



Background Document for the Final Comprehensive Procurement Guideline (CPG) III and Final Recovered Materials Advisory Notice (RMAN) III; Appendices I-V

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APPENDIX I

MATERIALS IN SOLID WASTE

APPENDIX I

Materials in Solid Waste

The Resource Conservation and Recovery Act (RCRA) Section 6002 provides criteria for the U.S. Environmental Protection Agency (EPA) to consider when selecting items for designation. One of these criteria is the impact of procurement on the solid waste stream. EPA's designation of an item should promote the statute's underlying objective of using government procurement to foster markets for items containing materials recovered from solid waste. Consistent with this objective, each of the items that EPA proposes to designate is made with one or more materials recovered from solid waste. This appendix briefly discusses solid waste stream materials and provides a more detailed discussion of the materials used in the products designated in the Comprehensive Procurement Guidelines (CPG) III.

A. General Overview of Materials in Solid Waste

Generally, solid waste has several components, such as municipal solid waste (MSW), construction and demolition (C&D) debris, and nonhazardous industrial waste. Under RCRA Section 6002, EPA considers materials recovered from any component of the solid waste stream when designating items containing recovered materials.

EPA publishes annual characterization reports of the generation and recovery of MSW in the United States. EPA's latest MSW characterization study, which presents 1997 waste generation and recovery data, addresses the following materials: paper and paperboard, glass, metals, plastic, rubber and leather, textiles, wood, food wastes, yard trimmings, miscellaneous inorganic wastes, and other materials. Table 1 shows the 1997 generation and recovery of these materials.

Table 1**Materials Generation and Recovery in the U.S. Municipal Waste Stream, 1997
(In Millions of Tons)**

Materials	Generation	Recovery
Paper and Paperboard	83.8	34.9
Glass	12.0	2.9
Metals	16.6	6.6
Ferrous	12.3	4.7
Aluminum	3.0	1.1
Other Nonferrous	1.3	0.8
Plastic	21.5	1.1
PET	1.9	0.4
HDPE	4.6	0.4
PVC	1.3	0.1
LDPE/LLDPE	5.4	0.1
PP	2.8	0.1
PS	2.1	Negligible
Other resins	3.3	Negligible
Rubber and Leather	6.6	0.8
Rubber from tires	4.3	0.9
Textiles	8.2	1.1
Wood	11.6	0.6
Other	3.8	0.8
Food Waste	21.9	0.3
Yard Trimmings	27.7	11.5
Miscellaneous Inorganic Wastes	3.3	Negligible
TOTAL MSW	216.9	60.4

Source: "Characterization of Municipal Solid Waste in The United States: 1998 Update," U.S. EPA, September 1999.

B. Materials Used in Items Proposed for Designation

Table 2 identifies the recovered materials that are or can be used in the items designated in CPG III.

Table 2
Recovered Materials Used in Items Designated in CPG III

Recovered Material	Designated Items
Plastic	<ul style="list-style-type: none"> • Plastic batt building insulation • Carpet cushion • Park benches and picnic tables • Playground equipment • Plastic lumber landscaping timbers and posts • Plastic binders • Plastic clipboards • Plastic file folders • Plastic clip portfolios • Plastic presentation folders • Sorbents • Industrial drums • Awards and plaques • Mats • Signage • Manual-grade strapping
Wood	<ul style="list-style-type: none"> • Sorbents • Awards and plaques • Signage
Rubber	<ul style="list-style-type: none"> • Carpet cushion • Railroad grade crossing surfaces • Sorbents • Mats
Glass	<ul style="list-style-type: none"> • Awards and plaques
Coal Fly Ash	<ul style="list-style-type: none"> • Flowable fill • Park benches and picnic tables • Railroad grade crossing surfaces
Foundry Sand	<ul style="list-style-type: none"> • Flowable fill

Recovered Material	Designated Items
Aluminum	<ul style="list-style-type: none"> • Park benches and picnic tables • Signage • Playground equipment
Steel	<ul style="list-style-type: none"> • Railroad grade crossings • Park and recreational furniture • Playground equipment • Industrial drums • Manual-grade strapping • Sign posts
Food Waste	<ul style="list-style-type: none"> • Food waste compost
Paper and Paperboard	<ul style="list-style-type: none"> • Sorbents • Awards and plaques • Industrial drums
Textiles	<ul style="list-style-type: none"> • Sorbents • Carpet cushion

1. Plastics

Plastics in the waste stream include nondurable goods such as consumer packaging, containers, toys, disposable diapers, trash bags, cups, eating utensils, sporting and recreational equipment, medical devices, and housewares; durable goods such as furniture, appliances, and computers; and commercial/industrial goods such as pipe, cable, siding, and auto parts. Plastic makes up 10 percent of MSW according to EPA's 1997 characterization study and was recovered at an overall rate of 5 percent.

PET has the highest recycling rate of all postconsumer resins with a 19 percent overall recycling rate (3.6 million tons) for postconsumer PET. This rate reflects the high recycling rate for PET soft drink bottles, which are the most widely recycled plastic product, with a 37 percent recycling rate. Other PET bottles (e.g., peanut butter jars and cooking oil bottles), packaging, and nonpackaging materials (e.g., x-ray film) are recycled at much lower rates. Currently, the primary market for postconsumer PET is fiber for use in products such as ski jackets, sleeping bags, and carpet. Other markets for postconsumer PET include soft drink bottles and household product containers.

HDPE had the second highest postconsumer resin recycling rate in 1997 at 9 percent and .4 million tons recycled. The primary supply of postconsumer HDPE is recycled milk and water jugs, detergent bottles, and other household products bottles. HDPE milk and water jugs are the second most commonly recycled product, with a 31 percent recycling rate.

