled and managed in many different ways, and the Agency may lack the specific details in certain cases to know whether such non-hazardous secondary materials are or are not solid wastes. For a discussion of non-waste determination petitions, see Section VII.G of today's rule.

Regarding the commenter who described how one of its power plants re-burns coal ash that it receives from two other power plants it also owns, we would expect that such a situation would fall within the definition of "within the control of the generator," as codified in § 241.2. For the purposes of today's final rule, "within the control of the generator" means that the non-hazardous secondary material is generated and burned in combustion units at the generating facility; or that such material is generated and burned in combustion units at different facilities, provided the facility combusting the non-hazardous secondary material is controlled by the generator; or both the generating facility and the facility combusting the non-hazardous secondary material are under the control of the same person. We have also codified the definition of "control" as meaning the power to direct the policies of the facility, whether by the ownership of stock, voting rights, or otherwise, except that contractors who operate facilities on behalf of a different person as defined in this section shall not be deemed to "control" such facilities. *See* § 241.2. As the commenter states that it owns the other two plants, such intra-company movement would ensure that the materials would remain within the control of the generator and, therefore, such CCRs would not be considered a solid waste when used as a fuel provided they meet the legitimacy criteria. In the instance where a facility is re-burning coal ash that is recovered from landfills, such coal ash is a solid waste, as this material has clearly been discarded. Coal ash that is recovered from landfills must be sufficiently processed in order to no longer be considered a solid waste.

Comment: We received a few comments regarding the extent to which CCRs are mined from landfills (*i.e.,* recovered from the discard environment). One commenter asserted that it was unaware of any recovery of CCR from disposal sites, while one another commenter acknowledged that while it could utilize recovered landfill fly ash, it was not currently doing so.

Still another commenter stated it removes CCRs from landfills and that such removal for either energy recovery or beneficial reuse was facilitated by a regulatory innovation program sponsored by the state and endorsed by EPA. Consequently, this commenter commonly re-burns coal ash that is recovered from landfills. This commenter notes that it has developed and uses patented processes to use this fly ash, but does not provide specific details regarding how these secondary materials are processed.

EPA's Response: It does not appear that it is a widespread practice for CCRs to be recovered from the discard environment (*e.g.,* landfills) and beneficially used. However, from comments received both on the ANPRM and the proposed rule, it appears that at least some CCRs are being recovered from the discard environment or could be recovered from the discard environment—for example by the one commenter citing its participation in a state regulatory innovation program. Although we recognize the benefits associated with recovering CCRs from landfills, these non-hazardous secondary materials have clearly been discarded in the first instance and would have to be sufficiently processed into a new fuel product (or ingredient product) to not be considered a solid waste when used in combustion units. As we've stated elsewhere in the preamble, today's final rule is limited to CCRs used as fuels or ingredients in combustion units. In other words, today's rulemaking should not impact other potential beneficial uses of CCRs, such as using these secondary materials as a base material to replace stone or gravel under roads, parking lots and buildings.

Comment: EPA received comments on the ANPRM stating that there are at least four patented processes for removing unwanted carbon from fly and bottom ash that allow the processed ash to produce both technically compliant ash for use in concrete and a separate carbon stream that can be re-introduced into the boiler for its fuel value. One electric utility, commenting on the proposed rule, also mentioned patented processes for using CCRs recovered from landfills. However, neither of these commenters provided specific details regarding how the CCRs are actually processed.

EPA's Response: Unfortunately, EPA did not receive sufficient information during the comment period describing the types of processes that CCRs undergo to be able to make a categorical determination whether the patented processes referenced in the proposed rule would meet the definition of processing being promulgated in today's final rule. Although we did receive some information regarding how CCRs are processed, we have determined, as we stated in the proposed rule, that certain operations are currently being utilized to recover CCRs from the discard environment that would likely meet our definition of "processing." For example, we are aware of at least one electric utility that recovers ash from ponds or landfills and then separates this secondary material into its fundamental components: carbon, silicates, and high-density, iron-rich materials. A coarse carbon-fuel product is then recovered by density separation using concentrating spirals. A fine carbon-fuel product is also recovered with flotation cells.[129] We believe that this type of processing operation is likely to meet our definition of processing, as it appears that these operations in fact remove contaminants and improve the fuel characteristics of recovered CCRs. Thus, a determination would need to be made as to whether such processes meet the definition of processing, as codified in § 241.2.[130]

10. Sewage Sludge

The proposed rule classified sewage sludge (or wastewater treatment sludge) generated from publicly owned treatment works (POTWs) as solid waste when burned as fuels in combustion units. However, the proposed rule also specifically solicited comment on whether it is within the Agency's discretion to provide a regulatory solid waste exclusion for sewage sludge when burned in incinerators in order to preserve the current framework for regulating sewage sludge managed under section 405 of the Clean Water Act (CWA) and to avoid redundancy. When making the determination that sewage sludge is a solid waste when burned as a fuel in a combustion unit, the proposed rule stated that the Domestic Sewage Exclusion (DSE) under RCRA (see 261.4(a)) does not apply to the sludge generated from the treatment process and thus, sewage sludge is a solid waste if discarded. The proposed rule also noted that burning sewage sludge without energy recovery (*i.e.,* burned for destruction) would constitute discard. Responding to commenters describing POTWs that recover heat in the form of usable heat via waste heat boilers, the proposed rule stated that the Agency does not consider waste heat boilers to be legitimate energy recovery devices, but rather these combustion units are burning the sewage sludge primarily for disposal purposes. Finally, the proposed rule stated that sewage sludge would likely not satisfy the contaminant legitimacy criterion, as data indicates that sewage sludge often contains metals at levels that are significantly higher in concentration when compared to traditional fuels. For the proposed rule's discussion of sewage sludge, see 75 FR 31866–7.

Comment: Several commenters argued that EPA has the discretion to exclude or exempt sewage sludge from this rulemaking and should exercise that discretion in order to preserve the current framework for regulating the burning of sewage sludge pursuant to 40 CFR 503 (Part 503), which codifies regulations developed under the authority of section 405 of the CWA. These commenters also note that EPA has a non-discretionary duty to consider all environmental laws to prevent duplication when promulgating regulations under section 1006(b) of RCRA and that deeming sewage sludge a solid waste to be regulated under section 129 of the CAA violates EPA's non-discretionary duty to harmonize environmental laws because emissions from sewage sludge incinerators (SSIs) are already comprehensively regulated under other statutes.

EPA's Response: We agree with the commenters that section 1006(b) requires EPA to integrate the RCRA requirements with the requirements of the CWA and the CAA, as well as other laws. Section 1006(b) also states that such integration shall be effected only to the extent that it can be done in a manner consistent with the goals and policies expressed in RCRA and in the other acts referred to in section 1006(b). Thus, while we recognize that emissions from SSIs have been regulated under other statutes, the purpose of today's final rule is not to regulate emissions from SSIs, but rather to determine whether sewage sludge is or is not a solid waste to allow the Agency to decide whether the material must be combusted under emissions standards developed under section 112 or 129 of the CAA. Sewage sludge is one of many non-hazardous secondary materials that are discussed and analyzed in this final rule.

We also note that section 405(d)(5) of the CWA states that nothing in section

[129] *See* "Materials Characterization Paper on Coal Combustion Residuals-Coal Fly Ash, Bottom Ash, and Boiler Slag." A copy of this document has been placed in the docket for today's rule.

[130] We note, however, that burning any secondary material, including CCRs, in a combustion unit would not constitute "processing," as determining whether or not a material is a solid waste must occur prior to its placement in the combustion unit. To consider the burning of such materials as "processing" would be circular.

405 is intended to waive more stringent requirements established by the CWA or by any other law. This provision clearly states that section 405 of the CWA does not preempt other regulation. Therefore, we believe today's final rule is consistent with the goals and policies of RCRA, the CWA, and the CAA and thus, satisfies the requirements of section 1006(b).

Comment: Commenters asserted that Congress wrote section 112 of the CAA to regulate sewage sludge emissions, stating that section 112(e)(5) [131] of the CAA directs EPA to issue emissions standards under section 112(d) for POTWs, including SSIs. These commenters also argued that sewage sludge quality and incineration is strictly regulated under the CWA and that the current regulatory structure under both the CWA and section 112 of the CAA is effective and should not be altered.

EPA's Response: Today's final action is defining solid waste under RCRA and as such we are not addressing the definition of POTW under the CWA or the requirements of the CAA.

Comment: Several commenters reiterated the position that the DSE applies to sewage sludge generated by POTWs and, therefore, stated that sewage sludge is exempted from the definition of solid waste under RCRA. Citing the preamble to the 1980 RCRA subtitle C regulations, at least one commenter stated that the Agency indicated that once the to-be-developed regulation under section 405 of the CWA is promulgated, sewage sludge would be exempt from coverage under other sets of regulations.[132] The same commenter also cites the 1990 Petroleum Refinery Primary and Secondary Oil/Water/Solids Separation Sludge Listings Rule (1990 Listings Rule), which states "It should be noted that if wastewaters generated at petroleum refineries are discharged to a POTW and such wastewaters are mixed with domestic sewage from nonindustrial sources, the sludges generated in the POTW are covered under the domestic sewage exclusion and are not included in today's listings." [133]

EPA's Response: For the same reasons stated in the proposed rule, we do not agree with the comments suggesting that the DSE applies to the sludge generated from the treatment process. EPA has long viewed sewage sludge generated from POTWs as a solid waste, beginning with the 1980 Identification and Listing of Hazardous Waste rulemaking. In that final rule, EPA stated that the DSE is "only applicable to non-domestic wastes that mix with sanitary waste in a sewer system leading to a POTW." [134] In that same rule, EPA further said it decided not to exclude sewage sludge from regulation under RCRA, since the statutory expressions regarding the definitions of "solid waste" and "sludge" was clear.[135]

We agree that the 1980 Identification and Listing of Hazardous Waste rulemaking referenced by the commenter states that once the regulations are promulgated under section 405(d) of the CWA, sewage sludge will be exempted from coverage from "other sets of regulations." The preamble continues, however, to state: "In particular sewage sludge that qualifies as a hazardous waste will be exempted from this Part [261] and Parts 262 through 265" once this program is promulgated under CWA section 405. However, this exclusion is specifically limited to RCRA subtitle C (*i.e.,* hazardous waste),[136] and does not apply to the subtitle D program under RCRA.

Regarding the citation from the 1990 Listings Rule, this footnote is in error and is inconsistent with our historic interpretation of the scope of the DSE, as discussed both in the proposed rule and today's final rule. Thus, the DSE does not apply to the sludge generated from the treatment process.

Comment: Several commenters stated that sewage sludge has meaningful heating value and that EPA should re-evaluate its description of this criterion. Commenters argued that EPA's determination that waste heat boilers do not qualify as combustion units that recover energy is arbitrary and does not recognize the significant value of waste heat boilers and their role in energy generation. One commenter, a regional sewer district that estimated roughly 93 percent of its sewage sludge was "incinerated," stated that four of its boilers had produced a total of 2.5 billion pounds of high pressure steam over a twenty-five year span by converting the heat generated from burning sewage sludge in multiple hearth incinerators to high pressure steam.

EPA Response: We find that most sewage sludge is burned not for energy recovery, but for destruction. Sewage sludge burned in an incinerator for the purposes of destruction would clearly meet the meaning of discard, and thus be a solid waste. While we recognize that waste heat boilers are useful devices for providing energy in the form of steam for secondary processes, the presence of a waste heat boiler does not, by itself, change the fact that the unit combusting the non-hazardous secondary material is primarily an incineration unit burning waste for disposal purposes.

Further, the Agency does not regard waste heat boilers as legitimate energy recovery devices because they receive their energy input from the combustion of off-gases via a separate combustion chamber. Under the RCRA program, a legitimate energy recovery device is one that meets the definition of a boiler or an industrial furnace.[137] Among other criteria, a boiler's combustion chamber and primary energy recovery section(s) must be of integral design, unless it falls under the process heater or fluidized bed combustion exemption. Thus, a combustion chamber that is connected by a duct to a waste heat boiler (or recuperator/heat exchanger) does not qualify as a legitimate energy recovery device.

Unlike boilers, which are specifically designed to recover the maximum amount of heat from a material's combustion, waste heat recovery units are designed to cool the exhaust gas stream, and/or to recover, indirectly, the useful heat remaining in the exhaust gas

[131] CAA section 112(e)(5) states, "The Administrator shall promulgate standards pursuant to subsection (d) of this section applicable to publicly owned treatments works (as defined in Title II of the Federal Water Pollution Control Act [33 U.S.C.A. § 1281 *et seq.*] not later than 5 years after November 15, 1990."

[132] *See* 45 FR 33102 (May 19, 1980).

[133] *See* 55 FR 46364 (November 2, 1990) (Footnote 14).

[134] *Id* at 45 FR 33097.

[135] *Id* at 45 FR 33101. "Under Section 1004(27) of RCRA, the definition of "solid waste" specifically includes "sludge from a waste treatment plant." In defining "sludge," Section 1004(26A) includes wastes from a "*municipal* wastewater treatment plan." Because of these very clear statutory expressions, EPA must regulate sewage sludge under RCRA. * * *"

[136] We would note that even though the CWA section 405(d) regulations have been promulgated, EPA never exempted sewage sludge from the subtitle C hazardous waste regulations, and thus, sewage sludge that exhibits any of the characteristics of hazardous waste must be managed as a hazardous waste. *See* 45 FR 33102, May 19, 1980 where it states, "The Agency's strategy for the development of a comprehensive sewage sludge management regulation will eventually result in the establishment of a separate regulation. Once such a regulation is in place, sewage sludge will be exempted from coverage under other sets of regulations. * * * Pending promulgation of this comprehensive sewage sludge regulation, sewage sludge will not be specifically excluded from Subtitle C."

[137] *See* February 28, 1984 Memorandum from John H. Skinner, Director, Office of Solid Waste, to Thomas W. Devine, Director, Air and Waste Management Division, EPA Region IV, entitled, "Guidance on Determining When a Hazardous Waste Is a Legitimate Fuel That May Be Burned for Energy Recovery in Boiler or Industrial Furnace." A copy of this memorandum is included in the docket for today's rule. For definitions of "boiler" and "industrial furnace" under RCRA, *see* 40 CFR 260.10.

from a combustion unit that has some other primary purpose (such as an institutional waste incinerator). Thus, we continue to consider that sewage sludge is primarily burned for destruction and the presence of a waste heat recovery unit would not, by itself, satisfy the meaningful heating value legitimacy criterion.

Comment: Regarding the contaminant levels in sewage sludge, a number of commenters noted that the pretreatment standards have reduced contaminants (particularly metals) in sewage sludge, with a few commenters providing more recent contaminant data for sewage sludge than was available in the proposed rule and stated that this new data demonstrates that currently generated sewage sludge would meet the contaminant legitimacy criterion.[138] The National Association of Clean Water Agencies (NACWA) amended the data set included in the proposed rule by providing data from a 2006–2007 Targeted National Sewage Sludge Survey (TNSSS). *See* column four of Table 6 below:

TABLE 6—COMPARISON OF TOXICS OF MUNICIPAL WASTEWATER TREATMENT SLUDGES TO TRADITIONAL FUELS

Element	40 City study (1982)	National sewage sludge survey (1988)	Targeted national sewage sludge survey (TNSSS)	Coal
Mg/dry kg				
Arsenic	9.9	6.7	6.9	10
Cadmium	69	6.9	2.6	0.5
Chromium	429	119	80	20
Lead	369	134.4	76	40
Mercury	2.8	5.2	1.2	0.1
Nickel	135.1	42.7	48	20
Selenium	7.3	5.2	7	1

Other commenters, however, agreeing that sewage sludge should be considered a solid waste, noted that sewage sludge tended to have higher contaminant levels than traditional fuels and should be regulated as solid waste when used as a fuel. Although not a part of the proposed definition of "contaminants," some commenters noted the presence of pathogens in sewage sludge.

EPA's Response: The Agency appreciates the more recent and site-specific data provided by several commenters. We agree that in most cases, the specific data provided by commenters indicates that contaminant levels for most contaminants is not as high as previously reported in the earlier studies. However, we note that the TNSSS data provided by commenters still indicates higher levels, and those that EPA would not consider to be "comparable" for most of the contaminants found in sewage sludge when compared to coal. Thus, under today's final rule, sewage sludge would not satisfy the contaminant legitimacy criterion because of the presence of non-comparable levels of metals when compared to traditional fuels. Regarding the commenter's reference to pathogens, pathogens are not included as a contaminant in today's rule since that definition focuses on those constituents identified in the CAA that EPA will be evaluating to determine whether to establish emission standards (*see* also discussion in V.D.3).

Comment: Finally, several commenters urged EPA to explicitly limit the scope of the final rule, making it clear that this rulemaking would have no regulatory effects or impacts for sewage sludge that is not incinerated (*e.g.,* land application). On the other hand, one commenter requested that the Agency designate sewage sludge as a solid waste regardless of the manner that it is managed for disposal (land application, surface disposal, co-disposal in a municipal solid waste landfill, or incineration).

EPA's Response: We disagree with the one commenter who requested that this rulemaking define sewage sludge as a solid waste regardless of its end use (*i.e.,* land application, surface disposal, etc.). In this final rule, EPA is articulating a framework for determining whether a non-hazardous secondary material is or is not a solid waste when burned as a fuel or ingredient in a combustion unit; we are not making solid waste determinations that cover other possible end uses (*e.g.,* land application of sewage sludge). It is the Agency's view that these regulations should not dictate to state programs how to characterize and/or regulate this material (as well as any other non-hazardous secondary material), particularly since EPA does not have authority to regulate the beneficial use of non-hazardous secondary materials under subtitle D of RCRA. Therefore, EPA agrees with those commenters who suggested the limited scope of this final rule and explicitly recognize the narrow focus of this rulemaking.

11. Processed Fats

Processed fats, including both animal fats and vegetable oils, can be turned into biofuels for use in industrial boilers. The proposal did not discuss the use of this non-hazardous secondary material or discuss its status as a fuel or waste under this rule. We did receive comments pertaining to its status, however.

Comment: Commenters have argued that processed fats are a traditional fuel as they are not discarded and are legitimate fuel products. Specifically, they argue that the use of processed fats as fuel has been used in industrial boilers for more than a decade, as evidenced by approval of the use of such fats as fuels in air permits for industrial boilers. The commenters also note that processed fats are a primary product of the rendering process and not secondary materials or by-products, are derived from inedible animal products, which are the primary products of value and sale of the meat industry and not a secondary material or by-products, and are therefore not a solid waste since it or its primary feedstock have never been a waste or discarded.

[138] The proposed rule included a table comparing sewage sludge data taken from a 1982 40-city study and a 1988 National Sewage Sludge Survey, cited in the National Biosolids Partnership's 2005 "National Manual of Good Practices for Biosolids," and coal data taken from a 1998 U.S. EPA report entitled, "Development of Comparable Fuels Specifications." May 1998.

Processed fats also are managed as valuable commodities and have meaningful heating value. They are managed similar to traditional oils, utilizing the same tanks, hoses, nozzles, and tanker trucks, and have a heating value of around 17,000 Btu/lb.[139] Processed fats, the commenters argue, also have a comparable composition to traditional fuel products. In fact, processed fats contain considerably less contaminants (*e.g.,* <0.010% sulfur by weight, 0.022% ash by weight) and burn cleaner than many traditional fuels and derivatives (*e.g.,* coal, oil, coal tar oil, asphalts, etc). The limited contaminant data that was submitted showed that processed fats had less than 1 ppm of vanadium. Commenters also stated that processed fats have fewer contaminants than No. 6 residual oil (2% sulfur content), which will result in lower emissions of sulfur dioxide, nitrogen oxides, particulate matter, and carbon monoxide. Furthermore, they stated that processed fats also have lower emissions of sulfur dioxide, particulate matter and carbon monoxide, as compared to No. 2 distillate oil (0.5% sulfur content). However, no data was submitted to validate these statements.

The commenters also note that the federal government has encouraged the development and use of materials, such as processed fats as a clean, renewable fuel that reduces dependency on petroleum oils. Since 2006, the use of processed fats as fuel has been encouraged through the Alternative Fuel Mixture Credit (26 U.S.C. 6426(e)). Although the proposed rule is intended to facilitate the use of certain materials that would otherwise be treated as waste by allowing them to be designated as non-hazardous secondary materials and burned as fuels, the net effect, with respect to processed fats, is the opposite. Rather than facilitate the use of processed fats as fuel, the rule will effectively end the development of this market. This is because the end result under the rule as it currently is proposed is a requirement that each potential customer must petition and obtain EPA approval for each facility in which they wish to burn processed fats. The burden and delay of submitting to such a process will have a chilling effect on the development of new customers and markets for processed fats as fuel. As a practical matter, this outcome is contrary to longstanding federal policy encouraging the development and use of clean, renewable fuels in place of petroleum and other fossil fuels.

EPA's Response: We disagree that process fats are a traditional fuel. Process fats are secondary materials as they are produced from inedible parts of animals that were primarily butchered for meat, not for use as a fuel. We recognize, however, that these non-hazardous secondary materials contain lower concentrations of contaminants than traditional fuels[140] and, as such, are being encouraged for use instead of fossil fuels.[141] In addition, since the fats are managed the same way that traditional oil is, it is evident that the material is handled as a valuable commodity, meeting that legitimacy criterion. Additionally, the material meets the legitimacy criterion for a meaningful heating value. Since these materials are sometimes not managed within the control of the generator (*i.e.,* the butcher, the restaurant, etc.), questions could be raised as to whether they are discarded if not burned in a combustion unit within the control of the generator. However, we would note that the rendering process "sufficiently processes" the material into a non-waste fuel that meets the legitimacy criteria, as we note above. Thus, the commenters concern that non-waste determination petitions would need to be submitted on a case-by-case basis, and would have a chilling effect on the development of new customers and markets for processed fats, is not the case. Thus, the final rule establishes these non-hazardous secondary materials, after being processed, as a non-waste fuel.

C. Comments on Specific Materials Used as Ingredients

The ANPRM identified a number of non-hazardous secondary materials that the Agency believes are currently being used as legitimate non-waste ingredients in combustion processes. The proposed rule then identified the four material groups for which we received the majority of the comments on the ANPRM. The four material groups are CKD, CCRs, foundry sand, and blast furnace slag/steel slag. The proposed rule did not assume that ingredients used in combustion units that are not managed within the control of the generator are discarded materials (as is the case for most non-hazardous secondary material fuels), since we believe that non-hazardous secondary materials used as ingredients are more akin to commodities managed within continuous commerce and are used as an integral part of the manufacturing process. That is, non-hazardous secondary materials that are directly used (or in the case of previously used materials, reused), function as effective substitutes (*i.e.,* as raw materials) in normal manufacturing operations or as products in normal commercial applications, and thus, EPA has interpreted the definition of solid waste as excluding non-hazardous secondary materials recycled in ways that most closely resemble normal production processes, provided they meet the legitimacy criteria.

Besides the comments on specific non-hazardous secondary materials used as ingredients described below, we again note the overarching comment that was raised by some commenters that the Agency has no authority under section 129 of the CAA to regulate the use of secondary materials as ingredients, as EPA's section 129 authority is limited to "solid waste incineration units," which the statute defines as units that "combust" solid waste. As discussed in Section V.A of today's final rule, we believe that this comment is not relevant to this regulation, which determines whether non-hazardous secondary material is a solid waste, or not under RCRA. EPA has clear authority to interpret RCRA to decide whether non-hazardous secondary materials are solid wastes or not.

1. Cement Kiln Dust

CKD is a fine-grained, solid, highly alkaline material removed from the cement kiln exhaust gas by scrubbers. Much of the material comprising CKD is incompletely reacted raw material, including a raw mix at various stages of burning, and particles of clinker. Generation of CKD is directly connected to the production of cement clinker. The proposed rule indicated that CKD used in a cement kiln would not be considered a solid waste when used as an ingredient in a combustion unit, so long as it was not discarded in the first instance and satisfies the legitimacy criteria for ingredients. Whether CKD remains within the control of the generator or is transferred to another person is not in and of itself indicative of discard, as discussed above. If CKD has been discarded, however, its use as an ingredient in cement kilns would be considered combustion of a solid waste, unless it has been processed to produce a non-waste ingredient.

[139] *See* document EPA–HQ–RCRA–2008–0329–0706.1. Adams, T.T., J. Walsh, M. Brown, J. Goodrum, J. Sellers, and K. Das, 2002. "A Demonstration of Fat and Grease as an Industrial Boiler Fuel," University of Georgia, Athens, GA.

[140] *See* the Preliminary Characterization Study Prepared In Support of the Proposed Rulemaking—Identification of Nonhazardous Secondary Materials That Are Solid Waste: Traditional Fuels and Key Derivatives, EPA–HQ–RCRA–2008–0329–0461.21.

[141] See Adams, T.T., J. Walsh, M, Brown, J. Goodrum, J. Sellers, and K. Das, 2002. "A demonstration of Fat and Grease as an Industrial Boiler Fuel," University of Georgia, Athens, GA.

Comment: We received limited comments on CKD. One commenter urged EPA to state that CKD that is removed from on-site storage piles or monofills should be considered a legitimate non-hazardous secondary material and should not be considered a solid waste. The commenter explains that while CKD may have been previously placed in storage piles or even permitted solid waste management units (SWMUs), the technology did not exist previously to reuse the material. However, newer kiln systems can now use the CKD that has previously been disposed of, and thus, these non-hazardous secondary materials (which are ingredients in the manufacture of cement) should not be subject to the CAA section 129 standards.