Other postconsumer resins were recycled at much lower overall rates. PP was recycled at a rate of 4.3 percent and LDPE/LLDPE at nearly 2 percent. All other resins, including PS, PVC, polycarbonate, and polyurethane, were recycled at negligible rates.

Technical and economic barriers prevent the increased processing and use of recovered plastic. For example, the various plastic resins are not mutually compatible, requiring that they be separated during processing. As a result, the price of most recovered resins is not competitive with virgin resin, which decreases industry incentives to use them as a raw material. Thus, many communities are discouraged from including plastic in their collection programs. The development of higher value end markets for the plastic that is currently being collected might offset the costs of processing the recovered plastic and encourage more communities to recover plastic from the waste stream, thereby increasing the supply of recovered resins and making the cost of recovered resin more equitable with that of virgin resin.

2. Wood

Sources of wood in MSW include furniture, miscellaneous durables (e.g., cabinets for electronic equipment), wood packaging (crates, pallets), and C&D debris, including forming and framing lumber, stumps, plywood, laminates, and scrap wood. EPA estimates that approximately 11.6 million tons of wood were generated as MSW in 1997, of which only 5 percent (590,000 tons) were recovered. This generation number excludes the over 5 million tons of pallets (about 200 million pallets) that were refurbished and reused in 1997.

According to the National Association of Home Builders (NAB) Research Center, wood wastes comprise, on average, 67 percent of wastes generated by residential new construction and 45 percent of debris from residential demolition. The actual generation rates vary by region. In the Northwest, for example, the percentage of wood generated by new residential construction is higher because a large fraction of homes have wood roofs.

Wood is among the major constituents of C&D debris that is being recovered and processed into recycled-content products, assuming it is not severely contaminated. Wood is also being salvaged through deconstruction, a practices that salvages valuable materials such as wood flooring, doors, and windows for reuse. According to the American Forest & Paper Association (AF&PA) there are 315 facilities in the United States that process wood recovered from C&D debris.

3. *Rubber*

The predominant source of rubber in MSW is discarded tires. Approximately 800 to 850 million scrap tires are currently stockpiled across the United States and over 266 million more are generated annually, according to the Scrap Tire Management Council. Approximately 22.3 percent of the weight of all rubber tires generated in 1997 were recovered for recycling (excluding retreading). Improperly operated stockpiles can create serious health and environmental threats from fires and insect- or rodent-borne diseases. Most states now have scrap tire management legislation fostering alternatives to tire stockpiling and disposal. One of these alternatives is tire retreading, and retreads are already designated in the CPG. The largest uses of scrap tires are tire-derived fuel and civil engineering applications. Another alternative is to use crumb rubber, either alone or mixed with plastic, to produce new products.

Crumb rubber, a fine granular or powdered material capable of being used to make a variety of products, is recovered from scrap tires using thermal and/or mechanical processing techniques. Crumb rubber also is derived from the tire retreading process, when worn tire tread is removed during a buffing process before the new tread is affixed. Rubber materials derived from this process are frequently referred to as “buffings” or “buffing dust.” Approximately 200 million pounds of tire buffings are generated each year by the tire retreading industry in the United States. Several of the items proposed for designation in CPG III contain recovered crumb rubber from tires: railroad grade crossing surfaces, mats, carpet cushion, and sorbents.

4. *Glass*

Glass is found in MSW primarily in the form of containers, but also as a component of durable goods such as furniture, appliances, and consumer electronics. Generation of glass grew continuously through the

1960s and 1970s and began to decline in the 1980s. Glass generation was 12.0 million tons in 1997, representing 5.5 percent of MSW generation.

Approximately 2.9 million tons of glass containers were recovered in 1997, representing 27.6 percent of glass containers generated. Most recovered glass goes toward making new glass containers, but a portion goes toward other uses such as fiberglass and glassphalt for highway construction. Fiberglass insulation is included in the scope of the building insulation products designation.

5. *Coal Fly Ash*

Coal fly ash is the term used to describe a finely divided mineral residue that results from coal combustion. The vast majority of coal fly ash is produced in electric power generating plants, where powdered coal is burned to produce steam to drive the turbines. It passes out of the boiler along with the stack gases and is removed from the gases by various means, including electrostatic precipitators, mechanical precipitators, cyclone separators, bag houses, and scrubbers. Coal fly ash is stored in silos to await reuse or disposal, or it may be conveyed directly to a disposal area. Coal fly ash typically represents about 75 percent of the ash generated by coal combustion, with coarser and heavier bottom ash accounting for the remaining 25 percent.

The American Coal Ash Association (ACAA) estimates that 60.3 million tons of coal fly ash were generated in 1997. Approximately 32 percent of this material (19.3 million tons) was recovered and used primarily in cement and concrete, structural fills, and waste stabilization applications. The remaining 41 million tons were stored or disposed of. EPA previously designated cement and concrete containing coal fly ash. CPG III items containing fly ash include flowable fill, concrete park and recreation furniture, and railroad grade crossings.

6. *Foundry Sand*

Foundry sand is clean, high-quality silica sand or lake sand bonded to form molds for ferrous (iron and steel) and nonferrous (copper, aluminum, and brass) metal castings. After casting, the sand can often contain a number of contaminants, including residual metals and binder materials.

There are basically two types of spent foundry sand, “green” sand and chemically bonded sand. Green sand, used in ferrous metal castings, consists of high-quality silica sand, approximately 10 percent bentonite clay (as the binder), 2 to 5 percent water, and about 5 percent sea mold (e.g., a carbonaceous mold additive that helps improve the casting finish). Chemically bonded sand is used in nonferrous metal castings and usually contains 97 percent foundry sand and a small amount of organic binders and catalysts. Nearly 95 percent of all spent foundry sand is green sand.