EPA's Response: The commenter acknowledges that even though the CKD has remained on-site, the intent or purpose of placing CKD in storage piles or SWMUs was to dispose of them (*i.e.,* discard). Additionally, CKD that has been placed in storage piles in this manner would likely not meet the legitimacy criterion of "managed as a valuable commodity." Thus, it would appear in this instance that CKD that has been placed in storage piles for the purpose of disposal, even if on-site, has been discarded and would be considered a solid waste if burned in a combustion unit, unless the discarded CKD is processed into a non-waste ingredient product. (See discussion elsewhere in today's preamble regarding the reason why non-hazardous secondary materials that have been discarded in the first instance are solid waste if burned in a combustion unit, unless the non-hazardous secondary material is processed into a non-waste ingredient product.) CKD that has not been discarded in the first instance, however, and satisfies the legitimacy criteria would not be considered a solid waste when used as an ingredient.

2. Coal Combustion Residuals [142]

CCRs are formed during the coal-burning processes in power plants and industrial boilers, and are produced in various forms (*i.e.,* fly ash, bottom ash, and boiler slag) that are categorized by the process in which they are generated. The proposed rule indicated that CCRs used as ingredients in combustion units would not be considered solid wastes, provided they were not discarded in the first instance and satisfy the legitimacy criteria.[143] We also noted that CCRs can be used both as an ingredient and as a fuel supplement and proposed that the decision to treat them as a fuel or ingredient should be based on the primary purpose of their use in a combustion unit. We took comment on this approach, especially our characterization that the primary use of CCRs in cement kilns is generally for their ingredient value, as opposed to their fuel value.

The proposal also indicated that when CCRs are used for their ingredient value, the transferring of these materials to another person would not in and of itself be indicative of discard. However, to the extent that CCRs have been discarded in the first instance, they would have to be processed into a non-waste ingredient product and satisfy the legitimacy criteria in order not to be considered a solid waste. We also noted that comments were submitted on the ANPRM, which described patented processes that remove unwanted carbon from coal fly ash in order for these non-hazardous secondary materials to be used as an ingredient. While these processes—that is, those that separate carbon from fly ash to produce technically compliant fly ash for use in concrete appear to satisfy our processing requirement, we requested that commenters provide additional information explaining how this processing is conducted, and whether this type of fly ash is used as an ingredient in the clinker production process. The proposed rule also requested comment on the extent to which CCRs are recovered from the discard environment (*e.g.,* landfills) and used as ingredients in cement kilns, as well as more information on the extent to which these CCRs are processed.

In addressing the commenter who submitted comments on the ANPRM and argued that CCRs are solid wastes due to their high concentration of contaminants, the proposal noted that the chemical properties of CCRs are influenced to a great extent by the coal burned, the type of combustion unit, and the air pollution controls applied.[144] Acknowledging that fly ash may contain various levels of metals, such as vanadium, zinc, copper, chromium, nickel, lead, arsenic, and mercury,[145] the proposed rule noted that in a 2008 Report to Congress addressing the use of these secondary materials as ingredients in cement and concrete applications, the overall conclusion reached with respect to the perceived safety health risk barriers was a positive one, in that the risk analyses did not identify significant risks to human health and the environment associated with these uses.[146]

The proposed rule also noted that the Agency is studying the possible effects of new air emission control technologies and configurations on the composition of CCRs and requested comment on whether advanced emission control technologies, such as carbon control technologies for mercury and NO_X, are resulting or will result in increased levels of contaminants in coal ash to the extent that coal ash would not satisfy our legitimacy criteria.

Comment: Almost all commenters agreed that the primary purpose when using CCRs in cement kilns was to utilize these secondary materials as ingredients. Most commenters further asserted that all CCRs, when used in combustion units, should always be classified as ingredients rather than as fuels. (*See* Section V.B.9 for a further discussion on this comment and the Agency's response.) These commenters claimed that any energy value that is recovered is secondary to its value as an ingredient, and argued that classifying CCRs always as ingredients would simplify the waste determinations for these non-hazardous secondary

[142] In a separate rulemaking effort, EPA has proposed regulations that will provide for the safe disposal and management of coal combustion residuals from utility coal-fired power plants (the "Coal Combustion Residuals Proposed Rule"). The proposed rule was published in the **Federal Register** on June 21, 2010. *See* 75 FR 35127. Today's final rule does not affect that rulemaking effort, as our rule considers the use of coal combustion residuals in combustion units as fuels or ingredients, while the coal combustion residual proposed rule is concerned with the safe disposal and management of these residuals in landfills and surface impoundments. For more information on the coal combustion residual proposed rule, *see* Docket ID No. EPA–HQ–RCRA–2009–0640.

[143] For a discussion of CCRs used as fuels in combustion units, *see* Section V.B.9 of this final rule.

[144] For more information on the different types, or ranks, of coal, please refer to the Materials Characterization Paper on Traditional Fuels and Key Derivatives, which is located in the docket of today's final rule.

[145] *See* "Technical Background Document for the Report to Congress on Removing Wastes from Fossil Fuel Combustion: Waste Characterization." U.S. EPA. March 15, 1999.

[146] "Study on Increasing the Usage of Recovered Mineral Components in Federally Funded Projects Involving Procurement of Cement or Concrete to Address the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users. Report to Congress." June, 3, 2008. EPA530–R–08–007. When analyzing perceived safety and health risk barriers associated with the beneficial use of recovered mineral components (including CCRs *et al.*), this study concluded that "Findings from [several cited] analyses did not identify significant risks to human health and the environment associated with the beneficial uses of concern. In addition, [EPA] identified no documents providing evidence of damage to human health and the environment from these beneficial uses. Our overall conclusions from these efforts, therefore, are that encapsulated applications, including cement and concrete uses, appear to present minimal risk." *Id.* at 4–11.

materials by clearly establishing the appropriate legitimacy criteria that apply (*i.e.,* facilities would not need to determine whether the fuel or ingredient legitimacy criteria apply based on the primary purpose of the secondary materials).

Some commenters were also concerned that if cement kilns burned high-carbon content fly ash (which has more pronounced fuel content), the provisions of this rule applying to fuels would be triggered, even though these secondary materials have nearly identical characteristics, is managed in an identical manner, and is combusted in the same unit as the material used primarily as an ingredient (*i.e.,* low-carbon content fly ash).

EPA's Response: EPA agrees with the commenters that the primary purpose when using CCRs in cement kilns is to utilize it as an ingredient. However, we disagree with those commenters that argued that all CCRs, when used in combustion units, should be categorically defined as ingredients. As some commenters acknowledged (and as we also discussed in Section V.B.9 above), some CCRs are indeed used for their fuel value as opposed to their ingredient value, especially when re-burned, as in the case of their use in combustion units by electric utilities. Therefore, we cannot categorically classify CCRs as ingredients when it is clear that, in some cases, these non-hazardous secondary materials are being burned for their fuel value and/or to produce a new secondary material (*i.e.,* low-carbon fly ash). In cases where the primary purpose of using CCRs is for their fuel value and not for their ingredient value (*e.g.,* by electric utilities), the secondary materials must meet the requirements for fuels, including the legitimacy criteria, in order not to be considered a solid waste.

With respect to the issue of high-carbon fly ash burned in cement kilns, it is not clear the extent to which cement kilns burn high-carbon fly ash or rather if commenters were providing a hypothetical situation in order to highlight potential issues that could arise for secondary materials that could have value as both a fuel and ingredient. It is also unclear whether low-carbon fly ash is required as a substitute ingredient in Portland cement or if cement kilns can also use high-carbon fly ash for its ingredient value. To the extent that these kilns are burning these secondary materials for their fuel value as opposed to their value as an ingredient, these secondary materials would be subject to the requirements for non-hazardous secondary materials used as fuels promulgated in today's final rule.

We note other commenters who describe processes for removing unwanted carbon from fly ash in order to produce concrete quality fly ash (lower carbon content), which could suggest that cement kilns that burn high-carbon fly ash may be using these secondary materials for their fuel value, as well as their ingredient value. These commenters, however, discussed instances where fly ash was used as a fuel only in regards to its use in utility boilers and CBO units—where there is clearly not an ingredient value, as is the case with burning fly ash in cement kilns.

Comment: EPA received comments on the ANPRM stating that there are at least four patented processes for removing unwanted carbon from fly and bottom ash that allow the processed ash to produce both technically compliant ash for use in concrete and a separate carbon stream that can be re-introduced into the boiler for its fuel value. One electric utility, commenting on the proposed rule, also mentioned patented processes for using CCRs recovered from landfills. However, neither of these commenters provided specific details regarding how CCRs that are recovered from the discard environment are actually "processed." One other commenter discussed a two-stage process to maintain low carbon content, but was not aware whether the material was used for concrete or clinker production. Another commenter argued that the same processes used for currently generated fly ash to separate high-carbon ash from mineral ash could be applied to reclaimed fly ash and produce similar secondary ingredients. This commenter argued that the processes produce two materials that are chemically distinct from the reclaimed fly ash and should therefore satisfy our proposed processing requirement.

EPA's Response: Unfortunately, EPA did not receive information during the comment period describing the types of processing that discarded CCRs undergo prior to being used as an ingredient in a combustion unit and are, thus, unable to make a categorical determination whether the patented processes referenced in the proposed rule would meet the definition of processing being promulgated in today's final rule. Although we did not receive new information regarding how CCRs are processed, as we stated in the proposed rule, certain processes are currently being utilized to recover CCRs from the discard environment that would likely meet our definition of "processing." For example, we are aware of at least one electric utility that recovers ash from ponds or landfills and then separates this secondary material into its fundamental components: Carbon, silicates, and high-density, iron-rich materials. A coarse carbon-fuel product is then recovered by density separation using concentrating spirals. A fine carbon-fuel product is also recovered with flotation cells.[147] We believe that this type of processing is likely to meet our definition of processing, as it appears that these processes in fact remove contaminants and improve the ingredient characteristics of these recovered CCRs. Thus, a determination would need to be made as to whether such processes meet the definition of processing, as codified in § 241.2.

Comment: As noted above, we solicited comments in the proposed rule regarding the extent to which CCRs are recovered from the discard environment and used as ingredients in cement kilns. We received a few comments regarding the extent to which CCRs are mined from landfills (*i.e.,* recovered from the discard environment). Most of these comments did not specify, however, whether these recovered CCRs were subsequently used for their fuel or ingredient value.

EPA's Response: Based on the comments, it does not appear that it is a common practice for CCRs to be recovered from the discard environment (*e.g.,* landfills) and beneficially used. We respond to these comments in Section V.B.9 (Comments on Specific Materials Used as Fuel-Coal Combustion Residuals).

Comment: Regarding the question of whether advanced emission control technologies are resulting or will result in increased levels of contaminants in CCRs, one commenter stated that there was no credible way to know or anticipate this information. Another commenter agreed, stating that there is no data and no way to predict the result of new or future technology on the character of fly ash because of the use of advanced pollution control technology. This commenter also notes that there is no current information available that has proven that advanced emission control technologies directly result in increased contaminant levels.

One state commenter, however, stated that it expects the mercury content of coal fly ash to increase significantly in upcoming years. Consequently, this state commenter described its current efforts to remove a generic, pre-determined beneficial use determination for coal fly ash as an ingredient in

[147] *See* "Materials Characterization Paper on Coal Combustion Residuals—Coal Fly Ash, Bottom Ash, and Boiler Slag." A copy of this document has been placed in the docket for today's rule.

cement manufacturing. Additionally, another commenter stated that when using the CBO process to combust fly ash, essentially 100 percent of the mercury entering the CBO unit as feed ash leaves with the product ash.

EPA's Response: EPA recognizes that it is difficult to anticipate what contaminant levels in coal fly ash will result from implementation of future technologies. We also believe, however, that it is important to be studying and anticipating the possible effects of new air pollution control (APC) technologies and configurations on the composition of CCRs to the greatest extent possible. As noted in the proposed rulemaking, EPA has begun publishing a series of reports to analyze this issue further.[148] Based on these reports, EPA believes that changes to APCs at coal-fired power plants (*e.g.,* addition of flue-gas desulfurization (FGD) systems, selective catalytic reduction, and activated carbon injection to capture mercury and other pollutants) are shifting mercury and other pollutants (*e.g.,* metals) from the flue gas to fly ash, FGD gypsum, and other APC residues. The Agency will continue to research the possible effects of APCs on contaminant levels in fly ash. We note that under today's final rule, fly ash used as an ingredient would need to pass the contaminant legitimacy criterion for ingredients in order to not be considered a solid waste.[149]

3. Foundry Sand

Foundry sand is an industrial material generated by the metal-casting industry, which uses the sand to form a physical mold used in the production of metal products. After multiple uses in castings, the sand becomes unsuitable for castings and is either disposed of in landfills or beneficially used in other applications, including use as an ingredient in the manufacture of Portland cement. The proposed rule classified foundry sand as not being a solid waste when used as an ingredient in a combustion unit, so long as it was not discarded in the first instance and satisfies the legitimacy criteria for ingredients. Whether foundry sand remains within the control of the generator or is transferred to another person is not in and of itself indicative of discard, as discussed previously. If foundry sand has been discarded, however, it would be considered a solid waste, unless it has been processed to produce a non-waste ingredient.

Comment: We received a few comments regarding the characterization of foundry sand in the proposed rule. One commenter discussed how foundry sand is reused in the metal casting process as part of its argument that foundry sand should not be considered a solid waste, citing a 2001 letter from EPA which indicated that foundry sand reused on-site within the sand loop for mold making is part of a continuous industrial process and, therefore, not a solid waste.[150] The same commenter also discussed how this sand can also be processed on-site in a thermal reclamation unit so that the sand can be returned to the mold- and core-making process. Commenters also discussed a variety of other beneficial uses for foundry sand.

EPA's Response: The foundry sand uses evaluated as part of this rulemaking only include their use as an ingredient in combustion, such as cement kilns. We do not consider the reuse of foundry sand in the metal casting operations to constitute the use of a non-hazardous secondary material either as a fuel or ingredient in a combustion system, but rather as a type of beneficial use that is routinely employed by foundries in the production of metal products. As we stated in the referenced 2001 letter, foundry sands that are re-used on-site in the primary production process on a continuous basis in the sand loop are not solid wastes.[151]

We note, however, that the 2001 letter cited by one commenter explicitly states that the Agency is not addressing the status of any thermal processing of sand in the letter. It appears that the purpose of "processing" foundry sand in a thermal reclamation unit is to destroy or dispose of the contaminants so that the foundry sand can be re-used. As such, the burning of foundry sand in a thermal reclamation unit is burning for discard and, thus, would be considered a solid waste if combusted in such a unit, which would be subject to the section 129 CAA standards. Regarding comments that discussed other beneficial uses of foundry sand, we again note that this rule is limited to situations where the non-hazardous secondary material is used as a fuel or ingredient in a combustion unit and, as such, other examples of using foundry sand in other applications is beyond the scope of this rulemaking.

4. Blast Furnace Slag/Steel Slag

Blast furnace slag and steel furnace slag (steel slag) are by-products of iron and steel manufacturing in both iron and steel mills. Slags are used as ingredients in cement clinker manufacturing, bituminous concrete, road building and construction, among other beneficial uses. The proposed rule indicated that blast furnace and steel slag used as ingredients in combustion units that are not discarded in the first instance would not be considered a solid waste provided they satisfy the legitimacy criteria for ingredients. Whether blast furnace and steel slag remains within the control of the generator or is transferred to another person is not in and of itself indicative of discard, as previously discussed. However, if blast furnace and steel slag are in fact discarded in the first instance, then they would have to be sufficiently processed into a non-waste ingredient that satisfies the legitimacy criteria in order to be classified as a non-waste ingredient. However, we solicited comments on the level of processing that these materials undergo before determining whether such operations would meet our definition of processing.

Comment: We received few comments specifically on blast furnace and steel slag. One commenter discussed the use of blast furnace slag as a raw material substitute in the glass manufacturing process. Another commenter discussed how blast furnace and steel slag are typically returned to the iron and steel making processes and are not discarded in the first instance. The same commenter also discussed slag piles that were previously discarded and the processing that these non-hazardous secondary materials go through. Specifically, such processing includes extraction, passing the slag through grizzlies, removal of iron bearing scrap using magnets, and then screening to

[148] A series of reports have been and are being developed by U.S. EPA's Office of Research Development. To date, three documents have been finalized, including: (1) "Characterization of Mercury-Enriched Coal Combustion Residuals from Electric Utilities Using Enhanced Sorbents for Mercury Control." EPA–600/R–06/008. Feb. 2006; (2) "Characterization of Coal Combustion Residuals from Electric Utilities Using Wet Scrubbers for Multi-Pollutant Control." EPA–600/R–08/077. July 2008; and (3) "Characterization of Coal Combustion Residuals from Electric Utilities Using Multi-Pollutant Control Technology—Leaching and Characterization Data." EPA–600/R–09/151. December 2009. Ongoing work to complete this research includes: (1) Probabilistic assessment of the leaching source term for plausible CCR management scenarios, (2) Leach-XS Lite which is free software providing electronic access to data from this research, and (3) test methods for the Leaching Environmental Assessment Framework (LEAF).

[149] We also note that CCRs used as fuels must also meet the contaminant legitimacy criterion in order not to be considered a solid waste.

[150] March 28, 2001 letter from Elizabeth Cotsworth, Director, EPA's Office of Solid Waste to Ms. Amy J. Blankenbiller, American Foundry Society. A copy of this letter can be found in the docket to today's rule.

[151] For more information on the reuse of foundry sands as molds, *see* "Revisions to the Definition of Solid Waste" Final Rule at 73 FR 64705. October 30, 2010.

size the aggregate. Some commenters also asserted that because these slags are reused as part of a continuous process, the application of the legitimacy criteria are inappropriate.

EPA's Response: We agree with the commenters that blast furnace and steel slag that are reused as an ingredient, either in the iron and steel making processes or in the manufacturing of glass, are not solid wastes provided they have not been discarded in the first instance and meet the legitimacy criteria. However, we disagree with the commenters, who argued that because they are reusing these slags in a "continuous process," the application of the legitimacy criteria do not apply. EPA has a long-standing policy that the recycling of secondary materials, both hazardous and non-hazardous, including as part of a continuous industrial process, must be legitimate. The legitimacy provisions in today's rule are designed to distinguish between real recycling activities and "sham" recycling, an activity undertaken by an entity to avoid certain requirements, which in this case would be to avoid triggering the section 129 CAA requirements for solid waste incinerators. Because of the economic advantages in managing the non-hazardous secondary material as a non-waste ingredient as opposed to a solid waste ingredient, there is an incentive for some handlers to claim they are recycling, when, in fact, they are conducting waste disposal. Therefore, blast furnace and steel slag used as an ingredient in a combustion unit, including as part of a continuous industrial process, must satisfy all of the legitimacy criteria in order to not be considered a solid waste.

Regarding the description provided by the commenter on the extent of processing conducted on slags that have been previously discarded, it appears that this level of processing would meet our definition of processing, as the processing includes not only rigorous operations to extract the slag from the discard environment, but also the concerted removal of constituents through magnetic separation. Assuming the processed slag meets the legitimacy criteria for ingredients, the slag resulting from the processing operation would constitute a non-waste ingredient and would not be considered a solid waste.

D. Comments on Legitimacy Criteria for Fuels

Non-hazardous secondary materials used as fuels in combustion units must meet the legitimacy criteria specified in § 241.3(d)(1) in order to be considered a non-waste fuel. To meet the fuel legitimacy criteria, the non-hazardous secondary material must be managed as a valuable commodity, have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy, and contain contaminants at levels comparable to or lower than those in traditional fuels which the combustion unit is designed to burn. Details on each criterion as outlined in the proposed rule and the comments received are discussed below.

1. Managed as a Valuable Commodity

Under the proposed rule, non-hazardous secondary materials used as fuels must be managed as valuable commodities, including being stored for a reasonable time frame. Where there is an analogous fuel, the non-hazardous secondary material used as a fuel must be managed in a manner consistent with the management of the analogous fuel or otherwise be adequately contained so as to prevent releases to the environment. Where there is no analogous fuel, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment. An "analogous fuel" is a traditional fuel for which the non-hazardous secondary material substitutes, and which serves the same function and has similar physical and chemical properties as the non-hazardous secondary material. In addition to requesting comment on this criterion, the Agency solicited comment on whether it should define a specific "reasonable" time frame or range of time frames for storage as part of this criterion and on the time period or range of time periods that traditional fuels are typically held before they are used as a fuel. Comment was also solicited as to whether the "contained" standard, which is a general performance standard, provides sufficient direction to the regulated community or whether the Agency should include specific technical standards or limit the types of units in which such non-hazardous secondary materials may be managed, in order for them to be considered to be "managed as a valuable commodity."

Comment: Recommendations on a reasonable time frame to determine if a non-hazardous secondary material is managed as a valuable commodity brought a range of responses. Many commented that a one-rule-fits-all policy for the reasonable time frame of storage of non-hazardous secondary materials is impractical and arbitrary, since the definition of what is "reasonable" will vary by secondary material, industry, and facility. Instead, they argued that facilities should be allowed to determine what constitutes the most reasonable time frame, based on what is most economical. The most appropriate time frame will vary depending upon the non-hazardous secondary material and the industry and may reflect the rate at which the non-hazardous secondary material at issue is generated. If a non-hazardous secondary material is generated continuously, then use and storage is predictable and can be kept consistent. However, some non-hazardous secondary materials are stored for long periods and may be removed only once or twice per year.

While many commenters rejected the idea of a specific storage time limit, a limited number were supportive of such an approach. For example, one commenter recommended that no more than 180 days of inventory using the design process rate be stored at any given time and no more than 49 percent of the inventory be in storage for more than 2 years. These time frames allow the energy/material recovery facility a reasonable amount of time to make arrangements to establish, buy, and sell the non-hazardous secondary material. Other commenters recommended a time frame of one year, consistent with the hazardous waste requirements for speculative accumulation.

EPA's Response: After further evaluation, EPA agrees with the majority of commenters that "reasonable time frame" should not be specifically defined as such time frames vary according to the non-hazardous secondary material and industry involved. The "reasonable time frame" is an appropriate standard considering the large number of non-hazardous materials that may be subject to this rule, and is flexible enough to allow accumulation of these materials to be cost-effective. In addition, persons will need to document in their records the "reasonable time frame" selected and the basis for such time frames. (*See* Section VII.I for further discussion on documentation of legitimacy decisions.) The Agency did not receive information that such flexibility would lead to non-hazardous secondary materials being over-accumulated.

Comment: The Agency solicited comment on this aspect of this criterion, including whether a "contained" standard, which is a general performance standard, provides sufficient direction to the regulated community. Other approaches that EPA considered were: (1) Providing a more specific definition of "contained" in the rules, or (2) including specific technical standards or (3) limiting the types of units in which such non-hazardous secondary materials may be managed, in

order for them to be considered to be "managed as a valuable commodity."

Several commenters recommended that the definition of "contained" be clarified and to include the concept of maintaining the recyclability of the non-hazardous secondary material. In contrast, other commenters stated that the proposed "contained" standard provides sufficient direction to the regulated community and that the definition of "contained" in the proposed rule adequately describes how and when a non-hazardous secondary material will be considered "contained." They asserted that industry will use this definition as a general guideline for the safe handling and storage of non-hazardous secondary materials and that further "specific" definitions or other approaches would not be beneficial since the current guidance provides clear and sensible direction.

Others commented that the "contained" standard is inadequate to determine whether a material is "valuable" or discarded. They argue that the standard does not explain what adequately contained means nor does it account for differences in the necessary level of containment for different materials.

EPA's Response: The Agency recognizes that the "contained" concept can be somewhat difficult to grasp, but also notes that the "contained" standard is to be used only in those situations where there is not an analogous fuel product. That is, if there is an analogous fuel product to the non-hazardous secondary material, then the non-hazardous secondary material must be stored in a similar manner and, since it is indeed a valuable material, EPA could reasonably expect it to be contained so as not to be lost to the environment. In EPA's view, a recycler will value non-hazardous secondary materials that are contributing fuel value to its process or product and, therefore, will manage those non-hazardous secondary materials in a manner consistent with how it manages a valuable fuel. If, on the other hand, the recycler does not manage the non-hazardous secondary materials as it would a valuable fuel, that behavior may indicate that the non-hazardous secondary materials may not be burned as fuel, but rather released into the environment and discarded. This criterion's primary focus is on storage in a manner consistent with the analogous valuable raw material.

However, EPA realizes that in some processes, there is not a raw material that can be called "analogous" and, in order to allow facilities with those processes to evaluate the legitimacy of their recycling, EPA added the requirement that the materials be "contained" if there is no analogous product to achieve the same relative standard of secondary materials being managed as valuable commodities. Furthermore, EPA has explained what it means to be contained in today's preamble and includes that definition in the regulatory text. Specifically, a non-hazardous secondary material is "adequately contained" if it is stored in a manner that adequately prevents releases or other hazards to human health and the environment, considering the nature and toxicity of the secondary material. Thus, we are finalizing the contained standard, as proposed.

Nevertheless, the Agency recognizes that providing greater clarity to this definition may be useful to the regulated community and the public. To this end, EPA has agreed to issue a proposed rule by June 2011 on the definition of solid waste under the hazardous waste provisions of RCRA (*see* Section VIII.C for additional details). One of the issues that EPA will be evaluating as part of that proposal is the "contained" standard, as promulgated in that rule.[152]

Comment: Several commenters expressed uncertainty about the meaning of "valuable commodity," noting that the definition of valuable commodity should be clarified, or requested that EPA specify clear criteria for determining whether a non-hazardous secondary material is managed as a valuable commodity.

EPA's Response: Given the nature of this legitimacy criterion and the need to apply it to a variety of non-hazardous secondary materials that are managed in various ways, we have determined that it is not appropriate or practicable for EPA to develop specific technical standards. The Agency is using this criterion: Materials must be managed as analogous raw materials or, if there are no analogous raw materials, the materials must be adequately contained; contained is defined to mean "the non-hazardous secondary material is stored in a manner that adequately prevents releases or other hazards to human health and the environment considering the nature and toxicity of the non-hazardous secondary material." This definition provides ample direction and guidance, as a number of commenters argued, while at the same time provides the flexibility needed since this criterion will apply to a large number of non-hazardous secondary materials and industries. As an example, resinated wood residuals are adequately contained since they are pneumatically transferred through enclosed ducts, stored temporarily in a fuel silo, and then utilized in boilers to provide heat to hot presses and dryers (*see* Section V.B.6).

Regarding the term "valuable commodity," EPA's intent with this criterion is that non-hazardous secondary materials are managed in the same manner as materials that have been purchased or obtained at some cost, just as fuels or raw materials are. We expect non-hazardous secondary materials that are used as fuels or ingredients to be managed effectively and efficiently in order that their full value to the combustion process is realized. The standard for management of the non-hazardous secondary materials is reasonable for helping assess whether disposal in the guise of normal manufacturing is occurring. As an example, scrap tires collected under the oversight of established tire collection programs (*see* Section VII.C) would generally be considered managed as a valuable commodity. These programs promote the beneficial use of scrap tires and form established collection infrastructures through coordination with tire dealerships, haulers, processors and end users. On the other hand, scrap tires that are managed in waste tire piles would not be considered to be managed as a valuable commodity because they are stored for long periods of time without any safeguards.

Comments: One commenter suggested that the tests to determine if a material is managed as a valuable commodity (determining if it is managed consistent with the management of an analogous ingredient and used within a reasonable time frame) are irrelevant because solid wastes are managed in ways similar to commodities (*i.e.,* solid wastes and solid commodities are stored in piles on the ground, liquid wastes and commodities are stored in tanks and barrels). Another commenter asked that EPA provide clarity on managing a non-hazardous secondary material as a valuable commodity and the kinds of practices a facility must implement to demonstrate that it is managing the non-hazardous secondary material as a valuable commodity.

[152] In a **Federal Register** notice where EPA announced a public meeting on the Definition of Solid Waste under the hazardous waste provisions of RCRA, we specifically identified the definition of "contained" as one of the provisions that EPA was further evaluating. (74 FR 25202, May 27, 2009.) Among other things, the Agency noted that it could "address this issue by setting specific performance or storage standards as a condition of the transfer-based exclusion. Finally, EPA could address this concern by developing more detailed guidance on what might constitute "contained," for different types of units or management practices."

EPA's Response: We disagree with the commenter that this criterion is irrelevant because we cannot determine (nor does our experience suggest) that solid wastes and commodities are always managed in a similar manner. Commodities, on the one hand, are handled specifically to prevent the loss of material because of its value. Solid wastes, on the other hand, when they are not highly regarded for a beneficial reuse, are often not managed in a way that minimizes the release of the material itself, but more in a way that protects the surrounding environment from the material. However, we also know that solid wastes, if not properly managed, have created damages to the environment. For example, the over-accumulation of scrap tires is well known and has resulted in massive piles of discarded tires that have contributed to the overall solid waste management problem due to the threat of fires, such as the Rhinehart Tire Fire Dump,[153] and because they provide an ideal breeding ground for mosquitoes and rodents.

As discussed previously, given the nature of this legitimacy criterion and the need to apply it to a variety of non-hazardous secondary materials that are managed in various ways, we are not identifying specific standards or practices for managing a material as a valuable commodity beyond those examples for resinated wood and scrap tires outlined above. If any material, whether a non-hazardous secondary material or a raw material commodity, is mis-managed in a manner that releases significant material to the environment, a waste problem may result. Although the raw material commodity is not subject to the RCRA definition of solid waste, the released material may be. In this rule, where the Agency is dealing with secondary materials that could either be wastes or commodities, if non-hazardous secondary material is being released to the environment, it would not be considered a commodity material. All site-specific practices designed to meet the legitimacy criteria must be documented as outlined in Section VII.I.

Thus, the final rule will retain the proposed approach that non-hazardous secondary materials used as a fuel must be managed in a manner consistent with the management of an analogous fuel (where there is an analogous fuel), or otherwise be adequately contained so as to prevent releases to the environment.

[153] *See* 51 FR 21054, June 10, 1986.

2. Meaningful Heating Value and Use as a Fuel

Under the proposed rule, the non-hazardous secondary material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy. In addition to requesting comment on this criterion, the Agency also requested comment on whether it should promulgate a bright-line test for determining what is considered a meaningful heating value in an effort to provide greater certainty to both the regulated community and regulatory officials. For example, the Agency could establish 5,000 Btu/lb or some other value as the bright-line test. In addition, EPA requested comment on whether we should identify a Btu/lb cutoff below which the Agency would declare that the non-hazardous secondary material is being burned for destruction as opposed to energy recovery. Under this approach, non-hazardous secondary materials between this lower level and 5,000 Btu/lb (assuming there is a difference) could pass this criterion provided the facility demonstrates the energy recovery unit can cost-effectively recover meaningful energy from the non-hazardous secondary materials used as fuels; below this lower level, all non-hazardous secondary materials that are burned in a combustion unit would be considered to be burned for destruction and thus a solid waste if combusted.

Comment: Many comments related to the establishment of a Btu threshold claimed that any heating value is "meaningful." Other commenters expressed opposition to the imposition of a bright-line test, with one commenter arguing that inflexible Btu/lb cutoffs, as well as "benchmark" values could prevent utilities and other industries from using alternative fuels to recover energy. Another commenter echoed opposition to a bright-line test since the use of a non-hazardous secondary material with any heating value reduces the use of fossil fuels, indicating that any value for the bright line test would be arbitrary and would result in costly impacts to current production systems and would stifle technological advancements in combustion unit designs.

Other commenters stated that a minimum heating value, below which the non-hazardous secondary material would not be considered to have a meaningful heating value will restrict the marketplace, hamper advances and innovation in energy recovery, and add costs where they are not justified from an environmental standpoint. If EPA insists on a minimum heating value, they recommend including a cost effectiveness provision in the rule that would enable facilities to demonstrate the value of using a material below this threshold.

Commenters from state agencies differed somewhat in their positions regarding the 5,000 Btu/lb threshold. Two state agencies requested that EPA lower the minimum Btu threshold from 5,000 Btu/lb to 4,000 Btu/lb, but another State agency supports the 5,000 Btu/lb threshold. Still another state commenter recommends that if EPA establishes a lower threshold, below which the non-hazardous secondary material would not be considered to have a meaningful heating value, that this value be based on innovation in energy recovery technologies from secondary materials with lower heating values. Due to the continuing evolution of energy recovery technologies, this commenter argues that EPA should include a "safe harbor" cut-off level in the rule with a provision for case-by-case approvals based on the most current proven technology. Another commenter recommends that if such a lower threshold is established, that it be based on the high moisture content of wood products that prevent these materials from reaching the minimum 5,000 Btu/lb threshold.

EPA's Response: After further evaluation, the Agency agrees with commenters that imposition of a strict bright-line test for minimum heating value could hamper advances and innovation in energy recovery, and add costs where they are not justified. The Agency also did not receive persuasive information that a lower than 5,000 Btu/lb threshold, or entirely eliminating the threshold, would be an appropriate measure in establishing this legitimacy criterion.

As discussed in the proposed rule, the concept of a 5,000 Btu/lb benchmark was addressed in the "comparable fuels" rule (63 FR 33781) for hazardous secondary materials. EPA had previously stated that industrial furnaces (*i.e.,* cement kilns and industrial boilers) burning hazardous wastes with an energy value greater than 5,000 Btu/lb may generally be said to be burning for energy recovery; however, hazardous wastes with a lower Btu content could conceivably be burned for energy recovery due to the devices' general efficiency of combustion. At the same time, EPA is trying to avoid sham situations where non-hazardous secondary materials with low Btu value are burned for destruction in lieu of proper disposal.

Thus, the 5,000 Btu/lb limit is a general guideline, which is being adopted in this final rule, but allows

some flexibility. To allow such flexibility for facilities with energy recovery units that use non-hazardous secondary materials as fuels with an energy content lower than 5,000 Btu/lb, as fired, a person may demonstrate (see Section VII.I Determining That Non-Hazardous Secondary Material Meets the Legitimacy Criteria) that a meaningful heating value is derived from the non-hazardous secondary material if the energy recovery unit can cost-effectively recover meaningful energy from the non-hazardous secondary materials used as fuels. Factors that may be appropriate in determining whether an energy recovery unit can cost-effectively recover energy from the non-hazardous secondary material include, but are not limited to, whether the facility encounters a cost savings due to not having to purchase significant amounts of traditional fuels they otherwise would need, whether they are purchasing the non-hazardous secondary material to use as a fuel, whether the non-hazardous secondary material they are burning can self-sustain combustion, and whether their operation produces energy that is sold for a profit (*e.g.,* a utility boiler that is dedicated to burning a specific type of non-hazardous secondary material that is below 5,000 Btu/lb could show that their operation produces electricity that is sold for a profit).

3. Have Contaminants at Comparable Levels or Lower Than Traditional Fuels

Under the proposed rule, non-hazardous secondary materials must contain contaminants at levels comparable to or lower than those in traditional fuels which the combustion unit is designed to burn. Such comparison is to be based on a direct comparison of the contaminant levels in the non-hazardous secondary material to the traditional fuel itself. Contaminants were defined under the proposal as any constituent in non-hazardous secondary materials that will result in emissions of the air pollutants identified in CAA section 112(b), and the nine pollutants listed under CAA section 129(a)(4) when such secondary materials are burned as a fuel or used as an ingredient, including those constituents that could generate products of incomplete combustion.

The Agency specifically solicited comments on how EPA should interpret the "comparable to or lower than" standard. For example, should comparable mean the same as or lower, taking into consideration natural variations in sampling events? Also, instead of requiring that contaminant levels in non-hazardous secondary materials be comparable to traditional fuels, the Agency also requested comment as to whether to adopt a "not significantly higher" standard—that is, contaminants in non-hazardous secondary material used as a fuel in combustion units could not be significantly higher in concentration than contaminants in traditional fuel products.

The Agency also solicited comment on whether the comparison should be based upon the total level of contaminants, or on the level of contaminants per Btu of heat value, whether the list of contaminants should be narrower or broader, or whether the Agency should look at other possible lists. For example, since the Agency is determining which non-hazardous secondary materials are considered solid waste under RCRA, the Agency could consider the list of hazardous constituents promulgated in Appendix VIII of 40 CFR part 261, which is a list of hazardous constituents that have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans and other life forms. Finally, comment was solicited as to whether the comparison should be based on an established "bright line" level of contaminants to those contained in traditional fuels.

Comment: Several commenters addressed the "comparable" standard and the "not significantly higher" standard. Many of these comments stated that "comparable" should be understood to mean "similar, higher or lower," not "equal" or the "same." Commenters also requested that EPA clarify the definition of "comparable" and specifically requested that EPA explain the concept in greater detail. Of the comments that expressed a preference for either the "comparable" or "not significantly higher" standard, most preferred the latter, stating that it is more consistent with the approach used by EPA for hazardous waste in the 2008 DSW Final Rule and would not discourage beneficial use as much as the "comparable" standard. Two other commenters argued that instead of using a "not significantly higher" standard, the total environmental impact of using a non-hazardous material should be considered. For example, a non-hazardous secondary material may be lower in all contaminants, except one that may be considered higher than "comparable," but the overall impact is beneficial in terms of less total contaminants and improved emissions.

Other commenters offered suggestions on how to interpret "comparable," but also on how to implement the "comparable" standard. For example, "comparable" should refer to the traditional fuel that would be used if the non-hazardous secondary material was not being burned or allowed to be burned. Another commenter believed that the "comparable" standard should only be used as an initial step to determine if the material is a legitimate fuel. For example, where a material has high levels of a low-impact contaminant or a contaminant is controlled by the emission control device in the incineration unit, there should be a process to see whether the material can still be considered a fuel. Similarly, another commenter also recommended using the "comparable" standard as an initial determination step, with the "not significantly higher" standard being used as a secondary determination step in some situations. These situations would primarily be when there is a low-impact contaminant without environmental, health, or product quality impacts present in concentrations above those found in traditional raw materials.

EPA's Response: EPA has retained the legitimacy criterion that non-hazardous secondary materials used as a fuel must contain contaminants at levels that are comparable to or lower than the concentrations found in traditional fuels which the combustion unit is designed to burn. The "comparable to or lower than" standard means any contaminants present in non-hazardous secondary materials that are within a *small* acceptable range, or lower than, the contaminant in the traditional fuel. We have decided to select this standard since we have determined it more closely reflects EPA's intent with respect to this legitimacy criterion than the phrase "not significantly higher," which suggests that contaminants can be present in non-hazardous secondary materials at levels that could reflect discard, especially since we are addressing non-hazardous secondary materials that are being combusted.

EPA recognizes that combustion is an inherently destructive process, even when energy is recovered. If a non-hazardous secondary material contains contaminants that are not comparable to those found in traditional fuels, and those contaminants are related to pollutants that are of concern at solid waste combustion units, then it follows that discard is occurring. The contaminants in these cases could not be considered a normal part of a legitimate fuel and are being discarded, either through destruction in the combustion unit or through releases into the air. Units that burn such materials are therefore most appropriately

regulated under the CAA section 129 standards for solid waste incinerators.

In response to those commenters requesting further guidance on how to interpret the "comparable to or lower than" standard, the following examples are provided.

- A non-hazardous secondary material contains 500 parts per million (ppm) of lead, while the traditional fuel that would or could be burned in the combustion unit contains 475 ppm of lead. These levels would be considered comparable (since it falls within a small acceptable range) and thus, would meet this factor. If, on the other hand, the level of lead in the non-hazardous secondary material was 1,000 ppm, these levels would not be comparable and it may indicate that the non-hazardous secondary material was being burned to dispose of the material and that the activity is sham recycling.
- A traditional fuel contains no detectable amounts of barium, while the non-hazardous secondary material contains a minimal amount of barium (*e.g.,* 1 ppm). In this situation, the levels would be considered comparable since it falls within a small acceptable range. If, however, the barium were at much higher levels in the non-hazardous secondary material (such as 50 ppm), the levels would not be comparable and it may indicate discard of the barium and sham recycling.

EPA does not agree with those commenters who suggest that in evaluating the constituent concentrations in non-hazardous secondary materials, that the total environmental impact should be considered, rather than comparing each constituent to levels found in traditional fuels. Under such an approach, a non-hazardous secondary material may be judged not to present an environmental problem when assessing all contaminants together, although significantly higher levels for one or more contaminants may be present such that they are destroyed or discarded by means of combustion. This, we have determined, is inconsistent with the concept of discard under the statute, since it would allow a solid waste to be subject to the CAA section 112 standards, even though the non-hazardous secondary material has been discarded.

We also disagree with commenters who believe that the comparable standard should only be used as an initial step to determine if the material is a legitimate fuel, particularly in those situations involving low-impact contaminants. Today's rule does not differentiate low-impact contaminants from other contaminants, since such an assessment would require a risk analysis of each chemical. We believe that "comparable" is protective because it ensures that no more contaminants than those found in traditional fuels are released into the environment. EPA has already determined that these contaminants pose a threat to human health and the environment. Therefore, the Agency will finalize the proposed approach of evaluating all of the contaminants to ensure that they are present in the non-hazardous secondary material at levels that are comparable to (or lower than) the concentrations found in traditional fuels that the combustion unit is designed to burn.

Comments: Many comments discussed whether contaminants, and their concentrations in the non-hazardous secondary material, should have any bearing on the legitimacy determination for a given non-hazardous secondary material. Many of these commenters expressed opposition to using contaminants, and their concentrations in the non-hazardous secondary material, as a basis for legitimacy decisions. Some of these commenters argued that comparing contaminant levels would impose an unnecessary burden on emissions sources that are already stringently controlled under the CAA regulations. Other comments indicated that it would be more appropriate to compare emissions profiles from the combustion units rather than contaminant levels in the non-hazardous secondary materials themselves using the CAA section 129 pollutant list and the 112 HAP list. Referring to existing stack testing data and the risk assessment performed by the cement industry, the commenter states that "it is accepted that organics in fuels do not survive intact to exit a cement kiln or cause harm to human health and the environment. In addition, stack testing comparing different fuels (tires, waste-derived fuel, coal, coke, etc.) on a single kiln system under normal operating conditions supports the same conclusion."

States offered a range of comments on this issue. One state contends that using the list of contaminants in CAA section 129(a)(4) is inadequate because it does not address all heavy metals or organic hazardous air pollutants. Another commenter argued that while section 112 of the CAA and Appendix VIII of 40 CFR part 261 would be impractical if parameter testing was required, the Appendix VIII list of constituents in 40 CFR part 261 would serve as a useful starting point for evaluating different issues related to those contaminants.

Other commenters suggested that EPA narrow the list of contaminants considered in the legitimacy criteria. One commenter recommends that those constituents that contribute to the secondary material's value as a fuel be excluded from the contaminant list. Another commenter states that the list of contaminants should be limited to only the subset of HAP and pollutants listed in CAA section 129 that have the potential of being present in the emissions from burning the non-hazardous secondary materials. Broadening the list and requiring the evaluation and analysis of more constituents would be unnecessary and a waste of resources. The commenter, therefore, recommends that the list of contaminants be limited to only those pollutants found in section 112 of the CAA. Furthermore, this commenter argued that organic HAP do not need to be included in the legitimacy criteria because the rule is intended to define which non-hazardous secondary materials are non-wastes, as opposed to which HAP emission standards should be developed. The commenter further notes that the Boiler and Process Heater MACT will ensure that the organic HAP are properly controlled. Finally, although not specifically commenting on the legitimacy criterion for contaminants in the contaminant definition, the Agency received several comments that pathogens are present in both manure and sewage sludge, and received specific monitoring data confirming the presence of pathogens in certain varieties of chicken litter.

EPA's Response: EPA is defining the term "contaminant," as constituents that will result in emissions of the air pollutants identified in CAA section 112(b) and the nine pollutants listed under CAA section 129(a)(4) when such non-hazardous secondary materials are burned as a fuel or used as ingredients, including those constituents that could generate products of incomplete combustion. EPA has decided that these constituents are appropriate for the comparisons required by this criterion because these are the contaminants identified in the CAA that are to be considered by EPA in evaluating which contaminants to establish emission standards. Thus, we disagree with those commenters who believe that the list should be narrowed, including the commenter who argued that those contaminants that contribute to the material's value as a fuel be excluded from the list of contaminants, as well as all organic HAP since they will be burned during the combustion process. Because EPA is to consider these contaminants as part of the CAA regulations, they should also be

considered in determining whether non-hazardous secondary materials that contain these contaminants are being discarded, and thus, subject to the section 129 CAA standards.

We also disagree with the commenters who argue that the list is not broad enough because it does not address all heavy metals, organic hazardous pollutants or pathogens for the same reasons described above—that is, we should be focusing, in general, on those contaminants identified in the CAA that EPA will be evaluating to determine whether to establish emission standards. The Agency also disagrees that Appendix VIII to 40 CFR part 261 is an appropriate list for determining which contaminants to consider for the purposes of defining non-hazardous solid waste, since the purpose of Appendix VIII is to be used by the Agency to make hazardous waste listing determinations (*see* 40 CFR 261.11(a)(3)) and the chemicals in Appendix VIII would not apply to non-hazardous wastes.

Finally, we disagree with those commenters who argue that we should not be considering the contaminants in the non-hazardous secondary materials themselves as part of the legitimacy criteria, but, if considered necessary, compare the emissions profiles from the combustion units. In order for a non-hazardous secondary material to be considered a non-waste fuel, it must be similar in composition, whereas comparing the emissions profiles between combustion units that burn traditional fuels and non-hazardous secondary materials only tells one how well the combustion unit is operating, not what the secondary material is that is being burned. Thus, while the Agency recognizes that such data can be useful in determining whether or not burning such secondary materials present a risk to human health or the environment, such a concept says nothing in terms of whether or not the non-hazardous secondary material is a legitimate non-waste commodity fuel.

Moreover, when contaminants have no fuel value, and are being destroyed, they do not have an energy recovery intention. Burning is an inherently destructive process, even if there is a beneficial use. Therefore, the Agency needs to be cautious in evaluating whether burning a non-hazardous material for energy recovery, also has a waste destroying intention.

Comment: Some commenters believe the approach of measuring contaminants per Btu was more scientifically sound, while one commenter argued that comparisons of contaminants should focus on the loading of contaminants to the process rather than concentrations, which they believe is similar to measuring contaminants per Btu in ingredients. For example, the commenter indicates that coal fly ash is utilized in place of bauxite in cement manufacturing. Because coal fly ash may contain only 20 percent of the alumina found in bauxite, the process requires five times more coal fly ash than alumina for a given quantity of cement product. Under this scenario, even if coal fly ash contains a mercury concentration comparable to bauxite, the loading of mercury to the combustion unit would be five times higher than that if traditional feedstock was used. The commenter maintains that the rule should be changed to require a comparison of loading rates rather than concentrations.

Another commenter argues that any comparison between contaminant levels in the non-hazardous secondary material and contaminant levels in traditional fuels should consider the entire characteristics of the material. Some non-hazardous secondary materials may have high concentrations of some constituents and low concentrations of others, relative to traditional fuels. Thus, decisions regarding legitimacy will not always be clear cut and the overall characteristics need to be considered qualitatively. In addition, given the variability of constituent concentrations in traditional fuels and non-hazardous secondary materials, solid waste determinations which requires a comparison, should allow for such variability in a reasonable manner. The commenter supports the method that looks at constituent concentrations (*e.g.,* percent by weight or ppm by weight) as a reasonable approach that limits the impact of variability, whereas using lb/MMBtu compounds the impacts of variability. Since either the Boiler/Process Heater MACT or CISWI rule will adequately limit emissions from combustion of non-hazardous secondary materials, there is no justification for evaluating contaminant comparisons on a heating value basis.

EPA's Response: The Agency agrees with commenters that a lb/MMBtu approach can serve to normalize contaminant concentration comparisons across a range of material loading scenarios. At this time, however, the Agency lacks sufficient lb/MMBtu information for all non-hazardous secondary materials under consideration. Accordingly, this approach is not being adopted for today's final rule. As guidance is developed for implementation, a lb/MMBtu approach may be further considered. Thus, in today's final rule, the assessment of whether the non-hazardous secondary material has contaminants comparable to traditional fuel products is to be made by directly comparing the numerical contaminant levels in the non-hazardous secondary material to the contaminant levels in traditional fuels based on the total level of contaminants, and not on contaminants per Btu of heat value. This approach is most appropriate because contaminant information is readily available to the respondent.

The Agency recognizes that variability in constituent levels exist in non-hazardous secondary materials and traditional fuels, generally based on the source and geographic region that the material came from. Thus, we agree that such considerations can be taken into account in a reasonable manner when comparing constituent levels in the non-hazardous secondary material and the traditional fuel.

We disagree with the commenters that comparison between contaminant levels in the non-hazardous secondary material and contaminant levels in traditional fuels should consider the entire characteristics of the material. Such an approach would suggest that contaminants can be present in the non-hazardous secondary material at levels that are not comparable in concentration to those contained in traditional fuel products, which could result in contaminants being combusted as a means of discarding them.

Comment: Commenters disagreed about whether to implement a bright-line test for contaminants. One commenter supports the delineation of bright-line contaminant levels that would apply regardless of the type of traditional fuel burned, while another commenter maintains that it would not be appropriate to compare contaminant concentrations between non-hazardous secondary materials and traditional fuels based on a bright line approach. Another commenter states that the need to classify non-hazardous secondary materials as waste or non-waste may dictate the need for a bright line test rather than emissions testing from combustion units, given that emissions controls and limits are established in permits. Other commenters also disagreed with the establishment of a bright-line level comparison, with one commenter objecting to the establishment of any other contaminant level comparison, arguing that such a comparison would provide no benefit to the regulated community and arbitrarily assigns levels of contaminants without

accounting for differences in materials and/or facilities.

EPA's Response: EPA recognizes that the "bright line" approach may provide greater clarity and predictability to the regulated community, but that in both cases, the Agency would have to establish a line for what is acceptable and the line may either be somewhat arbitrary or it may exclude materials that, if carefully considered, should be considered legitimate. Based on the comments received on those approaches, we are convinced that they would not be workable. On the other hand, case-by-case comparisons by each person evaluating this legitimacy criterion can take into account the wide variety of non-hazardous secondary materials, as well as the appropriate traditional fuel to which it is being compared. Because this factor must apply to various different recycling activities and industries, the case-by-case approach is most appropriate.

E. Comments on Legitimacy Criteria for Ingredients

In the proposed rule, non-hazardous secondary materials used as an ingredient in combustion units must meet the legitimacy criteria specified in 241.3(d)(2) in order to be considered a non-waste ingredient. To meet the ingredient legitimacy criteria, the non-hazardous secondary material must be handled as a valuable commodity, must provide a useful contribution to the production or manufacturing process, must be used to produce a valuable product or intermediate, and must result in products that contain contaminants at levels that are comparable in concentration to or lower than those found in traditional products that are manufactured without non-hazardous secondary materials.

1. Managed as Valuable Commodities

Because the criterion "managing as a valuable commodity" for non-hazardous secondary materials used as an ingredient (storage not exceeding reasonable time frames, manage it consistent with an analogous ingredient or adequately contain to prevent release) are the same as those for non-hazardous secondary materials used as a fuel, EPA indicated that if changes are made to the criteria with respect to those non-hazardous secondary materials that are used as fuels, we would likewise make the same changes with respect to those non-hazardous secondary materials used as ingredients. We did solicit comments, however, on whether using these criteria for managing as valuable commodities (similar to the type of criteria for fuels) are appropriate for ingredients.