Annual generation of foundry sand has been estimated at between 6 and 15 million tons. The Federal Highway Administration (FHWA) estimates that approximately 20 percent of the spent foundry sand generated is recycled.

7. *Aluminum*

The largest source of aluminum in MSW is aluminum cans and other packaging. Other sources of aluminum are found in durable and nondurable goods. In 1997, approximately 2 million tons of aluminum were generated as containers and packaging, while 1 million tons could be found in durable and nondurable goods. The total of 3 million tons represented 1.4 percent of total MSW generation.

Aluminum beverage containers were recovered at a rate of 59.5 percent of generation (900,000 tons) in 1997. In addition, 49 percent of all aluminum in containers and packaging was recovered for recycling in 1997. Moreover, 2.1 million tons of aluminum were discarded in MSW after recovery, representing 1.3 percent of total MSW discards.

8. *Steel*

EPA's 1997 waste characterization study reports that ferrous metals (steel and iron) are the largest category of metals in MSW and represent approximately 5.7 percent of MSW. According to the Steel Recycling Institute (SRI), almost 5 million tons of steel were recovered from the waste stream in 1997, representing a steel recycling rate of approximately 65 percent. This included 1.7 million tons from steel cans and containers and 25 million tons of “white goods” (large appliances). SRI estimates that every ton of recycled steel saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone.

9. *Food Waste*

Food waste consists of uneaten food and food preparation waste from residences, commercial establishments, institutional sources such as school cafeterias, and industrial sources such as factory lunchrooms. No production data are available for food waste, but estimates have been made based on data from sampling studies in combination with demographic data on population, numbers of garbage disposers in homes, grocery store sales, restaurant sales, numbers of prisoners, etc. Generation of food waste was estimated to be 22 million tons in 1997. Discards of food waste in 1997 were 21.3 million tons, or almost 14 percent of total discards, making this type of waste a sizeable component of MSW. In 1997, it is estimated that more than 285,000 tons of food wastes from commercial sources were composted.

10. *Paper and Paperboard (Including Old Corrugated Containers)*

Paper and paperboard, including old corrugated containers, are major components of MSW. In 1997, more than 83.8 million tons of waste paper, or 38.6 percent of total MSW, were generated. A significant portion of paper is recovered and used in the manufacture of new paper and paperboard products. According to the AF&PA, recovered paper now supplies approximately 37 percent of all fiber used in U.S. paper mills. Of the 34.9 million tons of paper and paperboard recovered in the United States in 1997, about 28 million tons (81 percent) were used to make recycled paper and paperboard products.

By weight, old corrugated containers (OCC) comprise the single largest fraction of materials in the paper waste stream. In 1997, according to AF&PA, 20.3 million tons of old corrugated containers were recovered, representing a 67.3 percent recovery rate. The paper industry projects that much of the growth in use of recovered paper will be in containerboard (corrugated medium and linerboard), a paperboard grade made from OCC. Despite the high recovery rates, there are periodic softenings in paper markets, including markets for OCC.

11. Textiles

Textiles in MSW are found mostly in discarded clothing, although other sources may include furniture, carpets, tires, footwear, and other nondurable goods such as sheets and towels. The 1997 estimate of textile generation in MSW is 8.2 million tons, which represents 3.8 percent of the total MSW generated.

A significant amount of textiles is recovered for reuse. Reused garments and wiper rags reenter the waste stream eventually, so this is considered a diversion rather than recovery for recycling and, therefore, is not included in the estimates of recovery. An estimated 7.2 million tons of discarded textiles entered the waste stream in 1997.

APPENDIX II

DISCUSSION OF RCRA SECTION 6002 REQUIREMENTS

APPENDIX II

Discussion of RCRA Section 6002 Requirements

This appendix provides detailed information regarding the applicability of RCRA Section 6002.

A. Who Is a Procuring Agency?

Many of the RCRA Section 6002 requirements apply to “procuring agencies,” which are defined in RCRA Section 1004(17) as “any federal agency, or any state agency or agency of a political subdivision of a state that is using appropriated federal funds for such procurement, or any person contracting with any such agency with respect to work performed under such contract.” Under the statute, responsibility for complying with RCRA Section 6002 rests with each individual procuring agency. RCRA identifies three types of “procuring agencies”: (1) federal agencies, (2) state or local agencies using appropriated federal funds, and (3) contractors to (1) and (2). Procuring agency requirements are discussed in detail below. Also refer to Appendix V for additional information about affirmative procurement requirements.

Private recipients of federal funds (e.g., nonprofit organizations or individual recipients of Farm Home Administration loans or other federal loans, grants, or funds under a cooperative agreement) are not procuring agencies and, therefore, are not subject to RCRA Section 6002. This is true whether the originator of the grant, loan, or cooperative agreement is a federal agency or a state or local agency recipient of federal funds.

1. Federal, State, and Local Government Agencies

Federal agencies are always procuring agencies, because the RCRA Section 6002 requirements apply to federal agencies whether or not appropriated federal funds are used for procuring designated items. All federal agencies are procuring agencies regardless of their funding authority (e.g., revolving funds, etc.). The RCRA Section 6002 requirements apply only when federal agencies procure designated items, however. They do not apply when federal agencies simply disburse funds to state or local agencies; in these instances, the federal agencies are not purchasing or acquiring anything. State or local agencies are procuring agencies and must comply with the guidelines if they use appropriated federal funds for procurement of designated items.

RCRA requirements apply to individual state agencies, not to a state as a whole. For example, if a state receives several hundred thousand dollars in grant monies, only the state agency or agencies purchasing \$10,000 worth or more of a designated product must comply with Section 6002 requirements.

On October 14, 1994, the Office of Management and Budget (OMB) published revisions to Circular A-102 to clarify the circumstances in which RCRA Section 6002 applies to state and local recipients of federal funds.

2. Contractors

Contractors must comply with Section 6002 with respect to work performed under the contract if they (1) contract with a Federal agency or a state agency that is using appropriated federal funds for a procurement and (2) purchase or acquire a designated item whose purchase price exceeds \$10,000 or purchased \$10,000 or more worth of the item during the previous year. Subcontractors are not procuring agencies; Section 6002 limits contractors subject to its requirement to direct contractors with a federal agency or state or local “procuring agency.”

It is immaterial for purposes of the \$10,000 threshold whether the contractor purchased or acquired the designated items as a “procuring agency” (with respect to work performed under a contract with a federal or state agency) or in its private capacity. However, the obligations of Section 6002 are prospective. The contractor must determine whether the \$10,000 threshold is met only after it is a “procuring agency.” That is, purchases exceeding the \$10,000 threshold in the year prior to the year in which a contractor becomes a “procuring agency” do not trigger Section 6002 requirements. Furthermore, while contractors are subject to the Section 6002 requirements once they exceed the threshold, those requirements apply only with respect to work performed under the contract (i.e., when supplying the designated item to any state or federal agency).

For example, in Year One, Contractor X contracts to supply \$500 of hydraulic mulch to a state agency using appropriated federal funds to purchase the hydraulic mulch. Therefore, in Year One, Contractor X is a “procuring agency.” During Year One, Contractor X also purchases hydraulic mulch for its own use for its other customers, with total purchases of hydraulic mulch exceeding \$10,000. In Year One, while Contractor X is a procuring agency, Contractor X is not subject to the RCRA Section 6002 requirements for hydraulic mulch

supplied to the state agency, because the contract price of the mulch does not exceed \$10,000. In Year Two, Contractor X is subject to RCRA Section 6002 requirements for hydraulic mulch regardless of the amount of the contracted purchase, because, while a “procuring agency” in Year One, it purchased in excess of \$10,000 of hydraulic mulch.

In another example, in Year One, Contractor Y purchases \$10,000 of hydraulic mulch, but none was purchased on behalf of a government agency using appropriated federal funds. In Year One, Contractor Y is not a procuring agency. In Year Two, Contractor Y contracts to supply less than \$10,000 of hydraulic mulch to a state agency using appropriated federal funds. In Year Two, Contractor Y is a procuring agency but is not subject to RCRA Section 6002 requirements, because it was not a procuring agency during the previous year when it acquired in excess of \$10,000 of hydraulic mulch.

Contractors can require certifications of recycled content items to be submitted with offers. Alternatively, the U.S. Environmental Protection Agency (EPA) recommends that when an estimate has been provided in a bid, the certification of what materials were actually used in the performance of the contract should be submitted with the last invoice.

B. To Which Purchases Does Section 6002 Apply?

1. Direct and Indirect Purchases

The RCRA Section 6002 requirements apply to both direct and indirect purchases. Purchases made as a result of a solicitation by procuring agencies for their own general use or that of other agencies (e.g., purchases by the U.S. General Services Administration [GSA’s] Federal Supply Service) are “direct” purchases. Purchases of items as part of a contract also are “direct” purchases. Indirect purchases are purchases by a state or local agency using appropriated federal funds or, in some instances, its contractors. Therefore, purchases of designated items meeting the \$10,000 threshold made by states, political subdivisions of states, or their contractors are subject to RCRA Section 6002.

2. *Incidental Purchases Do Not Apply*

The procurement requirements do not apply to purchases if they are unrelated to or incidental to the federal funding, (i.e., not the direct result of the funds disbursement). For example, if an entity has a federal contract to do research and builds or expands a laboratory to conduct the research, the construction is incidental to the contract, as is the purchase of construction materials.

3. *Block Grants, Commingled Monies, and Leases*

RCRA Section 6002 procurement requirements apply whenever federal monies, including block grants, are used, whether or not they are commingled with nonfederal funds. In addition, RCRA Section 6002 also applies to a procuring agency's lease contracts for designated items. The Federal Acquisition Regulation (FAR) defines "acquisition" to include supplies or services (including construction) acquired by means of a lease (48 Code of Federal Regulations [CFR] 2.101). Under the definition of "procuring agency," therefore, lessor contractors are subject to the RCRA Section 6002 requirements for work performed under the lease contract.

RCRA Section 6002 also applies to Department of Transportation grant programs. The conference committee report from the Hazardous and Solid Waste Amendments of 1984 (Cong. Rec. H 11138 [Oct. 3, 1984]) states:

To assure the fullest participation by procuring agencies, the Conferees wish to resolve any ambiguity with respect to §6002's coverage of the Department of Transportation, in particular the Federal Highway Administration (FHWA). The FHWA is a "procuring agency" under the Solid Waste Disposal Act and is therefore fully responsible for implementing the guidelines and other requirements of §6002. It is the intent of Congress that both FHWA's direct procurement and indirect Federal-aid programs (Federal Highway Trust Fund) be covered by the requirements of §6002 as amended by this Act. Indirect purchases by the Federal Aviation Administration are also covered under Section 6002 in the same manner as is the FHWA. Coverage of the FHWA's direct and indirect procurement activities under this amendment extends to the review of procurement specifications pursuant to Section 6002(d), as amended, in addition to the affirmative procurement program required under this section.