Comment: As discussed in the section on legitimacy criteria for fuels, one commenter suggested that the criterion that a non-hazardous secondary material be managed as a valuable commodity (determining if it is managed consistent with the management of an analogous ingredient and used within a reasonable time frame) is irrelevant because solid wastes are managed in ways similar to commodities (*i.e.,* solid wastes and solid commodities are stored in piles on the ground, liquid wastes and commodities are stored in tanks and barrels). Another commenter requested that EPA provide clarity on managing a non-hazardous secondary material as a valuable commodity and the kinds of practices a facility must implement to demonstrate that it is managing the material as a valuable commodity.

EPA's Response: The final rule will retain the proposed approach that this legitimacy criterion for non-hazardous secondary material used as ingredients (*i.e.,* that they must be managed as valuable commodities) will be consistent with that of fuels. As we noted previously, we disagree with the commenter that solid wastes and commodities are always managed in a similar manner. That is, commodities, on the one hand, are handled specifically to prevent the loss of the material because of its value. Solid wastes, on the other hand, when they are not highly regarded for a beneficial reuse, are often not managed in a way that minimizes the release of the material itself, but more in a way that protects the surrounding environment from the material. However, we also know that solid wastes, if not properly managed have created damages to the environment. Thus, non-hazardous secondary materials used as an ingredient must be managed in a manner consistent with the management of an analogous ingredient (where there is an analogous ingredient), or otherwise be adequately contained so as to prevent releases to the environment. For example, non-hazardous secondary materials that are used as ingredients in cement kilns must be managed in a manner consistent with the analogous ingredients that these secondary materials are replacing. An "analogous ingredient" is defined as a manufacturing process ingredient for which the secondary material substitutes and which serves the same function and has similar physical and chemical properties as the non-hazardous secondary material. Where there is no analogous ingredient, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment. However, the Agency may provide further guidance on what we consider to be managed as a valuable commodity.

2. Useful Contribution

EPA received comments on the five ways the proposed rule states that a non-hazardous secondary material can add value and usefully contribute to a recycling process (based on criteria initially developed for hazardous secondary materials): (i) The non-hazardous secondary material contributes valuable ingredients to a product or intermediate; or (ii) replaces a catalyst or carrier in the recycling process; or (iii) is the source of a valuable constituent recovered in the recycling process; or (iv) is recovered or regenerated by the recycling process; or (v) is used as an effective substitute for a commercial product. The proposed rule stated that we believe that only items (i) and (v) are specifically relevant to our assessment of whether these non-hazardous secondary materials provide a useful contribution in combustion scenarios. We requested comment, however, on whether the non-hazardous secondary materials we are assessing as ingredients can provide useful contributions in other ways.

Comment: A commenter requested that the EPA remain flexible and acknowledge that there may be other ways to demonstrate a secondary materials' useful contribution.

EPA's Response: The Agency was unable to identify, and commenters did not identify any other way a non-hazardous secondary material could contribute to the recycling process, so the language in the final rule was not changed. The two ways to determine if the material provides a useful contribution are sufficiently flexible and will provide for accurate assessments. Thus, the final rule will continue to maintain that non-hazardous secondary materials contribute valuable ingredients to a product or intermediate and that non-hazardous secondary materials are used as an effective substitute for a commercial product will be used to determine if a material provides a useful contribution as an ingredient.

3. Quantifying an Ingredient's Contribution to Production/Manufacturing Activity

Not all of the constituents or components of the non-hazardous secondary material have to make a contribution to the production/manufacturing activity. EPA solicited comments on whether the Agency

should quantitatively define how much of the non-hazardous secondary material must provide a useful contribution, or alternatively, the quantity of constituents or components in a non-hazardous secondary material there would need to be before the non-hazardous secondary material would not be considered to provide a useful contribution.

Comment: Generally, commenters disagreed with the establishment of a quantitative definition as to how much of a material must provide a useful contribution. One state agency is opposed to a quantitative definition because the numbers will vary by non-hazardous secondary material. Similarly, another state commenter also opposed a nationwide definition or percentage stipulating what constitutes a "useful contribution" because of the different possible reuse processes that may vary in terms of the amount of material that is deemed useful. One other commenter also objected to the establishment of any limits, but specifically commented on the establishment of a quantitative definition. They explain that a given non-hazardous secondary material can have several useful components, but the ability to use those components is dependent on the available manufacturing process or technology type. This variation would make it difficult and inefficient to apply a general quantitative rule of useful contribution.

EPA's Response: We agree with the commenters that quantifying the amount that all non-hazardous secondary materials must contribute to a production/manufacturing activity would be a challenge, if at all possible, given the breadth and depth of ways that non-hazardous secondary materials may be used as ingredients in combustion processes. As the non-hazardous secondary materials vary significantly in their character, composition and uses, trying to define useful contribution quantitatively would not, in our view, be practical. The complexities of defining "useful contribution" so that it can be determined through a bright-line test, and remain appropriate across industries, different recycling processes, and a variety of recycled non-hazardous secondary materials are too great for the Agency to design in a simple and straightforward manner so as to be used in making such determinations. In addition, legitimacy determinations are best made on a case-by-case basis, with the facts of a specific situation in hand. Thus, we have not defined a quantitative amount that non-hazardous secondary materials must contribute.

In general, the regulated community should look to typical industry recovery rates in similar manufacturing processes to determine if the recycling recovery rates are reasonably efficient in terms of the ingredient making a useful contribution to the recycling process or product. In addition, it should be noted that EPA would generally look at the quantity required, the duration, and the extent of processing, and/or the rate of recovery of the overall process, not the recovery rate of a single step in the process, when analyzing this criterion for legitimacy. For example, if one step in the process recovers a small percentage of the constituent, but the overall process recovers a much larger percentage, the Agency would consider the overall efficiency of the recycling process in determining whether the non-hazardous secondary materials are providing a useful contribution. This assumes that there is enough of the target constituent or component present in the non-hazardous secondary materials to contribute meaningfully as an ingredient to the recycling process.

In addition, the Agency is reiterating its longstanding position that not every constituent or component in a non-hazardous secondary material would have to contribute to a recycled product or intermediate or to the recycling process in order for there to be an overall contribution. Thus, we agree with commenters who raised questions about this and have restated our position in this preamble to the final rule.

4. Contaminants in Ingredients

The Agency requested comments on whether we should have a different definition of contaminants that applies specifically to ingredients. That is, since contaminant comparisons for the contaminant legitimacy criterion apply to a comparison of products rather than to the non-hazardous secondary material, we requested comment on whether a different list of contaminants should apply or whether we should generically define contaminants to be constituents that may be a concern with respect to the product that is produced.

Comment: Commenters suggested that when comparing the products derived from non-hazardous secondary materials and traditional raw materials, the Agency be mindful of the fact that the concentrations of contaminants can vary geographically. In terms of cement production, a few commenters said that the current stringent product standards effectively keep cement kilns from using contaminated ingredients. One state supports the use of the same contaminant list for non-hazardous secondary material fuels and ingredients, but notes that EPA should recognize that constituent concentrations for a given virgin fuel or feedstock can vary dependent on the geographic region of where it is produced. Another commenter said that since all processes differ, the states should be allowed to establish a petition process for ingredients where industry can demonstrate that the higher contamination in a given non-hazardous secondary material will not result in harm to human health or the environment (*i.e.,* through either risk assessment or handling restrictions). Another commenter argued that using the list of contaminants in CAA section 129(a)(4) is inadequate because it does not address all heavy metals or organic hazardous air pollutants. Still, another commenter suggested that although the CAA section 112 HAP list and the list of constituents in Appendix VIII of 40 CFR part 261 would be impractical if parameter testing was required, Appendix VIII of 40 CFR part 261 would be a good starting point for evaluating different issues related to those contaminants. Finally, one state agency recommends the Agency develop a list of currently acceptable non-hazardous secondary materials used as ingredients for quick reference and develop guidance to assess materials not on the list.

EPA's Response: EPA is defining the term "contaminant" to include constituents that may result in emissions of air pollutants identified in CAA section 112(b) and the nine pollutants listed under CAA section 129(a)(4)) when such non-hazardous secondary materials are burned as a fuel or used as an ingredient, including those constituents that could generate products of incomplete combustion. These constituents are appropriate for the comparisons required by this criterion because these are the contaminants identified in the CAA that are to be considered by EPA in evaluating which contaminants to establish emission standards. That is, the contaminants to be considered in the legitimacy criteria should generally be the same that EPA is to consider in establishing emission standards. Thus, we disagree with the commenter who argues that this list is not broad enough because it does not address all heavy metals or organic hazardous pollutants. Appendix VIII to 40 CFR Part 261 is also not an appropriate list for determining which contaminants to consider for the purposes of defining non-hazardous

solid waste, since the purpose of Appendix VIII is to be used by the Agency to make hazardous waste listing determinations (*see* 40 CFR 261.11(a)(3)) and the chemicals in Appendix VIII would not apply to non-hazardous wastes. Please see the related response on usage of the Appendix VIII list with regard to fuels (Section V.D.3).

With that said, the Agency recognizes and agrees with the commenters that variability in constituents exist between non-hazardous secondary materials based on the source and geographic region that it may come from. Thus, such considerations can be taken into account in determining which contaminants to evaluate. Regarding the comments dealing with state program involvement, EPA's response to these comments is described in Section IX. "State Authority." Finally, with respect to the commenter who requested that EPA develop a list of acceptable non-hazardous secondary materials that are used as ingredients for quick reference and develop guidance to assess non-hazardous secondary materials on this list, we have made some general conclusions throughout the preamble on which non-hazardous secondary materials when used as an ingredient in a combustion process would generally meet the legitimacy criteria. Persons may also refer to the various Materials Characterization Papers that are in the docket to today's rule. However, each person will need to confirm that such non-hazardous secondary material ingredients meet the legitimacy criteria and provide documentation, as required in the CAA rules.

5. Comparing Contaminant Levels in Products

EPA requested comment on whether, instead of requiring that contaminant levels in products manufactured from non-hazardous secondary material ingredients be *comparable* in concentration than those found in traditional products, that the Agency adopt a criterion under which contaminants in the product could not be *significantly higher* than found in the traditional products that are manufactured without the non-hazardous secondary material.

Comment: A number of commenters disagree with the contaminant comparison criteria for non-hazardous secondary material ingredients to the final product. One commenter asserts that EPA should not use the term "contaminant" in connection with the legitimacy criteria for ingredients. Instead, the Agency should refer to constituents that may actually be a concern with respect to the product that is produced. The same commenter also recommends that the "toxics along for the ride" criterion only should be considered and not required, and that the Agency should adopt a "not significantly higher" standard. Also, while the Agency should retain the focus of the "toxics along for the ride" criterion upon products, that criterion should refer to constituents that may actually be a concern with respect to the products that are produced and should not use the defined term "contaminant."

Other commenters oppose any limits on contaminants in ingredients. It was argued that portland cement is manufactured to meet strict chemical and performance specifications under such organizations as ASTM and the American Association of State Highway and Transportation Officials (AASHTO). These specifications dictate, to a large degree, the ingredients that can be used in cement manufacturing. There are a wide range of raw materials and fuels that can be used to meet cement manufacturing quality objectives. The levels of contaminants in these traditional raw materials and fuels can vary significantly. These variations occur within materials taken from the same source (*e.g.,* single quarry) and also between different sources. For the purpose of comparing levels of contaminants found in non-hazardous secondary materials with levels found in traditional products, the non-hazardous secondary material contaminant should be allowed to be compared to multiple sources of the traditional raw materials that are available across the market to the facility. Such a comparison should be allowed regardless of whether or not the traditional material is being used by the facility at the time of the comparison. Doing so would allow for the variability of constituent levels to be properly accounted for when going through the comparison process. Variability needs to be considered because multiple sources of a single traditional material are typically available to a facility

EPA's Response: In today's action, EPA is finalizing this criterion as a part of the legitimacy requirement because it is essential in determining whether a non-hazardous secondary material that is combusted is in fact being legitimately used or is essentially being discarded—that is destroyed, in the name of legitimate recycling. EPA is also retaining the requirement that the recycling process must result in products that contain contaminants at levels that are comparable to (or lower than) concentrations found in traditional products that are manufactured without the non-hazardous secondary material. Establishing "comparable to or lower than" contaminant levels more closely reflects its intent that non-hazardous secondary materials that are legitimately used must have levels of contaminants within a small acceptable range of those found in traditional products than the phrase "not significantly higher." (*See* Section V.D.3 for further discussion of this issue and EPA's response.) With that said, we agree with those commenters who argue that there are a wide range of raw materials and fuels that can be used and that the level of contaminants in these secondary materials can also vary. Thus, for purposes of comparing levels of contaminants found in non-hazardous secondary materials to traditional products, a person can make that comparison with traditional raw materials and fuels that come from multiple sources, provided such sources can be used in the combustion unit. Such a comparison, as the commenters argue, would account for the natural variability that needs to be considered in making such a comparison.

With respect to the comment requesting that EPA change the word "contaminant" to "constituent" when referring to the legitimacy criteria, EPA is retaining the use of the word "contaminant" in this criterion as it has been defined in this rule and accurately describes which individual constituents EPA is seeking to control in this criterion. The selection of that term was originally discussed in the ANPRM and was chosen since it refers to the constituents in secondary materials that may be of a concern when burned as a fuel or used as an ingredient.

Finally, EPA notes that industry specifications can be very useful in making a legitimacy determination and, in particular, in evaluating compliance with this criterion. However, EPA cannot rely solely on product specifications to cover all possible situations and is including the contaminant comparison between products as a critical part of the legitimacy requirement.

F. Comments on Non-Waste Determination Petitions

The proposed rule established a non-waste determination process that would provide persons with an administrative process for receiving a formal determination from the EPA Regional Administrator that non-hazardous secondary materials that are burned as a fuel in a combustion unit and have not been managed within the control of the generator, have not been discarded in the first instance, and are

indistinguishable in all relevant aspects from a fuel product are not solid wastes. This assumes all the criteria for the non-waste determination at § 241.3(c) are met.

Industry and state agencies both submitted a number of comments on the non-waste determination process included in the proposed rule. While many of these comments supported the idea of a non-waste determination process in order to include appropriate fuels, many commenters suggested that the process would be difficult to implement since the requirements are vague, and too resource intensive. Many commenters did not want the process at all for opposing reasons; some said it was too lenient in that the process could allow the inappropriate use of non-hazardous secondary materials, while others said it was unnecessary in that CAA section 112 third-party combustors should be able to use appropriate comparable fuels without the inconvenience of a petition process. The specific comments are detailed below. The overview of the petition process is described in Section VII.G. The petition requirements in today's rule are found at § 241.3(c).

Comment: A large number of commenters (including many from state agencies) argued that state agencies should be provided the authority to make non-waste determinations as part of the petition process. Some commenters suggested that States be allowed to grant such petitions under their existing beneficial use programs and encouraged EPA to allow the States' existing regulatory structures to remain in place. Many commenters expressed a preference for the approach currently used by States to determine the acceptability of used materials for beneficial use whereby specific classes of non-hazardous secondary materials considered wastes (in that State) are assessed and, if determined acceptable, are considered non-waste or exempt from the State waste licensing, permitting and other requirements. State procedures for beneficial use determinations vary, some requiring more extensive characterization of materials and uses than others, and some requiring a degree of processing and others not. Some beneficial use designations are more stringent than others since they are material-specific.

Many commenters, including state agencies were still concerned that this rule could jeopardize or interfere with the State beneficial use designations and procedures and requested that EPA clearly indicate that today's rule applies only for purposes of determining CAA 129 applicability to non-hazardous secondary materials that are burned for energy recovery. They do not want today's rule to set a precedent or interfere with their ongoing programs to allow and encourage the beneficial use of secondary materials which otherwise would be waste.

EPA's Response: CAA section 129 states that the term "solid waste" shall have the meaning "established by the Administrator pursuant to the Solid Waste Disposal Act" *Id.* at 7429(g)(6). Accordingly, the Administrator (or Regional Administrator) must establish the meaning and make the determinations, and the states' definition of solid waste would not be applicable for purposes of the definition of solid waste under RCRA for establishing emissions standards under the CAA. No federal approval procedures for state adoption of today's rule are included in this rule under RCRA subtitle D. Although EPA does promulgate criteria for solid waste landfills and approves state municipal solid waste landfill permitting programs, RCRA does not provide EPA with authority to approve state programs beyond municipal solid waste landfill permitting programs.

With that said, EPA would like to utilize the expertise and interest residing in the state beneficial use programs to bolster Agency decisions on non-waste determination petitions. The Agency may request the assistance of states or may utilize the information and contaminant data from state beneficial use determinations if it is applicable to the non-hazardous secondary material when used as a fuel or an ingredient in combustion units. These state beneficial use programs have been developed to encourage recycling and reuse, provided that the uses maintain the specified state's acceptable level of risk, protect human health and the environment, and are managed in accordance with the conditions of the determination.

Generally, when a state beneficial use determination has been granted (thus no longer a solid waste within that state), it may have chemical and physical properties that are comparable to the raw material it is replacing or, when incorporated into a product, its use is beneficial to the final product. Assuming the data to support the beneficial use determination remains available, it could help support EPA's investigation of the contaminant concentrations for the purpose of making the legitimacy criteria determination.

State beneficial use determinations and procedures will continue intact for purposes of State laws, regulations, and programs. Thus, we do not expect that this rule will set a precedent or interfere with the States' solid waste programs and the States will continue to employ their procedures to assess and regulate the management and use of non-hazardous secondary materials for purposes of State laws and regulations. In addition, as we have stated elsewhere in today's preamble, this rule is limited for purposes of determining CAA 129 applicability for non-hazardous secondary materials that are burned for energy recovery or as an ingredient in a combustion unit. Thus, EPA will not be making any determination that non-hazardous secondary materials are or are not solid wastes for other possible beneficial uses. Such beneficial use determinations are generally made by the state for these other beneficial uses and EPA will continue to look to the states to make such determinations (*e.g.,* land application, reuse as non-waste, etc.).

Comment: Commenters indicated that the petition process does not consider potential scheduling issues regarding compliance with the section 112 Boiler MACT or the 129 CISWI standards. Therefore, the non-waste determination petition process should include deadlines for both petition submissions and rulings from regulators so that the applicant would know which emission standards requirements they would be subject to—that is, the CAA section 112 standards or the CAA section 129 standards. Some commenters (including many state agencies) also expressed concern that EPA would not have the resources necessary to address such non-waste determination petitions within a schedule consistent with State deadlines for their air permits (*e.g.,* 90 days). In addition, a few commenters questioned the environmental benefits of shifting the burden of determination to EPA instead of the generators in question.

EPA's Response: EPA is not imposing deadlines for the petition decisions, either for the submission of such petitions or on EPA making decisions on petitions that are submitted, since the Agency believes that before a final decision is made, that the necessary information be submitted, and the public afforded an opportunity to comment on such draft decisions. Setting a time limit may make it difficult to make such informed decisions. Nevertheless, EPA commits to work with the State (where the combustor is located) in an effort to not hold up, to the extent practicable, the State air permitting process. We recognize that the non-waste determination decision should be finalized prior to any related State air

permit. We would also note that EPA's responsibility for the petition decisions in the final rule should maintain national consistency, while recognizing the state's interest and expertise in this area.

Comment: If EPA maintains authority for non-waste determinations, commenters request that EPA Regional offices notify States when requests and determinations are made. In addition, several environmental groups requested that the public notification be required for any petitions for non-waste classification.

EPA's Response: Today's rule outlines the petition process for the Regional Administrator to follow. As part of that process, the draft decision will be published in local media and will be available on EPA's Web site, and thus, all draft decisions will be available to the public for comment. In addition, although not in the regulations, EPA will inform the State Agency of a petition request in their states, and work with them, to the extent practicable.

Comment: State Agencies recommended that EPA maintain a state or publicly available database of non-waste determination decisions if the Agency maintains decision-making authority under the petition process.

EPA's Response: EPA agrees that it would be appropriate for EPA to maintain a database that is a compilation of decisions made on non-hazardous secondary material non-waste determinations. This would allow decisions made in one EPA Region, including the basis for the decision, to be available to other EPA Regions pertaining to the same or similar non-hazardous secondary materials and would support national consistency and minimize redundant efforts. Thus, the Agency expects to put together such a database and will make it available not only to its Regions, but will also make such a database publicly available.

Comment: Some commenters said States (or non-State Agencies) should be able to submit a non-waste determination on behalf of the petitioner.

EPA's Response: As stated in the proposal and in the final rule, states, or private entities, can submit non-waste determination petitions to the EPA Regional Administrator on behalf of petitioners. They can petition for a single combustor or a class of combustors (*e.g.,* a specific usage of a non-hazardous secondary material in a particular state).

Comment: Many commenters did not want the petition process included in the rule. Some commenters said it was too lenient in that the process could allow the inappropriate use of non-hazardous secondary materials.

EPA's Response: We disagree with the commenters since the petition process provides a vehicle to accommodate those instances where it is not apparent that the non-hazardous secondary material is not discarded and that it complies with the legitimacy criteria and thus, is not a solid waste under RCRA. Those requirements would be documented in addition to the other petition requirements. This would provide the needed assurance that it is an appropriate non-waste fuel. In addition, all draft decisions will be made available to the public (local newspaper advertisement or radio broadcast and on EPA's Web site) and the Regional Administrator may hold public hearings, such that the public will be informed and has the opportunity to comment and be involved in the process.

Comment: Commenters mentioned that the process will be difficult to implement since the requirements in proposed § 241.3(c) are too vague. A few commenters mentioned that they preferred the clarity in state determinations where they have criteria specific to each secondary material they regulate or make specific beneficial use determinations, as opposed to this petition process where all non-hazardous secondary materials have to comply with the same guidelines. Commenters requested that we create clear guidance on the petition process and on related implementation.

EPA's Response: We disagree with the commenters who argue that the petition process is vague and will be difficult to implement. All petitions that are submitted must clearly explain how the non-hazardous secondary material has not been discarded and meets the other relevant criteria, including the legitimacy criteria. All draft decisions will also be subject to notice and comment, so any particular issues or concerns can be raised for the Agency's consideration. With that said, the Agency expects to develop additional guidance to assist petitioners in the implementation of the petition process.

G. Comments on the Other Approaches for Defining Solid Wastes

In addition to the proposed approach, EPA also identified and solicited comment on two other approaches for defining which non-hazardous secondary materials are solid wastes when combusted. One approach, which was called the "alternative approach," was intended to be broader than the proposed approach, but still consistent, in the Agency's judgment, with RCRA and relevant case law. Under the alternative approach, non-hazardous secondary materials that are burned in a combustion unit would be considered solid wastes, unless such non-hazardous secondary materials would remain within the control of the generator and meet the legitimacy criteria; in this limited instance, the non-hazardous secondary materials would not be considered solid wastes. Thus, under the alternative approach, fuels and ingredients that are generated from the processing of discarded non-hazardous secondary materials would be considered a solid waste, as well as non-hazardous secondary materials used as ingredients that are combusted at facilities that are not within the control of the generator. In addition, the alternative approach did not provide for a non-waste determination petition process, as described elsewhere in this preamble. The proposed rule noted that this approach could be adopted in a final rule if warranted by information presented during the public comment period and solicited comment on all aspects of the alternative approach.

The other approach on which we requested comment was to identify all non-hazardous secondary materials that are burned in combustion units for energy recovery or as an ingredient as solid wastes and thus, all non-hazardous secondary materials would be subject to the section 129 CAA requirements. The proposal noted that while the Agency believes there are legal constraints to taking such a broad approach in defining solid waste under RCRA, we solicited comment on this approach and specifically requested that commenters provide the basis for their position, in light of the existing case law on the issue of "discard."

Comment: All commenters addressing the alternative approach were opposed to the Agency adopting such an approach in the final rule. Several commenters argued generally against any approach that would allow any non-hazardous secondary material to ever be burned as non-waste fuels or ingredients, regardless of whether or not the secondary materials remained within the control of the generator. These commenters strongly urged the Agency to adopt a final rule that considers all non-hazardous secondary materials burned in a combustion unit for energy recovery or used as an ingredient to be included within the definition of solid waste and therefore, subject to the CAA section 129 requirements. These commenters argue that non-hazardous secondary materials that are burned in combustion units fall within the unambiguous meaning of the

term "discarded material," and therefore, both EPA's proposed and alternative approach are unlawful, as well as arbitrary and capricious.

On the other hand, industry commenters generally contended that the alternative approach was unacceptable as a matter of law and policy, but for different reasons. These commenters, who also disagreed with the proposed approach's classification that non-hazardous secondary materials used as fuels which did not remain within the control of the generator are solid waste unless granted a non-waste determination, strongly opposed the alternative approach for many of the same reasons. Of particular concern of the commenters was their disagreement with EPA that one may not look to a material's transfer between entities to determine whether the non-hazardous secondary material has been discarded and constitutes a solid waste under RCRA, a concept which would apply equally to non-hazardous secondary materials being used as ingredients, as well as to non-hazardous secondary materials used as fuels. In addition, these same commenters also strongly disagreed with the other approach on which the Agency solicited comment—that is, the approach that would characterize all non-hazardous secondary materials as solid waste when burned in a combustion unit for energy recovery or as an ingredient. These commenters argued that this would exceed the Agency's authority to regulate secondary materials that have not been discarded.

EPA's Response: Although some commenters supported a broader definition of solid waste than described in the alternative approach, the Agency did not receive any support for the alternative approach, and has therefore decided not to adopt it in this final rule. Regarding comments that advocated for all non-hazardous secondary materials burned in a combustion unit for energy recovery or as an ingredient to be discarded and, thus, solid waste, EPA has replied to this comment above in Section V.A. The Agency presumes that these commenters would like neither our proposed approach nor any alternative that allows any non-hazardous secondary material to be burned as other than a waste.