C. What Is the \$10,000 Threshold?

RCRA Section 6002 procurement requirements apply to any purchase by procuring agencies of an item costing more than \$10,000 or when the procuring agencies purchased \$10,000 worth of the item or of functionally equivalent items during the preceding fiscal year.

RCRA Section 6002 clearly sets out a two-step procedure for determining whether the \$10,000 threshold has been reached. First, procuring agencies must determine whether they purchased \$10,000 worth of a designated item or functionally equivalent items during the preceding fiscal year. If so, the requirements of RCRA Section 6002 apply to all purchases of these items occurring in the current fiscal year. Second, if the procuring agencies did not procure \$10,000 worth of a designated item during the preceding fiscal year, they are not subject to RCRA Section 6002 unless they make a purchase of the item exceeding \$10,000 in the current fiscal year. The Section 6002 requirements then apply to the \$10,000 purchase of the designated item; to all subsequent purchases of the item made during the current fiscal year, regardless of size; and to all procurements of the designated item made in the following fiscal year.

Section 6002(a) does not specify that the procurement requirements are triggered when the aggregate quantity of items purchased during the current fiscal year is \$10,000 or more. Procuring agencies need not keep a running tally during the year of procurements of designated items. Rather, they should compute their total procurements of a designated item once at the end of the fiscal year and only if they intend to claim an exemption from the requirements of RCRA Section 6002 in the following fiscal year.

The RCRA Section 6002 requirements apply to each federal agency as a whole. During each fiscal year, each major federal agency as a whole purchases or causes the purchase of more than \$10,000 worth of many of the designated items. Therefore, the requirements of RCRA Section 6002 apply to all procurements of these items by these agencies and their subunits.

1. Purchases of Individual Items or Groups of Items

As stated above, the \$10,000 threshold can apply to agencies' purchases of either individual items or categories of items. Within the paper and paper products category, for example, if an agency purchases \$4,000

worth of computer paper, \$3,000 worth of federal forms, and \$3,000 worth of other office papers, these combined purchases achieve the threshold for that designated item, and the agency should develop an affirmative procurement program (APP) for all paper and paper products containing recovered materials.

2. *The Cost of Services*

If the cost of services and the material cost are inextricably linked, the \$10,000 threshold can be applied to the combined cost figure. If a procuring agency contracts for construction of a concrete structure, the agency may include the cost of the services (pouring) with the cost of the product (concrete) when calculating how much is spent on cement and concrete. Alternatively, the agency may devise a method of separating the cost of the concrete product from the cost of pouring and finishing.

3. *Purchases Made from Another Federal Agency*

Many federal agencies procure paper and paper products through GSA and the U.S. Government Printing Office (GPO). Although both of these agencies have their own APPs, agencies that make purchases through GSA and GPO should still have their own APPs for the products they purchase. However, the agencies would need to request estimates and certifications from GSA and GPO, because these agencies will have already obtained this information in the initial purchases. Similarly, the verification requirement is also fulfilled by GSA and GPO.

In other words, GPO requests estimates and certifications from its vendors and contractors and verifies that the estimates and certifications are correct. It routinely supplies recycled paper whenever possible, even when not specifically requested by a procuring agency. Any order for printing on offset, writing, or newsprint stock, which constitutes the bulk of the jobs, is automatically printed on recycled paper that meets EPA's requirements (if the paper is available).

When GSA supplies products containing recovered content to other agencies, GSA has already obtained and verified estimates and certifications. Nonetheless, agencies are still responsible for monitoring purchases made through other agencies, such as GSA and GPO.

D. How Is Section 6002 Enforced?

Section 6002 of RCRA provides for the President's Office of Procurement Policy to implement its requirements. In addition, Section 7002 of RCRA authorizes citizens to sue in federal district court to seek relief against any person alleged to be in violation of requirements of the Act, including RCRA Section 6002. The district court has jurisdiction to enforce the requirements.

Under RCRA Section 6002, federal grant administering agencies should inform state and local agency grant recipients about the requirements of RCRA Section 6002. The grant recipients, in turn, are considered to be “procuring agencies” when they are using appropriated federal funds to purchase designated items and must purchase these items containing recovered materials to the maximum extent practicable. RCRA Section 6002 states that procuring agencies need not purchase recycled products if the products are not reasonably available, are only available at an unreasonable price, or do not meet reasonable performance standards. It is silent, however, regarding penalties for failure to purchase recycled products without these limitations. Therefore, each grant administering agency must determine the appropriate response when a grantee does not comply with RCRA Section 6002.

RCRA Section 7002 authorizes citizens to file a civil action in federal district court against any person alleged to be in violation of a requirement under RCRA. Therefore, a municipality that violates RCRA Section 6002 may be subject to suit.

Executive Order 13101 (the Executive Order) directs the Federal Environmental Executive (FEE) to take necessary actions to ensure that agencies comply with the provisions of the Executive Order. In addition, the Executive Order directs Agency Environmental Executives to track agency purchases of EPA-designated items and report these purchases to the Federal Environmental Executive. RCRA also requires the Office of Federal Procurement Policy (OFPP) to submit biennial reports to Congress.

E. How Does RCRA Section 6002 Relate to Other Federal Procurement Regulations?

The purchase of recycled products under RCRA Section 6002 must be consistent with other federal procurement law, which requires that contracts be awarded to the lowest priced, responsive, responsible bidder.

Federal law does not currently authorize agencies to pay a premium price for recycled products. Agencies are using other means of purchasing recycled products that may be higher priced than virgin products, such as soliciting only for recycled products.

On August 22, 1997, the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council issued a rule amending the FAR parts 1, 10, 11, 13, 15, 23, 36, 42, and 52 to reflect the government's preference for the acquisition of environmentally sound and energy-efficient products and services and to establish an APP favoring items containing the maximum practicable content of recovered materials. See 62 *Federal Register* [FR] 44809, August 22, 1997.

The Paperwork Reduction Act of 1995 (PRA) makes explicit the responsibilities of federal agencies with respect to the development of proposed collections of information and submission of these to OMB for review approval. Accordingly, Federal procuring agencies should consult with their legal offices to determine whether their requirements for estimation and certification would require OMB clearance under the PRA.

F. Where Can Agencies Find Assistance or More Information?

EPA assists procuring agencies by investigating and identifying products that can be made with recovered materials. Based on this research, EPA conducts in-depth analyses of the feasibility of including the product in the Federal government's procurement program. In addition, EPA, through its Recovered Materials Advisory Notices (RMAN), provides recommendations and guidance to procuring agencies in their efforts to comply with Section 6002 of RCRA.

For more information, agencies should contact the RCRA/Superfund Hotline at 800 424-9346 or 703 412-9810, or access EPA's Comprehensive Procurement Guideline (CPG) Web site at <www.epa.gov/cpg>.

APPENDIX III

EXECUTIVE ORDER 13101

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Executive Order 13101

The Executive Order (E.O.) entitled *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition* was signed by President Clinton on September 14, 1998. Section 502 of the Executive Order establishes a two-part process for EPA to use when developing and issuing the procurement guidelines for products containing recovered materials. The first part, the CPG, designates items that are or can be made with recovered materials. As with previous procurement guidelines, the CPG is developed using formal notice-and-comment rulemaking procedures and is codified in 40 CFR Part 247. The Executive Order directs EPA to revise the CPG every 2 years or as appropriate after an opportunity for public comment.

The second part of the two-part procurement guidelines process, the RMAN, provides recommendations to procuring agencies on purchasing the items designated in the CPG. The Executive Order directs EPA to publish the RMAN in the *Federal Register* (FR) for public comments. Because the recommendations are guidance, the RMAN is not codified in the CFR. RMANs are issued periodically to reflect changes in market conditions or to provide procurement recommendations for newly designated items.

The Executive Order also directs EPA to provide guidance to executive agencies on procuring environmentally preferable products. Section 503 directs EPA to develop and issue guiding principles for Executive agencies to use in purchasing environmentally preferable products. On August 20, 1999, EPA issued its *Final Guidance on Environmentally Preferable Purchasing* (64 FR45810), which outlines the federal government's approach for incorporating environmental considerations into its purchasing decisions. In addition to establishing five guiding principles, the final guidance includes specific recommendations for implementing environmentally preferable purchasing, a list of available resources, a glossary, and a list of environmental attributes to help federal agencies compare the environmental preferability of products and services. A link to the guidance is available on EPA's Environmentally Preferable Purchasing (EPP) Web site <www.epa.gov/opptintr/epp>.

Section 401 directs executive agencies to consider the use of recovered materials and other environmental factors in acquisition planning for all procurements and in the evaluation and award of contracts.

Section 402 directs the head of each executive agency to implement the affirmative procurement program requirements of RCRA Section 6002(i) and to include a requirement that all purchases of EPA-designated items meet or exceed the EPA-recommended levels. It further directs agency APPs to encourage that (1) documents be transferred electronically, (2) all government documents printed internally be printed double-sided, and (3) contracts, grants, and cooperative agreements issued after October 20, 1993, include provisions that require documents to be printed double-sided on recycled paper that meets or exceeds the standards established in the Executive Order or in future RMANs. (See Appendix V of this document for a detailed discussion of APPs.)

Sections 501, 505, 506, and 507 of the Executive Order describe requirements for executive agencies to incorporate the provisions of RCRA Section 6002(d)(1) and requires specific actions to be taken by certain agencies. Section 501 directs executive agencies to review and, where applicable, revise their specifications, product descriptions, and standards to enhance federal procurement of products containing recovered materials.

Section 505 directs executive agency heads to purchase uncoated printing and writing paper with a minimum of 30 percent postconsumer materials beginning December 31, 1998. Section 506 further directs the GSA and other federal agencies to revise their paper specifications to eliminate barriers, unrelated to performance, to purchasing paper or paper products made by production processes that minimize emissions of harmful byproducts. On June 8, 1998, EPA published the Paper Products RMAN II in the *Federal Register* (63 FR 31214), which revised EPA's 1996 recommendations for purchasing specified printing and writing papers containing postconsumer fiber by incorporating the recycled content percentages in E.O. 13101.

Section 507 reinforces the procurement guidelines for re-refined oil and retread tires by directing commodity and fleet managers to take affirmative steps to procure these items.

Section 601(b) of the Executive Order directs executive agencies to set goals for purchasing recycled and other environmentally preferable products and to maximize the number of recycled products purchased, relative to nonrecycled alternatives.

Finally, Section 302 requires the Federal Environmental Executive (FEE) to submit an biennial report to the President on the actions taken by agencies to comply with the requirements of the Executive Order,

including the affirmative procurement program requirements set forth in RCRA Section 6002. To enable the FEE to develop this report, executive agencies are required to provide information on their implementation actions.

APPENDIX IV

ADDITIONAL POLICIES AND PROCEDURES

APPENDIX IV

Additional Policies and Procedures

In addition to the requirements of RCRA Section 6002 and the Executive Order, several other federal policies and procedures may affect the procurement of products containing recovered materials. This appendix briefly summarizes requirements and policies set forth in the FAR, OFPP, Policy Letter 92-4, OMB Circulars A-102, A-119, and A-131, and the GSA's proposed Cooperative Purchasing Plan.