Regarding industry comments which opposed the alternative approach because its characterization that all non-hazardous secondary materials that do not remain within the control of the generator are solid waste, we respond to the issue of transferring non-hazardous secondary materials off-site in Section V.A.

EPA continues to believe that today's final rule is a reasonable interpretation of the statutory definition of discard to consider that non-hazardous secondary materials under the control of its generator that are legitimately burned as fuels are not solid waste, that certain non-hazardous secondary materials (*i.e.,* scrap tires under the oversight of established tire collection programs and resinated wood) that are not discarded and are legitimately used as fuels or ingredients are not solid waste, that non-hazardous secondary materials that are legitimately burned as ingredients are not solid wastes, and that fuels and ingredients that are produced from the processing of discarded non-hazardous secondary materials are not solid wastes.

VI. Summary of Major Differences Between the Proposed Rule and Final Rule

The basic framework outlined in the proposed rule is being adopted in today's final rule. However, as indicated in the discussions in Section VII, the Agency has made several significant changes to the proposal regarding: (1) The status of scrap tires when they are combusted and used as a fuel; (2) the status of resinated wood residuals when they are combusted and used as a fuel; (3) the status of coal refuse that has been previously discarded, but has been processed in the same way as coal is today; and (4) the definition of traditional fuel and several other terms to clarify their meaning in the final rule. Specifically,

- Under the proposed rule, scrap tires were considered to be solid waste when combusted and used as a fuel unless they were sufficiently processed into a non-waste fuel product. Today's rule continues to include this concept of processing of scrap tires that have been discarded, particularly for tires in waste tire piles. However, after reviewing the comments, as well as reviewing the approach that was discussed in the ANPRM for scrap tires, the Agency has concluded that scrap tires used as fuel in a combustion unit that are removed from vehicles and managed and collected under the oversight of an established tire collection program would not be considered a solid waste In this situation, the scrap tires have not been discarded and therefore, should not be considered a solid waste. See Section VII.C for a full discussion of the rationale and changes to the approach for scrap tires.
- Under the proposed rule, resinated wood residuals that were burned in a combustion unit within the control of the generator and which met the legitimacy criteria was considered a non-waste fuel. However, if such resinated wood residuals were transferred off-site to a different company, there were considered a solid waste when burned in a combustion unit, unless they were "sufficiently processed to produce a non-waste fuel. However, after reviewing the comments, the Agency has concluded that resinated wood residuals when burned in a combustion unit (whether within the control of the generator or outside the control of the generator) would not be a solid waste, provided the resinated wood residuals met the legitimacy criteria. In this situation, the Agency finds that the resinated wood residuals have not been discarded and therefore, should not be considered a solid waste. See Section VII.D for a full discussion of the rational and changes to the approach for resinated wood residuals.
- Under the proposed rule, coal refuse that has been previously abandoned and was processed, even if such processing was the same as coal is processed today, was considered a solid waste and, if combusted, would be subject to the CAA section 129 emission standards. However, after reviewing the comments and after further evaluation, we have decided that coal refuse that is processed the same as coal is today, which serves to both increase its energy value, as well as reduce the level of contaminants in coal refuse, should not be considered a solid waste. (Of course, prior to such processing, the coal refuse that has been abandoned is a solid waste and would be subject to appropriate federal, state and local laws and regulations.) This change is based on the fact that coal refuse is distinctive from other non-hazardous secondary materials at issue in today's rule in that it is in fact raw material coal (even if it has been previously abandoned) that is generated as a result of coal mining operations whose primary product is a fuel.
- In response to comments received on the proposal, under today's rule, we have added an "alternative fuels" category to the definition of traditional fuels, so the definition now includes "alternative traditional fuels" and "historically managed" traditional fuels. EPA is recognizing that changes in technology and in the energy market over time have resulted in additional materials being economically viable to be used as alternative "traditional" fuels. In addition, to provide clarity in the application and the meaning of traditional fuel and clean cellulosic biomass, we have codified these definitions in § 241.2. The new definition of traditional fuel also

clarifies that traditional fuels are not secondary materials and are not solid wastes unless discarded.

VII. Detailed Discussion and Rationale for Today's Final Rule

As indicated previously, today's final rule identifies those non-hazardous secondary materials that, when burned in a combustion unit, are solid wastes. In general, EPA defines non-hazardous secondary materials that are used as fuels or ingredients in combustion units as solid waste unless: [154]

- The non-hazardous secondary material is used as a fuel and remains within the control of the generator (whether at the site of generation or another site the generator has control over) and it meets the legitimacy criteria;
- They are the following materials that meet the legitimacy criteria when used as a fuel (by the generator or outside the control of the generator):
  - Scrap tires removed from vehicles under the oversight of established tire collection programs;
  - Resinated wood;
- The non-hazardous secondary material is used as an ingredient (whether by the generator or outside the control of the generator) and it meets the legitimacy criteria;
- The discarded non-hazardous secondary material is sufficiently processed to produce legitimate fuel or ingredient products and it meets the legitimacy criteria;
- The non-hazardous secondary material is used as a fuel and is handled outside the control of the generator where it is determined through a case-by-case non-waste determination petition process that the material has not been discarded and is indistinguishable in all relevant aspects from a fuel product.

The following sections discuss in detail the rationale and regulations being promulgated today in 40 CFR part 241 for the identification of non-hazardous secondary materials that are solid waste when used in combustion units. We use this rationale to support the final rule based on information the Agency has received and public comments. To the extent we have decided not to alter our supporting reasoning or have rejected comments received on the proposed rule, we also discuss these matters in Section V. Reasoning, information and arguments provided in the ANPRM and proposed rule that support these decisions are also incorporated into the reasoning for the final decisions.

[154] Traditional fuels are not secondary materials or solid waste, unless discarded.

A. Traditional Fuels [155]

As discussed in Section V, the definition of traditional fuels has been modified in today's final rule. The new definition encompasses two categories of fuels: (1) "Historically managed" fuels, as identified in the proposed rule, and (2) "alternative" fuels, as described in the ANPRM. Through this revised definition, EPA is recognizing that changes in technology and in the energy market over time have resulted in additional materials being economically viable, or for policy reasons, to be used as alternative "traditional" fuels. Thus, "traditional fuels" is defined in today's final rule as materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid waste including: (1) Fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (*e.g.,* coal, oil and natural gas), their derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and (2) alternative fuels developed from virgin materials that can now be used as valuable fuel products rather than waste materials. Alternative fuels include used oil which meets the specifications outlined in 40 CFR 279.11; currently mined coal refuse that previously had not been usable coal; and clean cellulosic biomass. Clean cellulosic biomass is defined as those residuals that are akin to traditional cellulosic biomass, such as forest-derived biomass (*e.g.,* green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, and tree harvesting residuals from logging and sawmill materials), corn stover and other biomass crops used specifically for energy production (*e.g.,* energy cane, other fast growing grasses), bagasse and other crop residues (*e.g.,* peanut shells), wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. Clean biomass is defined as biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials. Such historically managed traditional fuels and alternative fuels are not secondary materials or solid wastes unless discarded. The revised definition also clarifies that clean wood includes, similar to clean disaster debris, clean construction and demolition material.

Both clean cellulosic biomass and on-specification used oil were identified in the proposed rule definition as historically managed traditional fuels. However, as the viability of these materials as fuels reflects relatively recent changes in market conditions and technology, they are more appropriately characterized as alternative traditional fuels.

The new definition also adds currently generated coal refuse as an alternative traditional fuel. As discussed in Section V.B.8., this material is distinctive among the other non-hazardous secondary materials. Coal refuse is in fact raw material coal that is generated as a result of coal mining operations whose primary product is fuel. We consider currently generated coal refuse to be more akin to a raw material that, due to technological developments, can now be processed and utilized to produce a marketable fuel. Coal refuse is different from other non-hazardous secondary materials, such as scrap tires or resinated wood residuals, in that it is generated in the production of a traditional fuel and can be used, itself, as fuel.

The definition goes on to clarify that traditional fuels are not secondary materials and are not solid wastes unless discarded. In response to comments received on the proposal and to provide clarity in the application and the meaning of traditional fuel, both the new definition of traditional fuels and the definition of clean cellulosic biomass are codified in § 241.2

Recommendations from commenters to the proposed rule on specific materials that should be considered traditional fuels are discussed in Section V.B. That section also includes responses to the Agency's request for comment regarding a possible petition process to make determinations on traditional fuels.

B. Non-Hazardous Secondary Materials Used as Fuel That Remain Within the Control of the Generator

1. Scope and Applicability

Non-hazardous secondary materials used as a fuel in combustion units that remain within the control of the generator and that meet the legitimacy criteria specified in § 241.3(d)(1) would not be solid waste. Such non-hazardous secondary materials are referred to as legitimate (non-waste) fuel products.

As discussed previously in Section V.A, if the non-hazardous secondary material remains within the control of

[155] While the Agency believes that traditional fuels are not secondary materials, we believe it appropriate to provide a general definition and description of what is considered a traditional fuel.

the generator, it is more likely to be material that is saved and not thrown away. The Agency has explained that case law would not allow it to determine that secondary material is a waste if it is recycled as a fuel within a continuous industrial process. EPA cannot evaluate every non-hazardous secondary material, but considers that this standard would cover all such non-hazardous secondary materials that are recycled as a fuel within a continuous process. EPA, however, acknowledges that this may capture certain non-hazardous secondary materials which may be a waste, but is unlikely. Thus, this is a reasonable interpretation of the statutory definition of discard to consider non-hazardous secondary materials that are managed within the control of its generator and legitimately burned as fuels to not be solid waste.

The Agency also recognizes that there may also be non-hazardous secondary materials transferred to another party that are not discarded in the first instance, and thus may not be a solid waste. EPA is dealing with those categories of non-hazardous secondary materials on a case-by-case basis by specifically identifying such non-hazardous secondary materials in the regulations (*see* discussions in Section VII.C on scrap tires managed under an established tire collection program and Section VII.D for resinated wood or through the non-waste determination process (Section VII.G).

Non-hazardous secondary materials used as fuels remain within the control of the generator under two scenarios (*See* § 241.2). As such, the regulation consists of two parts in determining whether these non-hazardous secondary materials qualify for being "within the control of the generator." The first part applies to non-hazardous secondary materials generated and used as fuels at the generating facility. For purposes of this criteria, "generating facility" means all contiguous property owned, leased, or otherwise controlled by the secondary material generator; "secondary material generator" means any person whose act or process produces non-hazardous secondary materials at the generating facility.

If a generator hires or contracts with a different company to use the non-hazardous secondary materials at the generator's facility as fuel, either temporarily or permanently, these materials remain within the control of the generator. However, generators sometimes contract with a second company to collect non-hazardous secondary materials at the generating facility and such materials are subsequently used as fuels in a combustion unit at another facility. In that situation, if the facility that burns the non-hazardous secondary material is not "within the control of the generator" as defined below in the second part of the definition, then the non-hazardous secondary material fuel would be considered a solid waste unless a non-waste determination has been granted pursuant to the petition process.

The second part of the definition applies to non-hazardous secondary materials generated and used as fuels at a different facility that is controlled by the generator (or if a person as codified in § 241.2 controls both the generator and the facility using the fuel in a combustion unit). For purposes of this criterion, "control" means the power to direct the policies of the facility, whether by ownership of stock, voting rights, or otherwise, except that contractors who operate facilities on behalf of a different person as codified in § 241.2 shall not be deemed to "control" such facilities. Thus, when a contractor operates two facilities, each of which is owned by a different company, the non-hazardous secondary materials generated at the first facility and used as a fuel at the second facility is not considered "within the control of the generator."

In the proposed rule, the Agency also indicated that the 2008 DSW Final Rule included a third part in the definition of "within the control of the generator;" specifically, hazardous secondary materials that are generated pursuant to a written contract between a tolling contractor and a toll manufacturer and legitimately reclaimed by the tolling contractor. For purposes of that exclusion, a tolling contractor is a person who arranges for the production of a product or intermediate made from specified raw or virgin materials through a written contract with a toll manufacturer. We did not propose to include this arrangement as being "within the control of the generator" as we viewed this as a specific type of arrangement used in the production of materials, and were unaware of these types of contractual arrangements where both products and secondary material fuel are sent to what we are calling tolling contractors. Nevertheless, the Agency requested comment on whether to include this option in the final rule. We have decided not to include this option in the final rule. See Section V.A.1.

2. Restrictions and Requirements

a. Legitimate Use

Under this rule, non-hazardous secondary materials used as fuels in combustion units that remain within the control of the generator must meet the legitimacy criteria in § 241.3(d)(1) to be considered a non-waste fuel. To satisfy the legitimacy criteria, the non-hazardous secondary material (non-waste) fuel must be handled as a valuable commodity, have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy, and contain contaminants at levels comparable to (or lower than) those in traditional fuels which the combustion unit is designed to burn as discussed in Section VII.H.

b. Notification

We are not requiring facilities that use non-hazardous secondary material fuels within the control of the generator and that meet the legitimacy criteria to notify EPA under this rule. This notice would be duplicative of the notification and recordkeeping requirements being promulgated for boilers and process heaters at major sources of air toxics. That is, the CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers combusting non-hazardous secondary materials are also found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers.

Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 requires basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous secondary materials that are not solid wastes. Owners or operators of commercial or industrial facilities that combust non-hazardous secondary materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. These records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria, and that requiring notification under this rule is not necessary.

C. Non-Hazardous Secondary Materials That Have Not Been Discarded: Scrap Tires Collected Under Established Tire Collection Programs

1. Scope and Applicability

EPA has determined that scrap tires removed from vehicles and managed under the oversight of state and other established tire collection programs are not "discarded in the first instance." Such tires (including both whole tires and tires that have been shredded—with or without metal removal [156]) are non-waste when legitimately used as a fuel in combustion units. These collection programs (codified in § 241.2) ensure that the scrap tires are not discarded en route to the combustor for use as a fuel and are handled as a valuable commodity (§ 241.3(d)(1)(i)).

State programs and other established tire collection programs promote the collection of scrap tires in coordination with tire dealerships, haulers, processors, and end users, forming an established collection infrastructure. These established tire collection programs together with state bans on landfilling in most states [157] effectively result in the beneficial reuse of tires (as fuel or used in other scrap tire markets) as the sole [158] end use option for scrap tires in those states.

While the Agency recognizes that there will be differences between the various established tire collection programs, at a minimum, the following components would need to be included as part of any established tire collection program: (1) A comprehensive system that prevents tires from being abandoned when the scrap tires are harvested from vehicles and collected at the various businesses where they are removed; these tires are not considered "discarded in the first instance" per this rule; and (2) standards for the scrap tires to be managed as a valuable commodity. These programs would ensure storage does not exceed reasonable time frames, the scrap tires are managed in a manner consistent with the analogous fuel (coal), and a system is in place to prevent scrap tires from being discarded (according to the plain language definition) en route to the combustor (and during any processing prior to combustion).

An example of this type of program is a tire dealership that has pre-arranged agreements where the combustor pays for the delivery of the tires harvested from automobiles and can track the delivery and has contractual obligations for a safe delivery. Another example is the Texas system where tires are not seen as waste, but have specifications for tracking and safe delivery to the end use markets.

In essence, these programs are ones that neither allow for an opportunity for scrap tires intended as a fuel to be discarded in the first place nor discarded in transit. A definition of established tire collection programs is codified in today's rule at § 241.2. According to the plain English meaning of discard, these tires would not have been "disposed of, abandoned, or thrown away" through the initial process of removing them from cars or collecting them under established tire collection programs.

In reaching this position, the Agency considered several factors:

a. Some Specific Types of Secondary Materials Are More Like Valuable Commodities Than Solid Wastes

As noted above, when non-hazardous secondary material fuels are transferred to another party, the secondary material is generally discarded since the generator has relinquished control of the secondary material and the entity receiving such materials may not have the same incentives to manage them as a useful product, which results in the materials being discarded. At the same time, EPA acknowledges that some specific types of secondary materials are more like valuable commodities than solid wastes, and the mere act of transferring them to a third-party does not automatically involve discard.

After reviewing the comments on the proposal and all other information in the rulemaking record, EPA has determined that, unlike the historic management of scrap tires that resulted in many waste tire piles, the annually generated scrap tires that are removed from vehicles under established tire collection programs shows that they are not being discarded, as evidenced by the dramatic decrease in the number of tires in waste tire dumps. Fewer than one million tires remain in tire piles, as compared to an estimate of one billion tires in 1990. In addition, scrap tires have nearly the highest percentage of reuse, recycling, or otherwise being beneficially used in the markets. That is, of the 300 million scrap tires being generated every year, nearly 90% of those tires go to beneficial use markets. The change in market conditions since the historic management of scrap tires in piles have helped ensure that scrap tires collected as part of established tire collection programs are not discarded.

Under the scrap tire program, oversight starts at the point the tires are removed from the vehicle and continues until they are used as a fuel at combustion units (or used in other scrap tire markets), ensuring that discard does not occur. Although we mentioned in the proposed rule that there was a pattern of discard at third party-off site reclaimers, based on the information in the record, we understand that it is no longer the case for scrap tires, while acknowledging that there was a problem in the past.

In regard to the proposed rule statement that state environmental agencies often consider tires to have entered the "waste stream" and were concerned about conflicting interpretations, we recognize that states [159] typically call tires a waste until beneficially used. As described above, discard is not occurring (according to the plain language definition since they have not been abandoned, disposed of, or thrown away) for tires collected from vehicles under established tire collection programs (as defined). Secondly, this rule is specifically for use of non-hazardous secondary materials as fuels and ingredients (including scrap tires) in combustion units and this rule has different criteria than State Agency definitions for general use of scrap tires. These issues are discussed further in Sections IX (State Authority) and in Section V.B.5 (Response to Comments on Scrap Tires).

Typically, the state and private programs work together to encourage processing, reuse, and/or recycling, that would result in a market demand for scrap tires to be collected; however, the market for fuel use is more independently sustainable in the free market, while other markets for scrap tire reuse and recycling often need to function with state subsidies to support them.[160]

[156] If scrap tires are not discarded in the first place, they do not have to be processed per the standards in today's rule, but can be converted to rough shreds or processed into TDF chips at the discretion of the combustor and still be non-waste fuel. If the scrap tires were discarded, they have to be processed (with metal removal, *see* Section V.B.5) per the standards in today's rule in order to be a non-waste fuel.

[157] A few states allow tires cut up in smaller pieces to be landfilled, while fewer still allow whole tires in landfills.

[158] Note, a commenter has indicated that some states are considering revoking their tire landfill ban if combustors are no longer choosing to use tires for fuel based on the outcome of this rule.

[159] There are many variations on how scrap tires are regarded in State Environmental Agencies, of note, Texas considers that tires are non-waste, but that the shipments have to be documented. For details, please refer to comments by the Texas Commission on Environmental Quality (TCEQ), commenter ID EPA–HQ–RCRA–2008–0329–1306.

[160] The recovery and management of scrap tires that are recovered from tire piles are largely supported or subsidized by State Agencies and these whole tires are considered discarded and

b. Beneficial Use of Whole Scrap Tires

Since most combustion units will continue to use tires that have been processed into TDF chips, the biggest change in the final rule (with regard to the use of scrap tires) is that cement kilns will be able to use whole tires as non-waste fuels if those tires are removed from vehicles under established tire collection programs. In particular, cement kilns operate at much higher temperatures and need, not only the fuel from the tires, but also the non-combustible portions in order to produce cement clinker, creating a strong market for this type of beneficial use. Whole tires removed from vehicles under established tire collection programs still meet the legitimacy criteria and using whole tires for their fuel value would lead to an overall decrease in the emissions of HAP or the section 129 pollutants in the CAA when replacing traditional fuel sources (*e.g.,* coal) in cement kilns due to the contaminant levels and combustion properties. Many state environmental agencies and cement kilns supplied data and support for use of whole tires in cement kilns.

Since cement kilns' use of whole tires as a non-waste would be a change from the proposal, EPA considered potential environmental justice impacts. The assessment of the demographic analysis at the cement kilns using scrap tires showed a decreased chance of impacting environmental justice communities based on the demographic analysis at cement kilns versus the alternative sites. The demographics at cement kilns showed that they were sited in areas that were lower in minority and had less poverty that the alternative CISWI combustors, tire processors, or disposal sites. In addition, scrap tires are prevented from being disposed of in states that ban whole tires from landfills [161] and that have an established collection infrastructure. Not all states have programs that prevent landfilling and tires recovered from tire dumps are not always suitable for market use. However, as we have noted previously, scrap tires have nearly the highest percentage of reuse, recycling, or are otherwise being beneficially used in the markets to ensure that scrap tires collected as part of established tire collection programs are not discarded.

2. Restrictions and Requirements

a. Legitimate Use

Consistent with other non-hazardous secondary materials used as a non-waste fuel, scrap tires collected pursuant to established tire collection programs must meet the legitimacy criteria in § 241.3(d)(1) to be considered a non-waste fuel under this rule. Specifically:

- Scrap tires are considered to be handled as a valuable commodity when they are collected from vehicles under established scrap tire collection programs. If at any point these tires or tires that otherwise qualify to be non-waste (processed or petitioned) are not managed as a valuable commodity, they would become a solid waste. *See* § 241.3(d)(1)(i).
- Scrap tires (whole or TDF chips) have an exceptionally high heating value; they are considered to meet the legitimacy criteria for meaningful heating value established in today's rule at § 241.3(d)(1)(ii). In fact, the heating value of scrap tires (12,000 Btu/lb to 16,000 Btu/lb) is higher than typical coal values and other solid fuels.
- EPA's analysis of the contaminant concentrations in scrap tires shows that it is comparable to the traditional fuel it replaces (*i.e.,* coal); therefore, it is considered to meet the legitimacy criteria for comparable contaminants established in today's rule at § 241.3(d)(1)(iii). The comparison to the contaminant concentrations is given in the scrap tire response to comments. *See* Section V.B.5.

b. Notification

We are not requiring facilities that use scrap tires collected under established tire collection programs and that meet the legitimacy criteria to notify EPA under this rule. This notice would be duplicative of the notifications and recordkeeping requirements being promulgated for boilers and process heaters at major sources of air toxics. That is, the CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers combusting non-hazardous secondary materials are also found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers.

Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 requires basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous secondary materials that are not solid wastes. Under the provisions of § 60.2175(w), for combustors burning scrap tires, a certification must be maintained stating that the scrap tires combusted under § 241.3(b)(2)(i) were obtained through an established tire collection program.

Owners or operators of commercial or industrial facilities that combust materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. These records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria, and that requiring notification under this rule is not necessary.

D. Non-Hazardous Secondary Materials That Have Not Been Discarded: Resinated Wood Residuals

1. Scope and Applicability

Resinated wood (also referred to as resinated wood residuals) is another secondary material that, upon examination, is not discarded when used on-site or transferred off-site. EPA would consider resinated wood used as a fuel in a combustion unit as not being a solid waste, provided these materials satisfy the specified legitimacy criteria for fuels (§ 241.3(d)(1)).

The definition of "resinated wood" has been codified in § 241.2 and means wood products (containing resin adhesives) derived from primary and secondary wood products manufacturing and comprised of such items as board trim, sander dust, and panel trim. Wood products manufacturers in many cases have constructed their facilities to utilize resinated wood residuals as fuels. Specialized burners specifically to fire sander dust and replace oil and natural gas were developed and were integral to the growth of the industry. This secondary material is routinely transferred between either intra- or inter-company facilities and used as either "furnish" (*i.e.,* raw materials) or fuel at the receiving facilities. This material when transferred off-site is used and handled in the same manner that resinated wood residuals are used when generated on-site, such that it is impossible to distinguish between

waste when used as fuel, unless they are sufficiently processed.

[161] A few states allow tires cut up in smaller pieces to be landfilled, while fewer states still allow whole tires in landfills.

materials that are being used as a raw material and those that are being used as a fuel.

Consistent with the approach taken for scrap tires, EPA recognizes that some specific types of non-hazardous secondary materials, such as resinated wood residuals, are more like valuable commodities than solid wastes, and per the holding of the *Safe Food* case, the act of transferring them to a third-party does not automatically involve discard. Consistent with *Safe Food,* EPA's determination that resinated wood is not a solid waste, even if it is transferred between industries or ownership of the material is relinquished, "is reasonable and consistent with the statutory purpose." 35 F.3d at 1269.

2. Restrictions and Requirements

a. Legitimate Use

As we have noted above, the combustor of these secondary materials would still need to demonstrate that such residuals meet the legitimacy criteria. Thus, they would need to show the material is handled as a valuable commodity, has meaningful heating value and is used as a fuel in a combustion unit that recovers energy, and contains contaminants at levels comparable to (or lower than) those in traditional fuels for which the combustion unit is designed to burn.

b. Notification

We are not requiring facilities that use resinated wood residuals and that meet the legitimacy criteria to notify EPA under this rule. This notice would be duplicative of the notifications and recordkeeping requirements being promulgated for boilers and process heaters at major sources of air toxics. That is, the CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers combusting non-hazardous secondary materials are also found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers.

Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 requires basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous secondary materials that are not solid wastes. Owners or operators of commercial or industrial facilities that combust materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. These records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria, and that requiring notification under this rule is not necessary.