A. Federal Acquisition Regulation

The FAR is the primary regulation used by executive agencies in their acquisition of supplies and services (48 CFR 1). FAR Part 23 sets forth requirements and procedures for federal agencies to use when procuring EPA-designated items. On August 22, 1997, the FR issued a final rule amending FAR Parts 1, 10, 11, 13, 15, 23, 36, 42, and 52 to reflect the federal government's preference for the acquisition of environmentally sound and energy-efficient products and services and to incorporate the requirements of RCRA Section 6002.

B. OFPP Policy Letter 92-4

OFPP's Policy Letter 92-4, "Procurement of Environmentally Sound and Energy-Efficient Products and Services" (57 FR 53362), establishes executive branch policies for the acquisition and use of environmentally sound, energy-efficient products and services. In addition to reiterating the requirements of RCRA Section 6002, the Policy Letter requires executive agencies to (1) identify and procure products and services that, all factors taken into consideration, are environmentally sound and energy-efficient, and (2) employ lifecycle cost analysis to assist in making product and service selections.

C. OMB Circular A-102

On October 14, 1994, OMB published revisions to OMB Circular A-102, "Grants and Cooperative Agreements with State and Local Governments" (59 FR 52224). Paragraph 2(h) of the circular requires state and local government recipients of federal assistance funding to comply with RCRA Section 6002.

D. OMB Circular A-119

OMB Circular A-119, “Federal Participation in the Development and Use of Voluntary Standards” (54 FR 57645), sets forth policy for executive agencies to follow in working with voluntary standards bodies and in adopting and using voluntary standards. Paragraph 7(a)(4) recommends that federal agencies give preference to adopting and using standards that “foster materials, products, systems, or practices that are environmentally sound and energy-efficient.”

E. OMB Circular A-131

OMB Circular A-131, “Value Engineering” (58 FR 31056), requires executive agencies to use value engineering as a management tool to reduce program and acquisition costs. Paragraph 8(b) requires agencies to develop guidelines for both in-house personnel and contractors to identify programs or projects with the most potential to yield savings from the application of value engineering techniques. Paragraph 3(b)(4) further requires this guidance to ensure that the application of value engineering to construction and other projects or programs includes consideration of environmentally sound and energy-efficient results.

F. Federal Acquisition Streamlining Act

RCRA Section 60029(c) requires vendors to estimate the percentage of recovered materials used in the performance of a contract. The Federal Acquisition Streamlining Act (FASA) (PL 103-355) amended this section of RCRA to require estimates only for contracts in amounts “greater than \$100,000.”

APPENDIX V

AFFIRMATIVE PROCUREMENT PROGRAM

APPENDIX V

Affirmative Procurement Program

This appendix explains RCRA Section 6002 requirements for the establishment of APPs. Agencies should note that the FAR also addresses affirmative procurement programs. (See 62 FR 44809, August 22, 1997.)

Within 1 year after EPA designates an item, RCRA Section 6002(i) requires each procuring agency purchasing more than \$10,000 of that item, or functionally equivalent items in a fiscal year, to establish an APP for that item. Section 402 of Executive Order 13101 reinforces this requirement and further provides that Executive agencies “shall ensure that their APPs require that 100 percent of their purchases of products meet or exceed the EPA guideline standards,” considering competition, price, availability, and performance.

An APP is an agency’s strategy for maximizing its purchases of EPA-designated items. The APP should be developed in a manner that ensures that items composed of recovered materials are purchased to the maximum extent practicable consistent with federal procurement law. RCRA Section 6002(i) requires that, at a minimum, an APP consist of four elements: (1) a preference program; (2) a promotion program; (3) procedures for obtaining estimates and certifications of recovered materials content and, where appropriate, reasonably verifying those estimates and certifications; and (4) procedures for monitoring and annually reviewing the effectiveness of the APP.

EPA recommends that the Environmental Executive within each major procuring agency take the lead in developing the agency's APP and in implementing the requirements set forth in the CPG. This recommendation is consistent with the basic responsibilities of an Agency Environmental Executive as described in sections 302 and 402 of the Executive Order. Section 302 charges each Agency Environmental Executive with coordinating all environmental programs in the areas of acquisition, standard and specification revision, facilities management, waste prevention, recycling, and logistics. Section 402(c) of the Executive Order further directs each Agency Environmental Executive to track and report, to the FEE, agency purchases of EPA-designated items. In the absence of such an individual, EPA recommends that the head of the implementing agency appoint an individual who will be responsible for ensuring the agency's compliance with RCRA Section 6002 and the Executive Order.

RCRA requires and the Executive Order directs procuring agencies to establish APPs for each item EPA designates. In fulfilling this requirement, EPA recommends that each agency develop a comprehensive APP with a structure that provides for the integration of new items as they are designated. An agency's comprehensive APP does not need to be limited to EPA designated items. In fact, EPA encourages agencies to implement preference programs that expand beyond the EPA designated items in order to maximize purchases of recycled products and foster additional markets for recovered materials.

EPA believes that developing a single APP will substantially reduce procuring agencies' administrative burdens under RCRA that result from EPA item designations. EPA also recommends that if a procuring agency does not purchase a specific designated item, it should simply include a statement in its preference program to that effect. Similarly, if a procuring agency is unable to obtain a particular item for one or more of the reasons cited in RCRA Section 6002(c)(1), a similar statement should be included in the preference program along with the appropriate justification. According to RCRA Section 6002(i)(2)(D), it is the procuring agency's responsibility to monitor and regularly update its APP. Should an item that was previously unobtainable become available, then the procuring agency should modify its APP accordingly.