E. Non-Hazardous Secondary Materials Used as Ingredients

1. Scope and Applicability

Non-hazardous secondary materials used as ingredients in combustion units would not be solid wastes provided they satisfy the legitimacy criteria discussed in § 241.3(d)(2). We are not differentiating between ingredients that are used within the control of the generator from those that are not since the use of non-hazardous secondary materials as ingredients is more integral or akin to use in a commercial manufacturing process and thus, these non-hazardous secondary materials should not be considered discarded provided they satisfy the legitimacy criteria. However, non-hazardous secondary materials that are used as ingredients, but have been discarded in the first instance (*e.g.,* landfilled) would be considered a solid waste unless processed into a new ingredient product.

The Agency received comments on the proposed rule that ingredients should not be included in this rule since ingredients are not "combusted," but rather, are incorporated into the product. As explained in the response to comments in Section V.A, this issue is not relevant to this regulation, which determines whether non-hazardous secondary materials are a solid waste, or not under RCRA. EPA has clear authority to interpret RCRA to decide whether non-hazardous secondary materials are solid wastes or not. Whether EPA may cover ingredients used in combustors under section 129 of the CAA is a matter for regulations under that statute.

The proposal identified a number of non-hazardous secondary materials that are currently being used as ingredients in combustion processes that would not be considered solid waste, provided they meet the legitimacy criteria for ingredients and were not discarded in the first instance (*e.g.,* blast furnace slag; CKD; the coal combustion residual group (fly ash, bottom ash, and boiler slag); and foundry sand). For example, coal fly ash can be added to the raw material feed in clinker manufacturing to contribute specific required elements, such as silica, alumina, and calcium, in the final composition of cement, with such levels of key metals needing to be carefully calibrated with other ingredients to ensure that the final cement product has the correct mineral and metal content. There is every incentive for the company to ensure that the metals content are within specifications to ensure that the clinker product meets specifications. In clinker manufacture, coal fly ash partially offsets the need for raw materials, such as silica, iron, and alumina sources. This reduction of raw feedstock materials can result in reduced emissions of certain pollutants.[162]

Another non-hazardous secondary material used as an ingredient, CKD, can be directly reused in a closed-loop process back into the cement kiln for clinker manufacture. In fact, the cement industry is estimated to recycle more than 75 percent of its CKD each year. Significant increases in U.S. clinker capacity are expected over the 2008 to 2012 period resulting in an anticipated increase in CKD production and usage. In clinker manufacture, CKD partially offsets the need for raw material feed, such as limestone and natural constituents (rock), thus avoiding the energy usage and emissions related to their extraction and processing.

2. Restrictions and Requirements

a. Legitimate Use

Under this rule, non-hazardous secondary materials used as ingredients in combustion units cannot be discarded in the first instance and must meet the legitimacy criteria in § 241.3(d)(2) to be considered a non-waste ingredient. To satisfy the legitimacy criteria, the non-hazardous secondary material (non-waste) ingredient must: be managed as a valuable commodity, provide a useful contribution to the production or manufacturing process, used to produce a valuable product, and result in products that contain contaminants at concentrations comparable to or lower than those found in traditional products

[162] For more detailed information on the benefits of using coal fly ash and other recovered mineral components in manufacturing processes, please see: "Study on Increasing the Usage of Recovered Mineral Components in Federally Funded Projects Involving Procurement of Cement or Concrete to Address the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users." June 23, 2008. (EPA530–R–08–007)

manufactured without the non-hazardous secondary material.

b. Notification

We are not requiring facilities that use non-hazardous secondary materials as ingredients to notify EPA under this rule. This notice would be duplicative of the notification and recordkeeping requirements being promulgated for boilers and process heaters at major sources of air toxics. That is, the CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers using non-hazardous secondary materials as ingredients are also found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers.

Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 requires basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous secondary materials that are not solid wastes. Owners or operators of commercial or industrial facilities that combust non-hazardous secondary materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. These records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria, and that requiring notification under this rule is not necessary.

F. Discarded Non-Hazardous Secondary Materials That Have Undergone Processing To Produce Legitimate Fuel or Ingredient Products

1. Scope and Applicability

Fuel or ingredient products that result from the processing of discarded non-hazardous secondary materials and that meet the legitimacy criteria as discussed below are not solid wastes. Because the resulting fuel/ingredient products are, in effect, reclaimed or extracted products from a recycling process, EPA considers such materials to be "new" products that have not been discarded and therefore are not solid wastes. Until the non-hazardous secondary materials have been processed into a non-waste fuel or ingredient product meeting the legitimacy criteria, the discarded non-hazardous secondary material are generally assumed to be solid wastes.

As discussed in the proposed rule, the basic principle that must be satisfied is that the discarded non-hazardous secondary material must undergo a sufficient level of processing that produces either a new fuel or ingredient product (the definition of processing is codified in § 241.2). Specifically, processing includes, but is not limited to, operations that: remove or destroy contaminants; significantly improves the fuel characteristics of the material, *e.g.,* sizing or drying the material in combination with other operations, chemically improve the as-fired energy content, or improve the ingredient characteristics. On the other hand, processing operations that are minimal, such as operations that result only in modifying the size of the non-hazardous secondary material, would not constitute processing for purposes of today's rule. In addition, the new product must have properties that provide the end user the assurance that the fuel or ingredient product consistently satisfies the legitimacy criteria based on the type of combustion unit the non-hazardous secondary material is used in (*e.g.,* as a fuel in a boiler or as an ingredient in a cement kiln).

• The principle that products can be produced from a waste is common to industrial processes and commercial recycling markets. Newspaper and aluminum cans discarded by consumers are then collected, sorted and processed into new recycled paper and aluminum products that are not considered solid waste. Collected plastic is generally sent to a reclaimer, who will sort, grind, and clean the plastic. The cleaned and sorted plastic is sent to a manufacturer who will use it as feedstock. These are clear examples where discarded materials are processed into legitimate non-waste products.

Recycled fuel products are no different from recycled paper and aluminum cans with respect to discard. If non-hazardous secondary materials that are discarded by being abandoned, disposed of or thrown away, but are later collected, segregated, and processed into a homogenous fuel product that is marketed and sold as a valuable commodity and is no different from traditional fuels used today, then they should no longer be considered solid waste, just as recycled paper is not a solid waste.

There are other examples beyond consumer recycled materials where discarded secondary materials are processed into new products. These examples include specific exclusions from the hazardous waste regulations, which provide insight into how secondary materials can be processed into valuable products. For instance, discarded spent solvents are commonly recycled via distillation into legitimate, newly usable solvents. These regenerated solvents are clearly considered to be products, not wastes. See 50 FR 634, January 4, 1985.

Another example is scrap tires retrieved from waste tire piles that have been shredded/chipped into TDF with the wire removed. In this instance, the scrap tires have been sufficiently processed and thus, the TDF would not be considered a solid waste when burned as a fuel. On the other hand, scrap tires from waste tire piles that have been shredded/chipped without the metal wire removed, would not be considered to have been sufficiently processed, and any TDF that is generated in such a fashion would be considered a waste-derived fuel. For a full discussion of processing of scrap tires, *see* Section V.B.5, which discusses the comments received on this issue, as well as EPA's responses.

Coal refuse generated from legacy piles is another example of a discarded material that has been processed into a fuel product, although, as discussed in Section V.B.8, the nature of the material results in a somewhat different processing scenario. Specifically, coal refuse that has been discarded in waste piles is unique since it was a material generated during the fuel production process and then thrown away (discarded). Over time, combustion technology changes allowed this raw material to be "re-mined" as raw material coal. The level of processing that occurs for this "re-mined" coal refuse is no different than the level of processing that occurs for raw material coal today. In fact, this same material is generated in current-day coal mining operations and processed into a fuel product today.

In that sense, we do not consider coal refuse to fit within what we would normally consider to be a "secondary material" (*i.e.,* material that is not the primary product of a manufacturing or commercial process), since the primary product of coal mining operations is in fact fuel As a result, raw materials that are generated in the fuel production process that have been discarded, but that are then subsequently processed no differently from raw materials processed into fuels today, would be considered to

undergo an adequate level of processing to render it a non-waste. This would not apply to other discarded materials, such as scrap tires, since they are truly secondary materials whose ultimate use as a fuel is in fact "secondary in nature." Off-spec used oil is another example of a secondary material which we believe is discarded, but can be processed into a non-waste product (*see* Section V.B.7). Once the used oil is determined to be on-spec, we do not view it to be a solid waste since it is no longer regulated under the used oil management standards of 40 CFR part 279 and can be managed as an alternative fuel.

Synthesis gas (or syngas as it is commonly referred) produced from the gasification of solid waste is another material that can also meet the requirements of a fuel product produced from the processing of discarded non-hazardous secondary materials, provided the syngas has been adequately processed to remove contaminants. Gasification is a chemical production process that converts carbonaceous material into a synthesis gas that can be used for energy production (or as a building block for other chemical manufacturing processes). In general, gasification systems are designed to react carbon-containing materials and steam at high temperatures to produce a synthesis gas composed mainly of carbon monoxide and hydrogen.

Gasification systems include two basic components. The first is the reactor or gasifier and the second is a gas cleanup or polishing system used to remove various contaminants from the raw (un-polished) synthesis gas. At a minimum, syngas cleanup generally includes removal of sulfur and metals. These two components work together producing a synthesis gas that can be used as a fuel in a combustion turbine.

Coal fines, biomass, and other materials can be mixed and processed into pellets (or other forms) that have the consistency and handling characteristics of coal. For example, the K–Fuel process employs heat and pressure to transform coal into a cleaner, more efficient fuel by removing water and polluting impurities, thus increasing combustion efficiency. When applied to different lower-rank sub-bituminous and lignite coals, the K–Fuel process removes, on average, almost 70 percent of the coal's elemental mercury.[163] As discussed in Section V.B.2, manure that has been sufficiently processed (for example, by anaerobic digesters) would also be considered a legitimate non-waste fuel that has been processed from a non-hazardous secondary material provided processed material meets the legitimacy criteria.

2. Restrictions and Requirements

a. Legitimate Use

Discarded non-hazardous secondary materials that are sufficiently processed to produce legitimate fuel or ingredient products must still pass the applicable legitimacy criteria to be considered a non-waste fuel or ingredient product. To be considered a legitimate fuel, the fuel product must meet the criteria identified in § 241.3(d)(1), while to be considered a legitimate ingredient, the ingredient product must meet the criteria in § 241.3(d)(2).

b. Notification

We are not requiring facilities that use discarded non-hazardous secondary materials that are sufficiently processed to produce legitimate fuel or ingredient products to notify EPA under this rule. This notice would be duplicative of the notifications and recordkeeping requirements being promulgated for boilers and process heaters at major sources of air toxics. That is, the CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers using non-hazardous secondary materials as ingredients are also found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers.

Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 require basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous secondary materials that are not solid wastes. Owners or operators of commercial or industrial facilities that combust materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. The Agency believes that these records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria, and that requiring notification under this rule is not necessary.

G. Non-Waste Determination Petitions

1. Description of the Petition Criteria for the Non-Waste Determination

The final rule establishes a non-waste determination petition process that provides persons with an administrative process for receiving a formal determination from the EPA Regional Administrator that non-hazardous secondary materials that are burned as a fuel and have not been managed within the control of the generator, have not been discarded, and is indistinguishable in all relevant aspects from a fuel product is not a solid waste when used as a legitimate fuel in a combustion unit. For example, a facility combusting non-hazardous secondary materials that is not affiliated or within the control of the generator of the non-hazardous secondary material (and thus is "outside the control of the generator") can petition EPA that such non-hazardous secondary materials they burn as fuel is not a solid waste pursuant to the various criteria.

This petition process is voluntary. That is, facilities may choose to petition EPA to receive a case-specific non-waste determination. However, any petition that is submitted to EPA that requests a non-waste determination must demonstrate that the non-hazardous secondary material has not been previously discarded and that it satisfies the five criteria outlined in today's rule at § 241.3(c). In addition, the petitioner must also demonstrate that the non-hazardous secondary material meets the legitimacy criteria in 241.3(d)(1).

To demonstrate that the non-hazardous secondary material that is to be burned as a fuel has not been discarded in the first instance, the petitioner would need to demonstrate that it was not initially abandoned or thrown away by the generator of the non-hazardous secondary material. After demonstrating that the non-hazardous secondary material has not been discarded in the first instance, the petitioner must then demonstrate that the material is indistinguishable in all relevant aspects from a fuel product by showing that it satisfies all of the following five criteria: (1) Whether market participants handle the non-hazardous secondary material as a fuel rather than a waste; (2) whether the chemical and physical identify of the non-hazardous secondary material is comparable to a commercial fuel; (3) whether the capacity of the market would use the non-hazardous secondary

[163] Evergreen Energy Company Web site. *http://www.evgenergy.com/k_fuel.php.*

material in a reasonable time frame; (4) whether the constituents in the non-hazardous secondary material are released to the air, water or land from the point of generation to the point just prior to combustion of the non-hazardous secondary material at levels comparable to what would otherwise be released from traditional fuels; and (5) other relevant factors. These five criteria are listed in today's rule at § 241.3(c)(1).

Specifically, the first criterion for a non-waste determination is whether market participants treat the non-hazardous secondary material as a fuel rather than a solid waste. This would include consideration of likely markets for the non-hazardous secondary material (*e.g.,* based on the current positive value of the secondary material, stability of demand, and any contractual arrangements). This evaluation of market participation is a key element for determining whether companies view these non-hazardous secondary materials like fuels rather than as negatively-valued wastes.

The second criterion for a non-waste determination is the chemical and physical identity of the non-hazardous secondary material and whether it is comparable to commercial fuels. This "identity principle" is a key factor that the Court of Appeals for the DC Circuit cited in *Safe Food* in determining whether a non-hazardous secondary material is indistinguishable from a product. It is important to note that the identity of a material can be comparable to a fuel product without being identical. However, to qualify for a non-waste determination, any differences between the non-hazardous secondary material in question and the commercial fuel contaminants should be within a small acceptable range. In addition, the comparison must be of the secondary material itself to the commercial fuels and not of the emissions from the combustion unit. The Agency also recognizes, however, that emissions data may be used to augment data from the material in cases where such emissions data is useful in making legitimacy determinations and demonstrating that constituents in the material are being used in energy recovery and not disposed of through sham recycling.

The third criterion for making a non-waste determination is the capacity of the market to use the non-hazardous secondary material as a fuel in combustion units in a reasonable time frame and ensure that it will not be abandoned. For the non-waste determination, a person must provide sufficient information about the non-hazardous secondary material and the market demand for it to demonstrate that such non-hazardous secondary materials will in fact be used as a fuel in combustion units in a reasonable time frame. EPA is not explicitly defining "reasonable time frame" because such time frames could vary according to the non-hazardous secondary material and the industry involved, and therefore determining this time frame should be made on a case-specific basis.

The fourth criterion for a non-waste determination is whether the constituents in the non-hazardous secondary material fuels that could be considered contaminants are at concentrations comparable to what would otherwise be released from traditional fuels from the point of generation of the non-hazardous secondary material, its management and storage prior to combustion. The Agency believes that the release to the environment of contaminants contained in the non-hazardous secondary material is a possible indicator of risk and discard. The Agency recognizes that combustion using traditional fuels also result in a certain level of release and, in evaluating this criterion, would not deny a non-waste determination if such release is comparable to those traditional fuel releases. However, when relatively high levels of the contaminants are released to the environment from the point of generation to the point just prior to combustion then that may be an indication that the non-hazardous secondary material is not being handled as a commercial fuel.

The fifth and final criterion for a non-waste determination includes any other relevant factors that demonstrate that the non-hazardous secondary material is not discarded and thus is not a solid waste. This catch-all criterion is intended to allow the petitioner to provide any case-specific information considered important and relevant in making the case that its non-hazardous secondary material used as a fuel in a combustion unit is not a solid waste.

Any non-hazardous secondary material used as a fuel must also satisfy the legitimacy criteria (§ 241.3(d)(1)) in order to be considered a non-waste fuel. We note that there may be some overlap between the legitimacy criteria and the five petition criteria discussed above. Thus, the same rationale used to demonstrate that the non-hazardous secondary material contains contaminants at levels comparable to (or lower than) traditional fuels in combination with the argument that such non-hazardous secondary material contains meaningful heating value can be used to satisfy the petition criterion number two above.

2. Non-Waste Determination Petition Process

In order to obtain a non-waste determination, a facility must apply to the Regional Administrator for the EPA Region where the facility combusting the non-hazardous secondary material is located per the procedures described in today's rule at § 241.3(c). The application must address the relevant criteria discussed above. The Regional Administrator will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be provided by newspaper advertisement or radio broadcast in the locality where the combustion unit is located. The Regional Administrator will accept public comment on the tentative decision for at least 30 days, and may also hold a public hearing upon request or at his discretion. The Regional Administrator will issue a final decision after consideration of comments and after the hearing (if any). The Regional Administrator may draw upon the states expertise as discussed below.

After a formal non-waste determination has been granted, if a change occurs that affects how the non-hazardous secondary material meets the relevant criteria contained in today's rule at § 241.3(c)(1), or affects its meeting the legitimacy criteria in § 241.3(d)(1), persons must re-apply to the Regional Administrator for another formal determination that the non-hazardous secondary material continues to meet the relevant criteria and is not discarded and therefore, not a solid waste. The same criteria and procedures described above would be used for any re-application of the non-hazardous secondary material.

As petition decisions are made by the Agency, they will be made available on an Agency Web site so the petition can be referenced when similar requests are submitted. This will support national consistency and minimize redundant efforts.

3. Petition Decisions Utilizing State Environmental Agency Program's Input

When analyzing a non-waste determination petition request, the EPA Regional Administrator may request or rely on information generated through a state's beneficial use program that certain non-hazardous secondary materials are or are not solid waste. The state beneficial use programs have been developed to encourage a variety of uses for many non-hazardous secondary

materials. The process ensures that non-hazardous secondary materials do not endanger human health and the environment, and that they are managed in accordance with the conditions of the determination. Generally, when a beneficial use determination has been granted (thus, no longer considered a solid waste under a state's laws or regulations), it would document that the chemical and physical properties are similar to the raw material it is replacing or, when incorporated into another product, would be beneficial to the final product.

State Agencies may also submit a non-waste determination request on behalf of the regulated applicant for EPA to evaluate under the non-waste determination criteria in today's rule at § 241.3(c)(1). States may petition for a whole category of non-hazardous secondary materials in their state for a particular type of combustor, or for specific individual combustors.

H. Legitimacy Criteria

1. Legitimacy Criteria for Fuels

Non-hazardous secondary materials used as non-waste fuels in combustion units must meet the legitimacy criteria specified in § 241.3(d)(1). To meet the legitimacy criteria, the non-hazardous secondary material must be managed as a valuable commodity, have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy, and contain contaminants at concentrations comparable to (or lower than) those in traditional fuels which the combustion unit is designed to burn.

In applying the legitimacy criteria, we would note that there are two overall questions that the Agency needs to answer: (1) Whether or not the non-hazardous secondary material is a fuel product or ingredient product, or whether the material has been discarded and is therefore a solid waste, which includes waste-derived fuels or ingredients; and (2) whether the non-hazardous secondary material is being legitimately and beneficially used or recycled.

With respect to the legitimacy question, EPA believes it important and crucial to apply a set of legitimacy criteria to make sure that the fuel product is being legitimately and beneficially used and not simply being discarded via sham recycling. The definition of legitimate recycling developed for the subtitle C hazardous secondary materials carefully considered the history surrounding the uses of these secondary materials, as well as the applicable case law with respect to the meaning of discard. Likewise, those same principles are pertinent to how a non-hazardous secondary material is determined not to be a solid waste. Therefore, we are codifying general legitimacy criteria that use the same basic framework that has been established for the subtitle C hazardous waste regulations, but that are also tailored specifically for application to non-hazardous secondary materials that are used as fuels in combustion units. *See* 40 CFR 241.3(d) for the proposed regulatory text of the legitimacy criteria and, for comparison, *see* 40 CFR 260.43 in final regulations for the DSW hazardous waste legitimacy provisions.

Specific legitimacy criteria for fuels are discussed below:

a. Manage as a Valuable Commodity

Non-hazardous secondary materials used as fuels must be managed as valuable commodities, including being stored for a reasonable time frame. *See* § 241.3(d)(1)(i). Where there is an analogous fuel, the non-hazardous secondary material must be managed in a manner consistent with the management of the analogous fuel or otherwise be adequately contained so as to prevent releases to the environment. Where there is no analogous fuel, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment. An "analogous fuel" is a traditional fuel for which the non-hazardous secondary material substitutes and which serves the same function and has similar physical and chemical properties as the non-hazardous secondary material.

With respect to how long a non-hazardous secondary material can be stored before the material is not considered to be "managed as a valuable commodity," we are requiring that the non-hazardous secondary material be stored for a reasonable time frame. While EPA took comment on whether it should provide a specific time-frame (*e.g.,* one-year) as opposed to the general standard of "reasonable time frame," based on comments submitted, the Agency has decided not to specifically define "reasonable time frame," primarily because such time frames could and will vary according to the non-hazardous secondary material and industry involved. (*See* Section V. D.1 for a discussion of the comments received and EPA's response.)

This legitimacy factor applies to the non-hazardous secondary materials burned under the generator-controlled exclusion, to legitimate fuel products that have been produced from discarded non-hazardous secondary materials that have been sufficiently processed to produce a non-waste fuel, and to the non-hazardous secondary materials used as fuel that have not been discarded when used outside control of the generator (*i.e.,* scrap tires under tire collection programs and resinated wood residuals). For the generator-controlled provision and for those non-hazardous secondary materials that are used as a fuel that have not been discarded when used outside the control of the generator (*i.e.,* scrap tires under tire collection programs and resinated wood residuals), the non-hazardous secondary material must be managed as a valuable commodity upon generation through its end use as a fuel—that is, from the initial point of generation of the non-hazardous secondary material to the time it is actually burned as a fuel. For discarded non-hazardous secondary materials that are processed to produce a non-waste fuel, the fuel must be managed as a valuable product from the point that it is first produced as a non-waste fuel through the time that it is actually burned. As noted previously, before the non-waste fuel product is produced from discarded non-hazardous secondary materials, the non-hazardous secondary material is a solid waste, and must comply with any federal, state, or local requirements.

This criterion requires that the non-hazardous secondary material be managed appropriately before its end use as a fuel. In EPA's view, a company will value non-hazardous secondary materials used as non-waste fuels that provide an important contribution and, therefore, will manage those secondary materials in a manner consistent with how it manages traditional fuels. If, on the other hand, a company does not manage the non-hazardous secondary material as it would a traditional fuel, that behavior may indicate that the non-hazardous secondary material is being discarded.

This factor addresses the management of non-hazardous secondary materials used as fuels in two distinct situations. The first situation is when the non-hazardous secondary material is analogous to a traditional fuel that otherwise could be burned. In this case, the non-hazardous secondary material must be managed prior to use as a fuel in a similar manner to how traditional fuels are managed or otherwise must be "contained" so as to prevent releases to the environment. For example, for liquid non-hazardous secondary materials that are used as a non-waste fuel that are similar to liquid fossil fuels, the Agency would expect that such non-hazardous secondary materials would be managed in tanks or similar type devices that are structurally

sound to control the release of the non-hazardous secondary materials. The Agency would also expect that the types of controls that would typically be part of a tank or similar type device for liquid fossil fuels would also be part of any tank system that is used to manage the non-hazardous secondary material. For example, if liquid fossil fuels are stored in tanks with covers or they provide for secondary containment, the Agency would expect that the non-hazardous secondary material would also be stored in tanks with covers, with secondary containment so as to prevent releases to the environment.

The second situation addresses the case where there is no analogous traditional fuel that otherwise could be burned. This could be either because the process is designed around a particular non-hazardous secondary material fuel, such as resinated wood residuals, or because physical or chemical differences between the non-hazardous secondary material and the traditional fuel are too significant for them to be considered "analogous." Non-hazardous secondary materials that have significantly different physical or chemical properties when compared to traditional fuels would not be considered analogous even if they serve the same function because it may not be appropriate to manage them in the same way. In this situation, the non-hazardous secondary material would have to be "contained" so as to prevent releases to the environment for this criterion to be met. A non-hazardous secondary material is "contained" if it is stored in a manner that both adequately prevents releases or other hazards to human health and the environment, considering the nature and toxicity of the non-hazardous secondary material.[164]

b. Meaningful Heating Value and Use as a Fuel

Non-hazardous secondary materials must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy. *See* § 241.3(d)(1)(ii). That is, since this legitimacy criterion is intended to apply only to non-hazardous secondary materials that have a specific end use (in this case, use as a fuel in an energy recovery device), we believe it appropriate to highlight that point by adding that restriction directly to the legitimacy criterion. Thus, non-hazardous secondary materials having a meaningful heating value must also be burned in a combustion device specifically to recover energy; otherwise the unit that combusts such secondary materials are considered incinerators and thus, are solid wastes.[165] We recognize that incinerators and similar type units may accept non-hazardous secondary materials with a meaningful heating value and use that fuel value to limit the other types of fuels it needs to burn. However, the intent of an incinerator, and similar type units, is to destroy wastes, and thus, non-hazardous secondary materials that are burned in such units are considered discarded, and thus, solid waste.

With respect to the requirement that the non-hazardous secondary material have a meaningful heating value, in the context of the RCRA subtitle C hazardous waste regulations, EPA addressed this concept—that is, whether a hazardous secondary material has a meaningful heating value, in the "comparable fuels" rule (63 FR 33781) by defining it with a benchmark Btu content of 5,000 Btu/lb. EPA has also previously stated that industrial furnaces (*e.g.,* cement kilns and industrial boilers) burning hazardous wastes with an energy value greater than 5,000 Btu/lb may generally be considered to be burning for energy recovery; however, we have also indicated that hazardous wastes with a lower Btu content could conceivably be burned for energy recovery due to the devices' general efficiency of combustion. "Thus, the 5,000 Btu level is not an absolute bright line measure of burning for energy recovery * * *" (*see* 62 FR 24251, May 2, 1997).

These same concepts are also appropriate in determining whether a non-hazardous secondary material has a meaningful heating value since traditional fuels in general have a range of heating values from 4,000 to 23,000 Btu/lb. However, we also recognize that new technologies may be developed in the future that can cost-effectively produce energy from such non-hazardous secondary materials with lower energy content. As a result, for purposes of meeting this legitimacy criterion, we would consider non-hazardous secondary materials with an energy value greater than 5,000 Btu/lb, as-fired, to have a meaningful heating value. In addition, for facilities with energy recovery units that use a non-hazardous secondary material as a fuel with an energy content lower than 5,000 Btu/lb, as-fired, a person may demonstrate[166] that a meaningful heating value is derived from the non-hazardous secondary material if the energy recovery unit can cost-effectively recover meaningful energy from the non-hazardous secondary material used as a fuel. Factors that are important in determining whether an energy recovery unit can cost-effectively recover energy from the non-hazardous secondary material include, but are not limited to, whether the facility encounters a cost savings due to not having to purchase significant amounts of traditional fuels they otherwise would need, whether they are purchasing the non-hazardous secondary material to use as a fuel, whether the non-hazardous secondary material they are burning can self-sustain combustion, and whether their operation produces energy that is sold for a profit (*e.g.,* a utility boiler that is dedicated to burning a specific type of non-hazardous secondary material that is below 5,000 Btu/lb, but can show that their operation produces electricity that is sold for a profit).

While not specifically included in § 241.3(d)(1), EPA views this legitimacy criterion to encompass the concept of the "useful contribution and valuable product" legitimacy factors used to evaluate hazardous secondary materials in the 2008 DSW final rule. In that rule, with respect to useful contribution, EPA said that legitimate recycling must involve a hazardous secondary material that provides a useful contribution to the recycling process or to a product of the recycling process. *See* § 260.43(b)(1). In today's final rule, this criterion expresses the principle that non-hazardous secondary materials should contribute value to the manufacturing process—legitimate use is not occurring if the secondary materials being used do not add anything to the process. This criterion is intended to prevent the practice of using non-hazardous secondary materials in a manufacturing operation simply as a means of disposing or discarding them.

With respect to the legitimacy criterion of producing a valuable product or intermediate, the product or intermediate is valuable if it is (i) sold to a third party or (ii) used by the recycler or the generator as an effective substitute for a commercial product or as an ingredient or intermediate in an industrial process. See § 260.43(b)(2). In today's final rule, this criterion

[164] Examples of materials that are adequately contained would include liquid fuels stored in a tank.

[165] We note that incinerators that burn waste for purposes of destruction that have a waste heat recovery boiler would not be considered a combustion unit that satisfies this legitimacy criterion.

[166] Such demonstration would be included in the recordkeeping and reporting requirements for boiler units combusting materials considered to be non-wastes in accordance with 40 CFR 241.3 as specified in 40 CFR 63.7530(a) and 63.7555. *See* Section VII.I in today's rule for a further discussion of these reporting and recordkeeping requirements.

expresses the principle that the non-hazardous secondary material should be a material of value, as demonstrated by someone purchasing the material, or using it as an effective substitute for a commercial product that it would otherwise have to buy or obtain for its industrial process. We believe non-hazardous secondary materials that have meaningful heating value that are used as non-waste fuels in combustion units provide a useful contribution and are valuable products since they are replacing traditional fuels that otherwise would have to be burned.

c. Contaminant Levels

Today's rule includes a legitimacy criterion under which non-hazardous secondary materials used as non-waste fuels in combustion units must contain contaminants at levels that are comparable to (or lower than) those in traditional fuel products which the combustion unit is designed to burn (*e.g.,* cellulosic biomass, fossil fuels and their derivatives, as identified elsewhere in this preamble). *See* § 241.3(d)(1)(iii). This criterion is important to ensure that a non-hazardous secondary material being used as a fuel is not being combusted or otherwise released to the environment wholly or in part for the purpose of disposing of or discarding of unwanted materials. The combustion of non-hazardous secondary materials with elevated levels of contaminants results in the contaminants being discarded either through incineration, or by being released to the environment. We also believe that requiring that the non-hazardous secondary material have contaminants at concentrations that are comparable to or lower than traditional fuels would ensure that the burning of any non-hazardous secondary material in combustion units will not result in increased releases to the environment that could impact the health and environment of the local community. Thus, ensuring that the level of contaminants in the non-hazardous secondary material is comparable to (or lower than) those in traditional fuels which the combustion unit is designed to burn would be at least as protective of human health and the environment as burning traditional fuels.

The Agency took comment on a criterion where such contaminants could not be significantly higher in concentration than contaminants in traditional fuels, as this is the standard that is in the 2008 DSW Final Rule regarding the reclamation of hazardous secondary materials. However, we have decided not to adopt that standard in this rule because we are concerned that contaminants that are "not significantly higher" in non-hazardous secondary materials could be seen as "discarding" such contaminants, even if the non-hazardous secondary material, when combusted, did not present a risk to human health and the environment. (*See* Section V.D.3 for a discussion of the comments received and EPA's response regarding the level at which contaminants should be present in such non-hazardous secondary materials.)

The term "contaminants," as proposed, was defined to mean the HAP listed under section 112(b) of the CAA, as well as the nine pollutants required to be regulated under section 129(a)(4) of the CAA. We believe that this was reasonable because this legitimacy criterion is intended to ensure that such non-hazardous secondary materials are not being combusted as a means of disposing of them, so the health and environmental impacts of concern will be those resulting from the air emissions of concern identified in the CAA, including the listed HAP, as well as the section 129 pollutants. (*See* Section V.D.3 for a discussion of the comments received and EPA's response regarding the meaning of "contaminants.")

In determining which traditional fuel(s) the owner or operator of the boiler unit would make a comparison to with respect to contaminant levels, the Agency will allow any traditional fuel(s) that can be or is burned in the particular type of boiler. For example, if the boiler burns fuel oil, the level of contaminants to be compared would be the level of contaminants in fuel oil or other liquid traditional fuels that is or can be burned in such unit. For gas-fired boilers, the level of contaminants in the non-hazardous secondary material fuels would be compared to natural gas or other gaseous traditional fuels. The Agency believes that this approach is most appropriate since the non-hazardous secondary material would be replacing the use of a particular type(s) of fuel. In addition, as discussed in the preamble to the boiler MACT, boilers designed to combust different types of fuels (*e.g.,* coal vs. oil) cannot easily be modified to burn another fuel. Therefore we have determined that any comparison of the contaminants in a non-hazardous secondary material should be to the type(s) of fuel that are (or can be) used in the boiler.

EPA is not establishing specific numerical maximum contaminant levels that a non-hazardous secondary material would have to meet, but rather the rule allows the owner or operator to make the comparison based on information he has or can acquire regarding the level of contaminants found in the traditional fuels he burns or could burn. The assessment of whether the non-hazardous secondary material has contaminants comparable to (or lower than) traditional fuel products is to be made by directly comparing the numerical contaminant levels in the non-hazardous secondary material to the contaminant levels in traditional fuels.

The legitimacy criterion is tailored specifically to the use of these non-hazardous secondary materials as fuels in combustion units. As a result, we believe that contaminant levels in non-hazardous secondary materials must be comparable in concentration to (or lower than) those levels in traditional fuels to be legitimately used as a non-waste fuel product. While the Agency did solicit comment on whether or not it should establish a bright line level or establish a set of levels in the final rule in defining comparable, the Agency has concluded that establishing such levels would be difficult since the level of any contaminant in a particular type of fossil fuel or other traditional fuels can vary quite a bit. Thus, the Agency is defining "comparable to or lower than" to mean any contaminants present in the non-hazardous secondary materials that are within a small acceptable range of the concentrations found in traditional fuels. See Section V.D.3 for a discussion of the comments received and EPA's response regarding establishing specific levels in defining a comparable fuel.

2. Legitimacy Criteria for Ingredients

Non-hazardous secondary materials used as ingredients in combustion units must meet the legitimacy criteria specified in 40 CFR 241.3(d)(2). As discussed for the legitimate fuels criteria, EPA believes it important and crucial to apply a set of legitimacy criteria to make sure that the ingredient products are being legitimately and beneficially used and not simply being discarded via sham recycling. Specifically, a non-hazardous secondary material used as an ingredient in a combustion unit must be managed as a valuable commodity, provide a useful contribution, be used to produce a valuable product or intermediate, and must result in products that contain contaminants at levels that are comparable in concentration to (or lower than) those found in traditional products that are manufactured without the non-hazardous secondary material. Our reasoning for establishing the particular criteria is discussed below.

a. Managed as Valuable Commodities

Non-hazardous secondary materials used as ingredients must be managed as

valuable commodities, including being stored for a reasonable time frame. *See* § 241.3(d)(2)(i). Where there is an analogous ingredient, the non-hazardous secondary material must be managed in a manner consistent with the management of the analogous ingredient or otherwise be adequately contained so as to prevent releases to the environment. Where there is no analogous ingredient, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment. An "analogous ingredient" is an ingredient for which the non-hazardous secondary material substitutes and which serves the same function and has similar physical and chemical properties as the non-hazardous secondary material.

With respect to how long a non-hazardous secondary material can be stored before the material is not considered to be "managed as a valuable commodity," we are requiring that the non-hazardous secondary material be stored for a reasonable time frame. While EPA took comment on whether it should provide a specific time frame (*e.g.,* one-year) as opposed to the general standard of "reasonable time frame," based on comments submitted, the Agency has decided not to specifically define "reasonable time frame," primarily because such time frames could and will vary according to the non-hazardous secondary material and industry involved. (*See* Section V.D.1 for a discussion of the comments received and EPA's response.)

For discarded non-hazardous secondary materials that are processed to produce a non-waste ingredient, the ingredient product must be managed as a valuable product from the point that it is first produced as a non-waste through its use in the combustion unit. As noted previously, before the non-waste product is produced, the non-hazardous secondary material is a solid waste, and must comply with any federal, state, or local requirements.

This criterion requires that the non-hazardous secondary material be managed appropriately before its end use as an ingredient. In EPA's view, a company will value non-hazardous secondary materials used as ingredients that provide an important contribution and, therefore, will manage those non-hazardous secondary materials in a manner consistent with how it manages traditional ingredients. If, on the other hand, a company does not manage the non-hazardous secondary material as it would traditional ingredients, that behavior may indicate that the non-hazardous secondary material is being discarded.

This factor addresses the management of non-hazardous secondary materials used as ingredients in two distinct situations. The first situation is when the non-hazardous secondary material is analogous to a traditional ingredient that otherwise could be burned. In this case, the non-hazardous secondary material must be managed prior to use as an ingredient in a similar manner to how traditional ingredients are managed or otherwise must be "contained" so as to prevent releases to the environment. For example, for liquid non-hazardous secondary materials that are used as a non-waste ingredient that are similar to traditional ingredients, the Agency would expect that such non-hazardous secondary materials would be managed in tanks or similar type devices that are structurally sound to control the release of the non-hazardous secondary materials. The Agency would also expect that the types of controls that would typically be part of a tank or similar type device for traditional ingredients would also be part of any tank system that is used to manage the non-hazardous secondary material. For example, if traditional ingredients are stored in tanks with covers or they provide for secondary containment, the Agency would expect that the non-hazardous secondary material would also be stored in tanks with covers, with secondary containment so as to prevent releases to the environment.

The second situation addresses the case where there is no analogous traditional ingredient that otherwise could be burned. This could be either because the process is designed around a particular non-hazardous secondary material ingredient, or because physical or chemical differences between the non-hazardous secondary material and the traditional ingredient are too significant for them to be considered "analogous." Non-hazardous secondary materials that have significantly different physical or chemical properties when compared to traditional ingredients would not be considered analogous even if they serve the same function because it may not be appropriate to manage them in the same way. In this situation, the non-hazardous secondary material would have to be "contained" so as to prevent releases to the environment for this criterion to be met. A non-hazardous secondary material is "contained" if it is stored in a manner that both adequately prevents releases or other hazards to human health and the environment, considering the nature and toxicity of the non-hazardous secondary material.[167]

b. Useful Contribution

We are requiring that non-hazardous secondary materials used as ingredients in combustion units provide a useful contribution to the production/manufacturing process. See § 241.3(d)(2)(ii). A non-hazardous secondary material used as an ingredient in combustion systems provides a useful contribution if it contributes valuable ingredients to the production/manufacturing process or to the product or intermediate of the production/manufacturing process. This criterion is an essential component in the determination of legitimacy because legitimate use is not occurring if the non-hazardous secondary material doesn't add anything to the process, such that the non-hazardous secondary material is basically being disposed of or discarded. This criterion is intended to prevent the practice of "sham" recycling by adding non-hazardous secondary materials to a manufacturing operation simply as a means of disposing of them.

For purposes of satisfying this criterion, not every constituent or component of the non-hazardous secondary material has to make a contribution to the production/manufacturing activity. For example, non-hazardous secondary materials used as ingredients may contain some constituents that are needed in the manufacturing process, such as, for example, zinc in non-hazardous secondary materials that are used to produce zinc-containing micronutrient fertilizers, while other constituents in the non-hazardous secondary material, such as lead, do not provide a useful contribution. Provided the zinc is at levels that provides a useful contribution, we believe the non-hazardous secondary material would satisfy this criterion, although we would note that the constituents not directly contributing to the manufacturing process could still result in the non-hazardous secondary material not meeting the contaminant part of the legitimacy criteria. The Agency is not quantitatively defining how much of the non-hazardous secondary material needs to provide a useful contribution for this criterion to be met, since we believe that defining such a level would be difficult and is likely to be different, depending on the non-hazardous secondary material. The Agency recognizes that this could be an issue if

[167] Examples of materials that are adequately contained would include liquids stored in a tank.

persons argue that a non-hazardous secondary material is being legitimately used as an ingredient, but in fact, only a small amount or percentage of the non-hazardous secondary material is used. Because of the differences in the emissions standards that the non-hazardous secondary material would be subject to—between CAA sections 112 and 129, persons may argue that such non-hazardous secondary materials are not wastes, when in fact, the operation is really discard, and therefore, sham recycling. Thus, as part of the recordkeeping requirements under the CAA, persons need to provide the basis or rationale on why the particular non-hazardous secondary material meets the legitimacy criteria, including how the secondary material provides a useful contribution.

c. Valuable Product

We are requiring that non-hazardous secondary materials used as ingredients in combustion units must be used to produce a valuable product or intermediate. *See* § 241.3(d)(2)(iii). The product or intermediate is valuable if it is (i) sold to a third party or (ii) used as an effective substitute for a commercial product or as an ingredient or intermediate in an industrial process.

This criterion expresses the principle that the product or intermediate of the manufacturing/production process should be a material of value, either to a third party who buys it from the manufacturer, or to the same manufacturer that subsequently uses it as a substitute for another material that it would otherwise have to buy or obtain for its industrial process. This criterion is an essential component of the concept of legitimacy because legitimate use cannot be occurring if the product or intermediate is not of use to anyone and, therefore, has no real value. This criterion is intended to prevent the practice of introducing a non-hazardous secondary material through an industrial process to make something just for the purpose of avoiding the costs of disposal. Such a practice would be sham recycling.

One way that the use of the non-hazardous secondary material as an ingredient in the production/manufacturing process can be shown to produce a valuable product would be to have documentation on the sale of the product to a third party. Such documentation could be in the form of receipts or contracts and agreements that establish the terms of the sale or transaction. This transaction could include money changing hands or, in other circumstances, may involve trade or barter. A manufacturer that has not yet arranged for the sale of its product to a third party could also establish value by demonstrating that it can replace another product or intermediate that is available in the marketplace.

Production/manufacturing processes that use non-hazardous secondary materials as ingredients may produce outputs that are not sold to another party, but are instead used by the same manufacturer. These products or intermediates may be used as a feedstock in a manufacturing process, but have no established monetary value in the marketplace. Such products or intermediates would be considered to have intrinsic value, though demonstrating intrinsic value may be less straightforward than demonstrating value for products that are sold in the marketplace. Demonstrations of intrinsic value could involve showing that the product or intermediate of the production/manufacturing process replaces another material that would otherwise have to be purchased or could involve a showing that the non-hazardous secondary material meets specific product specifications or specific industry standards. Another approach could be to compare the non-hazardous secondary material's physical and chemical properties or efficacy for certain uses with those of comparable products or intermediates made from raw materials.

Some production/manufacturing processes that use non-hazardous secondary materials as ingredients may consist of multiple steps that may occur at separate facilities. In some cases, each processing step will yield a valuable product or intermediate. When each step in the process yields a valuable product or intermediate that is salable or usable in that form, the activity would conform to this criterion.

d. Contaminant Levels

We are requiring that non-hazardous secondary materials used as an ingredient must result in products that contain contaminants at levels that are comparable in concentration to (or lower than) those found in traditional products that are manufactured without the non-hazardous secondary material. *See* § 241.3(d)(2)(iv). The term "contaminants" refers to constituents in non-hazardous secondary materials that will result in emissions of the air pollutants identified as HAP listed under CAA section 112(b), the nine pollutants listed under CAA section 129(a)(4).

The assessment of whether the products produced from the use of non-hazardous secondary materials that have contaminants that are comparable to (or lower) in concentration can be made by a comparison of contaminant levels in the ingredients themselves to the traditional ingredients they are replacing, or by comparing the contaminant levels in the product itself with and without the use of the non-hazardous secondary material. In determining which traditional ingredient(s) the owner or operator of the unit would make a comparison to with respect to contaminant levels, the Agency believes that any traditional ingredient that can be or is used in the particular type of unit is appropriate. For example, for cement kilns, if the ingredient is CKD, the level of contaminants to be compared would be the level of contaminants in limestone or other ingredients that can be used in such unit. Alternatively, a product comparison can be made. See Section V.E for a further discussion of the comments received regarding the legitimacy criteria for ingredients, as well as our responses to those comments.

I. Determining That Non-Hazardous Secondary Materials Meet the Legitimacy Criteria

Owners and operators of affected facilities combusting non-hazardous secondary materials that are not considered solid wastes must ensure that the non-hazardous secondary materials meet the legitimacy criteria in § 241.3(d) (and continue to meet those criteria) when combusted. Non-hazardous secondary materials that no longer meet these legitimacy criteria would be considered solid wastes and the units combusting those non-hazardous secondary materials would be considered a commercial or industrial solid waste incineration (CISWI) unit (*see* 40 CFR 60.2875).

The CAA section 112 rule requires notifications and recordkeeping, including documentation as to how the non-hazardous secondary material meets the legitimacy criteria, and satisfies the definition of processing and/or the requirements for the petition process. (40 CFR 63.7530 and 63.7555). Specific recordkeeping requirements for area source boilers combusting non-hazardous secondary materials are found at 40 CFR 63.11225(c)(2)(ii) under the CAA section 112 rule for area source boilers. Additionally, regulations at 40 CFR 60.2175(v) promulgated for commercial and industrial solid waste incinerators under CAA section 129 require basic recordkeeping to establish whether materials combusted in a commercial or industrial unit meet the standards and procedures for identification of non-hazardous

secondary materials that are not solid wastes. Owners or operators of commercial or industrial facilities that combust materials that are not traditional fuels are directed to the CAA section 112 regulations for boilers and process heaters, and the CAA section 129 regulations for commercial and industrial incinerators, to determine the recordkeeping provisions related to the definition of solid waste that may apply to them. The Agency believes that these records and notifications under the CAA regulations provide assurance that facilities will apply the legitimacy criteria.

VIII. Effect of Today's Final Rule on Other Programs

The construct of this rule is to determine which non-hazardous secondary materials are solid wastes when combusted either as a fuel or ingredient in order to determine CAA section 129 applicability. Thus, this rules applicability is to the universe of combustion facilities using non-hazardous secondary materials as fuels or ingredients.

A. Clean Air Act

The definition of solid waste incineration unit in CAA section 129(g)(6) states that the term "solid waste" will have the meaning established by the Administrator of EPA under RCRA. Today's rule would establish under RCRA which non-hazardous secondary materials constitute "solid waste" when used as a fuel or an ingredient. This definition of "solid waste" is being used by EPA to establish CAA emissions standards for CISWI units (under CAA section 129) and boilers and process heaters (under CAA section 112). Any unit combusting "solid waste" is subject to the emission standards for "solid waste incineration units" under CAA section 129. The waste determinations in this rule do not subject combustion units to the CAA section 129 standards if the units are exempt under CAA section 129(g)(1).[168]

B. Renewable Energy

This rule may impact how some non-hazardous secondary materials could be used to help supply renewable energy to the U.S. and through state programs. Congress has passed several laws, such as the Energy Independence and Security Act of 2007 (Pub. L. 110–140), that supports the development and use of renewable sources of energy, both for power generation and for the production of transportation fuels. Qualified sources would include wind, solar, and geothermal power, but could also include power generated by the combustion of biogenic materials, which may include some non-hazardous secondary materials burned for energy recovery. Biogenic materials are materials that result from the activity of living organisms. A number of non-hazardous secondary materials are partially or completely biogenic. For example, woody biomass contains recoverable energy and would be considered biogenic in origin. Energy from biogenic sources is generally preferable to fossil fuels.

In addition to these federal programs that may be impacted, Renewable Portfolio Standards (RPS) currently provide states with a mechanism to increase renewable energy generation using renewable energy sources (including biofuels) and a cost-effective, market-based approach. An RPS requires electric utilities and other retail electric providers to supply a specified minimum amount of customer load with electricity from eligible renewable energy sources. The goal of an RPS is to stimulate market and technology development so that, ultimately, renewable energy will be economically competitive with conventional forms of electric power. States create RPS programs because of the energy, environmental, and economic benefits of renewable energy and sometimes other clean energy approaches, such as energy efficiency and combined heat and power.

If these renewable energy sources or biogenic fuels qualify as clean cellulosic biomass, they are an alternative fuel (*see* the full definition in today's rule at § 241.2) and are not subject to the section 129 CAA standards, but rather, would be subject to the section 112 CAA standards.

C. Subtitle C Hazardous Waste Program

The result of this rule will have no effect on the RCRA subtitle C hazardous waste program because it does not address hazardous waste. The RCRA subtitle C hazardous waste federal program has a long regulatory history in defining "solid waste" for purposes of the hazardous waste regulations. However, the 40 CFR 261.2 definition of solid waste explicitly applies only to wastes that also are hazardous for purposes of the subtitle C regulations (*see* 40 CFR 261.1(b)(1)). CAA section 129 also specifically excludes subtitle C combustion units from coverage under that section.

RCRA section 7003 gives EPA the authority to compel actions to abate conditions that may present an "imminent and substantial endangerment" involving both solid and hazardous wastes. EPA uses this authority on a case-by-case basis. The Agency can determine in a specific factual context whether a non-hazardous secondary material which causes an endangerment is discarded. RCRA sections 3007 and 3008 establish EPA's inspection and Federal enforcement authority to address violations of the subtitle C hazardous waste regulations. Nothing in this rule shall impact EPA's ability to act pursuant to RCRA sections 3007, 3008 and 7003. The rule also does not limit or otherwise affect EPA's ability to pursue potentially responsible persons under section 107 of CERCLA for releases or threatened releases of hazardous substances.

Finally, we would note that on October 30, 2008, EPA issued a final rule excluding certain hazardous secondary materials from the definition of solid waste issued under the hazardous waste provisions found in RCRA subtitle C (73 FR 64688). EPA is currently re-examining these exclusions, and as part of a settlement agreement with Sierra Club, EPA will issue a proposed rule by June 2011. This proposal will address, at minimum, issues raised in an administrative petition filed by the Sierra Club, including the four issues discussed in a public meeting, which was announced in a **Federal Register** notice (74 FR 25200, May 27, 2009). The four issues are (1) the definition of "contained," (2) notification before operating under the exclusion (3) the definition of "legitimacy" and (4) the transfer-based exclusion. Many of the issues to be addressed in the upcoming subtitle C definition of solid waste proposal are similar to the issues addressed in today's final rule. However, there are

[168] CAA 129 (g)(1).

"(1) * * * The term "solid waste incineration unit" does not include

(A) materials recovery facilities (including primary or secondary smelters) which combust waste for the primary purpose of recovering metals,

(B) qualifying small power production facilities, as defined in section 796 (17)(C) of title 16, or qualifying cogeneration facilities, as defined in section 796 (18)(B) of title 16, which burn homogeneous waste (such as units which burn tires or used oil, but not including refuse-derived fuel) for the production of electric energy or in the case of qualifying cogeneration facilities which burn homogeneous waste for the production of electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating or cooling purposes, or

(C) air curtain incinerators provided that such incinerators only burn wood wastes, yard wastes and clean lumber and that such air curtain incinerators comply with opacity limitations to be established by the Administrator by rule. * * *"

significant differences between today's final rule and the scope of the planned June 2011 subtitle C definition of solid waste proposal. The planned proposal will only address the regulation of hazardous secondary materials (not non-hazardous secondary materials) going to reclamation (not burning for energy recovery) under RCRA subtitle C (not subtitle D). In developing the planned subtitle C proposal, EPA will carefully consider the difference in scope between the two rulemakings and address it as appropriate.

IX. State Authority

Subtitle D of RCRA establishes a framework for state, federal, and local government cooperation in controlling the management of non-hazardous solid waste. The federal role in this arrangement is to establish the overall regulatory direction, by providing minimum nationwide standards for protecting human health and the environment, and to provide technical assistance to states for planning and developing their own solid waste management practices. The actual planning and direct implementation of solid waste programs under RCRA subtitle D, however, remains largely a state and local function, and states have authority to devise programs to deal with state specific conditions and needs.

EPA has not promulgated detailed regulations of what is included in the definition of solid waste for the RCRA subtitle D (non-hazardous waste) programs. State environmental agencies have promulgated their own laws and regulations as to what constitutes a solid waste and have interpreted those laws and regulations to determine what types of non-hazardous secondary material activities involve the management of a solid waste for the purposes of their authorities. Many states have a process or promulgated regulations to determine when these materials are wastes, and when they can be used beneficially and safely in products in commerce.

Through this rulemaking, EPA is articulating a definition of which non-hazardous secondary materials are or are not solid waste when used as a fuel for energy recovery in combustion units or as an ingredient in combustion units. We are not imposing solid waste requirements for determining other possible secondary material end uses nor does this rulemaking apply to general materials management in state programs.

A. Applicability of State Solid Waste Definitions and Beneficial Use Determinations

CAA section 129 states that the term "solid waste" shall have the meaning "established by the Administrator pursuant to the Solid Waste Disposal Act" *Id.* at 7429(g)(6). Accordingly, the states' definition of solid waste would not be applicable in determining whether the CAA section 129 standards apply. Specifically, state determinations regarding a material's beneficial use that may exempt a non-hazardous secondary material from the state solid waste standards would not necessarily impact the status of such non-hazardous secondary materials under EPA's solid waste definition as it relates to which combustion units are subject to the CAA section 129 standards. Likewise, combustion units that use non-hazardous secondary materials as fuels or ingredients that are not solid waste under today's rule would not be subject to the solid waste incineration standards under CAA section 129, even though the state standards may define the same material as solid wastes for their recycling and waste management programs.

If a non-waste determination is sought by petition at a combustion unit, the Agency (EPA Regional Administrator or delegate) will make the decision to grant or deny the petition. The Agency can, however, utilize the information and contaminant data from state beneficial use determinations if it is applicable to the non-hazardous secondary material when used as a fuel or as an ingredient. These state beneficial use programs have been developed to encourage recycling and reuse, provided that such use maintains the specified state's acceptable level of risk and are managed in accordance with the conditions of the determination. Generally, when a beneficial use determination has been granted, it would have chemical and physical properties that are comparable to the raw material it is replacing or, when incorporated into another product, its use would be beneficial to the final product. If the data to support the beneficial use determination was available, it could help support the research on contaminant concentrations for the legitimacy criteria in order to make the petition decision.

A discussion on state program involvement in the petition process and on states submitting petitions in lieu of a regulated applicant is described in Section V.F. Implementation and enforcement issues related to state programs are covered in Section VII.I.

B. State Adoption of the Rulemaking

No federal approval procedures for state adoption of today's rule are included in this rule under RCRA subtitle D. Although EPA does promulgate criteria for solid waste landfills and approves state municipal solid waste landfill permitting programs, RCRA does not provide EPA with authority to approve state programs beyond municipal solid waste landfill permitting programs. While states are not required to adopt today's rule, some states incorporate federal regulations by reference or have specific state statutory requirements that their state program can be no more stringent than the federal regulations. In those cases, EPA anticipates that, if required by state law, the changes in today's rule will be incorporated (or possibly adopted by authorized state air programs) consistent with the state's laws and administrative procedures.

C. Clarifications on the Relationship to State Programs

State Agencies that responded to the proposal requested further clarification in the final rule. Specifically, the Federal rule applies only to the RCRA subtitle D definition of solid waste for determining use as a fuel or ingredient in combustion units (as regulated by the CAA). Today's rule does not preempt a State's statutory or regulatory definition of solid waste, and only applies for purposes of determining which facilities must comply with the CAA section 129 standards.

Non-hazardous secondary materials may be simultaneously regulated as a non-waste fuel or ingredient for use in combustion units under § 241.3, but as a solid waste by the State's solid waste programs for management purposes. Also, *see* the discussion in the beginning of this Section (IX. State Authority). Combustors using non-hazardous secondary materials that are designated as a non-waste when used as a fuel or ingredient, would not be subject to the CAA section 129 standards, even though the state standards may define the non-hazardous secondary material as a solid waste.

Finally, owners and operators of affected facilities combusting non-hazardous secondary materials considered to be non-wastes based on the non-waste determination petition process, and the application of the criteria outlined in § 241.3(c) must ensure that the non-hazardous secondary materials continue to meet those provisions when combusted. Non-hazardous secondary materials that no longer meet those criteria, even though

they may be in compliance with state recycling and management requirements, would require the combustor to re-apply for the non-waste determination (per § 241.3(c)(2)(iv)) through the EPA Regional Administrator (otherwise they would be considered solid wastes and the units combusting those non-hazardous secondary materials would be subject to the commercial or industrial solid waste incineration (CISWI) regulations (see 40 CFR 60.2875)).

X. Cost and Benefits of the Final Rule

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. This final rule alone does not directly invoke any costs [169] or benefits. This rule is published as part of a four-rule package that includes the Boiler MACT and CISWI rules.[170] Costs to the regulated community and corresponding benefits to human health and the environment are captured under those rules. As such, the Agency has not prepared a separate economic assessment in support of this final rule.

The costs and benefits indirectly associated with this action are the corresponding impacts assessed in the regulatory impact analyses prepared in support of the Boiler MACT and CISWI rules. These independent regulatory impact analyses measure, among other factors, the estimated net change in social welfare associated with these actions. In the development of these analyses, EPA worked to ensure that the methodologies and data applied in these assessments captured appropriate RCRA related costs (*e.g.,* secondary material diversions). These assessments were designed to adhere to EPA and Office of Management and Budget guidelines and procedures. These documents are available in the docket established for this action.

XI. Statutory and Executive Order Reviews

A. Executive Orders 12866 and 13563: Improving Regulatory Planning and Review

Under Executive Order (EO) 12866 (58 FR 51735, October 4, 1993), and EO 13563 (76 FR 3821, January 21, 2011), this action is a "significant regulatory action." Pursuant to the terms of the Orders, the Agency, in conjunction with the Office of Management and Budget (OMB), has determined that this rule is a significant regulatory action because it contains novel policy issues, as defined under part 3(f)(4) of EO 12866. Accordingly, EPA submitted this action to OMB for review. Any changes made in response to OMB recommendations have been documented in the docket for this action.

B. Paperwork Reduction Act

The information collection requirements in this rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The information collection requirements are not enforceable until OMB approves them.

This rule establishes a voluntary non-waste determination petition process for non-hazardous secondary materials identified as solid wastes. Facilities claiming this solid waste exclusion are required to seek approval from the Agency through the submission of a petition prior to operating under this exclusion. Sufficient information about the non-hazardous secondary material and the market demand for this material will be necessary to demonstrate that the non-hazardous secondary material in fact has not been discarded and is a legitimate non-waste fuel or ingredient in the combustion process. Specifically, the petition will need to contain information to assess the following criteria: (1) Whether market participants handle the non-hazardous secondary material as a fuel rather than a waste; (2) whether the chemical and physical identities of the non-hazardous secondary material is comparable to a commercial fuel; (3) whether the capacity of the market would use the non-hazardous secondary material in a reasonable time frame; (4) whether the constituents in the non-hazardous secondary material are not discarded to the air, water or land from the point of generation to the point just prior to combustion of the non-hazardous secondary material at levels comparable to what would otherwise be released from traditional fuels; and (5) other relevant factors.

The facility-level burden associated with this voluntary petition option is estimated to have an average total burden of each non-waste determination petition of approximately 149 hours per facility, with a total cost per facility of approximately $10,100. The total number of facilities likely to take advantage of this option is undetermined, but we would expect that only a limited number of facilities may submit such a petition. Burden is defined at 5 CFR 1320.3(b).

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9. EPA is amending the table in 40 CFR part 9 of currently approved OMB control numbers for various regulations to list the regulatory citations for the information requirements contained in this final rule.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business, as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated, and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. No small entities are directly regulated by this final rule (*see* discussion above under costs and benefits). Any potential impacts to small entities in these or any other potentially affected sectors are addressed in the regulatory flexibility analyses prepared in support of the CAA rules that are linked to this action.[171]

Although this final rule will not have a significant economic impact on a

[169] Excluding minor administrative burden/cost (*e.g.,* rule familiarization) and costs related to submitting a voluntary petition.

[170] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters; and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration (CISWI) Units.

[171] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters; and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration (CISWI) Units.

substantial number of small entities, EPA, nonetheless, has tried to reduce the impact of this rule on small entities through the careful and targeted identification of which non-hazardous secondary materials are solid wastes. In addition, we have established a voluntary petition process that allows for material-specific non-waste determinations.

D. Unfunded Mandates Reform Act

This final rule does not contain a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any one year. Because this action is linked to the CAA rules, this rule alone will not result in significant economic impacts on States, local and tribal governments, in the aggregate, or the private sector in any one year. Thus, this rule is not subject to the requirements of sections 202 or 205 of UMRA.

This rule is also not subject to the requirements of section 203 of UMRA because it contains no regulatory requirements that might significantly or uniquely affect small governments. As described above, this action alone does not result in unique effects, or significant economic impacts.

E. Executive Order 13132: Federalism

This action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This final rule, independent of the CAA rules, will not result in substantial direct effects on the states. Furthermore, this rule will not preempt state laws related to the affected non-hazardous secondary materials. States will remain free to manage these non-hazardous secondary materials, as appropriate under their existing regulatory programs, including their solid waste programs. Thus, Executive Order 13132 does not apply to this action.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicited comment on the proposed action from State and local officials.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Subject to the Executive Order 13175 (65 FR 67249, November 9, 2000), EPA may not issue a regulation that has tribal implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by tribal governments, or EPA consults with tribal officials early in the process of developing the proposed regulation and develops a tribal summary impact statement.

EPA has concluded that this action may have tribal implications. However, it will neither impose substantial direct compliance costs on tribal governments, nor preempt Tribal law. The rule may have minor indirect tribal implications to the extent that entities generating or burning solid wastes on tribal lands could be affected in response to the corresponding CAA rules.[172] EPA consulted with tribal officials early in the process of developing this regulation to permit them to have meaningful and timely input into its development.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

This action is not subject to Executive Order 13045 (62 FR 19885, April 23, 1997) because it is not economically significant as defined in Executive Order 12866, and because the Agency does not believe the environmental health or safety risks addressed by this action present a disproportionate risk to children. This action's health and risk assessments are contained in support documents prepared for the CAA section 129 CISWI and section 112 Boiler MACT rules.

H. Executive Order 13211: Actions that Significantly Affect Energy Supply, Distribution or Usage

This action is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355 (May 22, 2001)), because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. This action, independent of the CAA rules,[173] is not expected to directly affect energy use or use patterns. The purpose of this rule is to determine which non-hazardous secondary materials are solid waste when combusted. On its own, this rule will not lead to direct changes in the ability of facilities to use non-hazardous secondary materials as a source of energy. However, the Agency acknowledges that interactions between this rule and the section 112 and section 129 CAA emission standards rules being promulgated today may affect the use of non-hazardous secondary materials as a source of energy. We refer persons to the dockets for those rules for information on these energy impacts.

I. National Technology Transfer Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This action does not involve technical standards. Therefore, EPA did not consider the use of any voluntary consensus standards.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

[172] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters; and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration (CISWI) Units.

[173] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters; and Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration (CISWI) Units.

EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations. The four-rule package that consists of this rule plus the three CAA rules [174] will generally result in an improved level of environmental protection. No disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population is expected.

Because the four rules are fully interdependent, isolating the environmental justice impacts of each of the four rules individually may result in a distorted assessment. For example, the emissions standards established in the three air rules depend on which non-hazardous secondary materials are considered solid wastes. As a result, any changes in the way that combustion units manage non hazardous secondary materials (*i.e.* switching to an alternative fuel) will depend upon the costs of implementing the various emissions standards. Furthermore, the demographic characteristics of areas experiencing changes in environmental effects will determine whether the rules result in adverse and disproportionate impacts to low-income and minority populations.

We have developed a broad environmental justice assessment, looking at the four rules together, that accounts for the combined impacts on minority and low income communities. Any environmental justice impacts that may result from these four interdependent rules are likely to include one or more of the following: (1) Changes in emissions from regulated combustion units, (2) changes in emissions from the potential diversion of non hazardous secondary materials away from combustion units to alternative recycling or landfills, and, (3) other impacts related to material diversion (*e.g.,* noise, aesthetics, water pollution, etc.). Based on our assessment of the emissions changes and other environmental impacts of the rules, and the demographics of populations near affected combustion units and waste management facilities, our main conclusions with respect to the environmental justice impacts of the four rules indicate the following:

1. Emissions changes from affected combustion units are unlikely to lead to adverse and disproportionate impacts on low-income and minority populations. Following implementation of the CISWI, Boiler MACT, and Area Source rules, emissions from affected facilities are likely to decline. As a result, populations near these facilities, overall, are likely to experience positive impacts (*e.g.,* reduced incidence of adverse health effects). The demographic data for the Census blocks near the Boiler MACT and CISWI facilities [175] suggest that the percentages of low-income and minority populations are generally higher than the national average in these areas.

2. Low-income and minority populations located near non combustion waste management facilities (*e.g.,* recyclers, landfills) are higher, proportionally, than the national average. Our analysis of the demographic characteristics of populations living within three miles of these facilities suggests that they are located in areas with high low-income and minority populations. Therefore, to the extent that non hazardous secondary materials diverted to alternative recycling or landfills may lead to adverse environmental impacts, low-income and minority populations could be adversely affected. However, we believe that any such increases would be negligible relative to the reductions achieved due to the Boiler MACT and CISWI controls. Furthermore, considering the low quantity of materials potentially diverted,[176] the extent of any negative impacts is expected to be minimal, and will likely vary significantly by material and facility type.

A comprehensive discussion of these findings is presented in the document: "Summary of Environmental Justice Impacts for the Non-Hazardous Secondary Material (NHSM) Rule, the 2010 Commercial and Industrial Solid Waste Incinerator (CISWI) Standards, the 2010 Major Source Boiler NESHAP, and the 2010 Area Source Boiler NESHAP." This document is available in the Docket established for today's action.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the **Federal Register**. A Major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective on May 20, 2011.

List of Subjects in 40 CFR Part 241

Environmental protection, Air pollution control, Waste treatment and disposal.

Dated: February 21, 2011.

Lisa P. Jackson,

Administrator.

For the reasons stated in the preamble, title 40, chapter I of the Code of Federal Regulations, is amended by adding part 241 to read as follows:

PART 241—SOLID WASTES USED AS FUELS OR INGREDIENTS IN COMBUSTION UNITS

Subpart A—General

Sec.
241.1 Purpose.
241.2 Definitions.

Subpart B—Identification of Non-Hazardous Secondary Materials That Are Solid Wastes When Used as Fuels or Ingredients In Combustion Units

Sec.
241.3 Standards and procedures for identification of non-hazardous secondary materials that are solid wastes when used as fuels or ingredients in combustion units.

Authority: 42 U.S.C. 6903, 6912, 7429.

Subpart A—General

§ 241.1 Purpose.

This part identifies the requirements and procedures for the identification of

[174] National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters; and, Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration (CISWI) Units

[175] The CISWI facility list contains combustors projected to combust waste after the rules are finalized (some were not regulated as CISWIs prior to these rules). The demographic assessment does not include area source facilities.

[176] Review of Costs, Benefits, Economic Impacts, Environmental Justice, and Other Impacts for the Following Interrelated Proposed Rules: Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; RIN 2060–AO12, National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers; RIN 2060–AM44, National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters; RIN 2060–AG69, Identification of Non-hazardous Secondary Materials That Are Solid Waste RIN 2050–AG44. April 29, 2010. (*See* Exhibit 14).

solid wastes used as fuels or ingredients in combustion units under section 1004 of the Resource Conservation and Recovery Act and section 129 of the Clean Air Act.

§ 241.2 Definitions.

For the purposes of this subpart:

Clean cellulosic biomass means those residuals that are akin to traditional cellulosic biomass such as forest-derived biomass (*e.g.,* green wood, forest thinnings, clean and unadulterated bark, sawdust, trim, and tree harvesting residuals from logging and sawmill materials), corn stover and other biomass crops used specifically for energy production (*e.g.,* energy cane, other fast growing grasses), bagasse and other crop residues (*e.g.,* peanut shells), wood collected from forest fire clearance activities, trees and clean wood found in disaster debris, clean biomass from land clearing operations, and clean construction and demolition wood. These fuels are not secondary materials or solid wastes unless discarded. Clean biomass is biomass that does not contain contaminants at concentrations not normally associated with virgin biomass materials.

Contaminants means any constituent in non-hazardous secondary materials that will result in emissions of the air pollutants identified in Clean Air Act section 112(b) or the nine pollutants listed under Clean Air Act section 129(a)(4)) when such non-hazardous secondary materials are burned as a fuel or used as an ingredient, including those constituents that could generate products of incomplete combustion.

Contained means the non-hazardous secondary material is stored in a manner that adequately prevents releases or other hazards to human health and the environment considering the nature and toxicity of the non-hazardous secondary material.

Control means the power to direct the policies of the facility, whether by the ownership of stock, voting rights, or otherwise, except that contractors who operate facilities on behalf of a different person as defined in this section shall not be deemed to "control" such facilities.

Established tire collection program means a comprehensive collection system that ensures scrap tires are not discarded and are handled as valuable commodities in accordance with section 241.3(b)(2)(i) from the point of removal from the vehicle through arrival at the combustion facility.

Generating facility means all contiguous property owned, leased, or otherwise controlled by the non-hazardous secondary material generator.

Ingredient means a non-hazardous secondary material that is a component in a compound, process or product.

Non-hazardous secondary material means a secondary material that, when discarded, would not be identified as a hazardous waste under Part 261 of this chapter.

Person is defined as an individual, trust, firm, joint stock company, Federal agency, corporation (including government corporation), partnership, association, State, municipality, commission, political subdivision of a state, or any interstate body.

Processing means any operations that transform discarded non-hazardous secondary material into a non-waste fuel or non-waste ingredient product. Processing includes, but is not limited to, operations necessary to: Remove or destroy contaminants; significantly improve the fuel characteristics of the material, *e.g.,* sizing or drying 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 purposes of this definition.

Resinated wood means wood products (containing resin adhesives) derived from primary and secondary wood products manufacturing and comprised of such items as board trim, sander dust, and panel trim.

Secondary material means any material that is not the primary product of a manufacturing or commercial process, and can include post-consumer material, off-specification commercial chemical products or manufacturing chemical intermediates, post-industrial material, and scrap.

Solid waste means the term solid waste as defined in 40 CFR 258.2.

Traditional fuels means materials that are produced as fuels and are unused products that have not been discarded and therefore, are not solid wastes, including: (1) Fuels that have been historically managed as valuable fuel products rather than being managed as waste materials, including fossil fuels (*e.g.,* coal, oil and natural gas), their derivatives (*e.g.,* petroleum coke, bituminous coke, coal tar oil, refinery gas, synthetic fuel, heavy recycle, asphalts, blast furnace gas, recovered gaseous butane, and coke oven gas) and cellulosic biomass (virgin wood); and (2) alternative fuels developed from virgin materials that can now be used as fuel products, including used oil which meets the specifications outlined in 40 CFR 279.11, currently mined coal refuse that previously had not been usable as coal, and clean cellulosic biomass. These fuels are not secondary materials or solid wastes unless discarded.

Within control of the generator means that the non-hazardous secondary material is generated and burned in combustion units at the generating facility; or that such material is generated and burned in combustion units at different facilities, provided the facility combusting the non-hazardous secondary material is controlled by the generator; or both the generating facility and the facility combusting the non-hazardous secondary material are under the control of the same person as defined in this section.

Subpart B—Identification of Non-Hazardous Secondary Materials That Are Solid Wastes When Used as Fuels or Ingredients in Combustion Units

§ 241.3 Standards and procedures for identification of non-hazardous secondary materials that are solid wastes when used as fuels or ingredients in combustion units.

(a) Except as provided in paragraph (b) of this section, non-hazardous secondary materials that are combusted are solid wastes, unless a petition is submitted to, and a determination granted by, the Regional Administrator pursuant to paragraph (c) of this section. The criteria to be addressed in the petition, as well as the process for making the non-waste determination, are specified in paragraph (c) of this section.

(b) The following non-hazardous secondary materials are not solid wastes when combusted:

(1) Non-hazardous secondary materials used as a fuel in a combustion unit that remain within the control of the generator and that meet the legitimacy criteria specified in paragraph (d)(1) of this section.

(2) The following non-hazardous secondary materials that have not been discarded and meet the legitimacy criteria specified in paragraph (d)(1) of this section when used in a combustion unit (by the generator or outside the control of the generator):

(i) Scrap tires used in a combustion unit that are removed from vehicles and managed under the oversight of established tire collection programs.

(ii) Resinated wood used in a combustion unit.

(3) Non-hazardous secondary materials used as an ingredient in a combustion unit that meet the legitimacy criteria specified in paragraph (d)(2) of this section.

(4) Fuel or ingredient products that are used in a combustion unit, and are produced from the processing of

discarded non-hazardous secondary materials and that meet the legitimacy criteria specified in paragraph (d)(1) of this section, with respect to fuels, and paragraph (d)(2) of this section, with respect to ingredients. The legitimacy criteria apply after the non-hazardous secondary material is processed to produce a fuel or ingredient product. Until the discarded non-hazardous secondary material is processed to produce a non-waste fuel or ingredient, the discarded non-hazardous secondary material is considered a solid waste and would be subject to all appropriate federal, state, and local requirements.

(c) The Regional Administrator may grant a non-waste determination that a non-hazardous secondary material that is used as a fuel, which is not managed within the control of the generator, is not discarded and is not a solid waste when combusted. The criteria and process for making such non-waste determinations includes the following:

(1) Submittal of an application to the Regional Administrator for the EPA Region where the facility combusting the non-hazardous secondary material is located for a determination that the non-hazardous secondary material, even though it has been transferred to a third party, has not been discarded and is indistinguishable in all relevant aspects from a product fuel. The determination will be based on whether the non-hazardous secondary material that has been discarded, is a legitimate fuel as specified in paragraph (d)(1) of this section and on the following criteria:

(i) Whether market participants treat the non-hazardous secondary material as a product rather than as a solid waste;

(ii) Whether the chemical and physical identity of the non-hazardous secondary material is comparable to commercial fuels;

(iii) Whether the non-hazardous secondary material will be used in a reasonable time frame given the state of the market;

(iv) Whether the constituents in the non-hazardous secondary material are released to the air, water or land from the point of generation to the point just prior to combustion of the secondary material at levels comparable to what would otherwise be released from traditional fuels; and

(v) Other relevant factors.

(2) The Regional Administrator will evaluate the application pursuant to the following procedures:

(i) The applicant must submit an application for the non-waste determination addressing the legitimacy criteria in paragraph (d)(1) of this section and the relevant criteria in paragraphs (c)(1)(i) through (v) of this section. In addition, the applicant must also show that the non-hazardous secondary material has not been discarded in the first instance.

(ii) The Regional Administrator will evaluate the application and issue a draft notice tentatively granting or denying the application. Notification of this tentative decision will be published in a newspaper advertisement or radio broadcast in the locality where the facility combusting the non-hazardous secondary material is located, and be made available on EPA's Web site.

(iii) The Regional Administrator will accept public comments on the tentative decision for at least 30 days, and may also hold a public hearing upon request or at his discretion. The Regional Administrator will issue a final decision after receipt of comments and after the hearing (if any).

(iv) If a change occurs that affects how a non-hazardous secondary material meets the relevant criteria contained in this paragraph after a formal non-waste determination has been granted, the applicant must re-apply to the Regional Administrator for a formal determination that the non-hazardous secondary material continues to meet the relevant criteria and, thus is not a solid waste.

(d) Legitimacy criteria for non-hazardous secondary materials.

(1) Legitimacy criteria for non-hazardous secondary materials used as a fuel in combustion units include the following:

(i) The non-hazardous secondary material must be managed as a valuable commodity based on the following factors:

(A) The storage of the non-hazardous secondary material prior to use must not exceed reasonable time frames;

(B) Where there is an analogous fuel, the non-hazardous secondary material must be managed in a manner consistent with the analogous fuel or otherwise be adequately contained to prevent releases to the environment;

(C) If there is no analogous fuel, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment;

(ii) The non-hazardous secondary material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy.

(iii) The non-hazardous secondary material must contain contaminants at levels comparable in concentration to or lower than those in traditional fuels which the combustion unit is designed to burn. Such comparison is to be based on a direct comparison of the contaminant levels in the non-hazardous secondary material to the traditional fuel itself.

(2) Legitimacy criteria for non-hazardous secondary materials used as an ingredient in combustion units include the following:

(i) The non-hazardous secondary material must be managed as a valuable commodity based on the following factors:

(A) The storage of the non-hazardous secondary material prior to use must not exceed reasonable time frames;

(B) Where there is an analogous ingredient, the non-hazardous secondary material must be managed in a manner consistent with the analogous ingredient or otherwise be adequately contained to prevent releases to the environment;

(C) If there is no analogous ingredient, the non-hazardous secondary material must be adequately contained to prevent releases to the environment;

(ii) The non-hazardous secondary material must provide a useful contribution to the production or manufacturing process. The non-hazardous secondary material provides a useful contribution if it contributes a valuable ingredient to the product or intermediate or is an effective substitute for a commercial product.

(iii) The non-hazardous secondary material must be used to produce a valuable product or intermediate. The product or intermediate is valuable if:

(A) The non-hazardous secondary material is sold to a third party, or

(B) The non-hazardous secondary material is used as an effective substitute for a commercial product or as an ingredient or intermediate in an industrial process.

(iv) The non-hazardous secondary material must result in products that contain contaminants at levels that are comparable in concentration to or lower than those found in traditional products that are manufactured without the non-hazardous secondary material.

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