A. Specifications

RCRA Section 6002(d)(1) requires federal agencies responsible for drafting and reviewing specifications for procurement items purchased by federal agencies to review and revise their specifications and remove requirements specifying virgin materials only or excluding the use of recovered materials. This revision process should have been completed by May 8, 1986. For items designated by EPA, Section 6002(d)(2) directs federal agencies to revise their specifications to require the use of recovered materials to the maximum extent possible without jeopardizing their intended end use. Procuring agencies are required to complete their revisions within 1 year of an item's designation or publication of CPG revisions, as required by RCRA Section 6002(d)(2).

As discussed in Appendix III, sections 501, 505, 506, and 507 of Executive Order 13101 also address federal specification requirements. Section 501 directs Executive agencies to review and revise their specifications, product descriptions, and standards to enhance federal procurement of products containing recovered materials.

B. Preference Program

A preference program is the system by which an agency implements its stated “preference” for purchasing products containing recovered materials. RCRA Section 6002(i)(3) requires procuring agencies to consider the following options when implementing their preference programs: minimum content standards, case-by-case policy development, or a substantially equivalent alternative.

To assist procuring agencies in establishing their preference programs, when EPA designates an item, it examines these statutory options and recommends the approach it believes to be the most effective for purchasing the designated item. Procuring agencies may elect either to adopt EPA's recommended approach or to develop their own approaches, provided that, in accordance with Section 402 of the Executive Order, the selected approach meets or exceeds EPA's recommendations as described in the RMAN(s).

1. Minimum Content Standards

One approach that RCRA Section 6002(i)(3) requires procuring agencies to consider is establishing minimum content standards. RCRA Section 6002(i)(3)(B) further requires the procuring agency to ensure that its standard requires the maximum amount of recovered materials content available for the item, without jeopardizing its intended use.

To assist procuring agencies with establishing their minimum content standards, EPA's RMANs recommend recovered materials content levels, where appropriate, for most of the items it designates. Under RCRA Section 6002(i), it is the procuring agency's responsibility to establish minimum content standards, while EPA provides recommendations regarding the levels of recovered materials in the designated items. To make it clear that EPA does not establish minimum content standards for other agencies, EPA refers to its recommendations as “recovered materials content levels,” consistent with RCRA Section 6002(e) and the Executive Order.

Whenever possible, EPA's recommendations are expressed as recovered materials content ranges within which the items are available. EPA recommends that procuring agencies use these ranges, in conjunction with their own research into the recovered materials content of items available to them, to establish their

minimum content standards. In some instances, EPA recommends a specific level (e.g., 100 percent recovered materials), rather than a range, because the item is universally available at the recommended level.

Refer to Section II.C for more information on the methodology that EPA used to establish recovered materials content ranges for the items designated in CPG III.

2. *Case-by-Case Policy Development*

The second approach procuring agencies must consider is case-by-case policy development. RCRA Section 6002(i)(3)(A) describes case-by-case policy development as “a policy of awarding contracts to the vendor offering an item composed of the highest percentage of recovered materials practicable,” subject to the limitations of RCRA Section 6002(c)(1)(A) through (C) (i.e., competition, price, availability, and performance). The case-by-case approach is appropriate where a procuring agency determines that the minimum content standard it has established for a particular designated item is not appropriate for a specific procurement action [i.e., the procuring agency is unable to acquire the item within the limitations described in RCRA Section 6002(c)(1)(A) through (C)]. The case-by-case approach allows a procuring agency to specify different (usually lower) minimum content standards for specific procurement actions, while still ensuring that the agency fulfills its responsibility to procure the designated item containing the highest amount of recovered materials practicable.

This method does not obviate the need for agency minimum recovered materials content standards. It should be applied to singular procurement actions only when an agency's minimum content standard is unattainable. If a procuring agency determines that it is consistently unable to procure an EPA-designated item using the minimum content standard it establishes, the agency should evaluate its needs and adjust its content standard accordingly.

3. *Substantially Equivalent Alternative*

The third approach specified in RCRA Section 6002(i)(3) requires procuring agencies to consider a substantially equivalent alternative to minimum content standards and case-by-case policy development. For

some items, the use of minimum content standards is inappropriate, because the product is remanufactured, reconditioned, or rebuilt (e.g., industrial drums).

4. *Requirements for Contractors*

Government contractors also are subject to the requirements of RCRA Section 6002. These requirements are applicable where the contractor uses appropriated federal funds and purchases \$10,000 worth of a designated item or purchased \$10,000 or more of the item in the previous year. See Appendix II.A.2 for further clarification about the applicability of RCRA Section 6002 to government contractors.

5. *Exceptions*

A procuring agency may not always be able to purchase a designated item with recovered materials content. RCRA Section 6002(c)(1) allows a procuring agency the flexibility not to purchase an EPA-designated item with recovered materials content if any of the following conditions apply:

- # The agency is unable to secure a satisfactory level of competition.
- # The item is not reasonably available within a reasonable period of time.
- # The item fails to meet the performance standards set forth in the agency's specification.
- # The item is available only at an unreasonable price.

Section 402 of Executive Order 13101 further directs that, if a procuring agency waives its requirement to purchase an EPA-designated item with recovered materials content, it must provide a written justification specifying one or more of the exceptions listed above.

Competition

EPA recommends that determinations of “satisfactory” competition be made in accordance with the procuring agency’s procurement requirements.

Availability and Performance

Information on the economic and technological feasibility of producing each designated item, including the availability and number of manufacturers that produce the item, the ability of the item to meet federal or national specifications, the recovered materials content levels used by manufacturers to produce the item, and other information can be found in the item-specific discussions in subsection 2, “Rationale for Designation,” of each item description discussion in sections VIII through XII of this document.

Price

In previous guidelines, EPA defined an unreasonable price as a price that is greater than the price of a competing product made from virgin materials. EPA further interprets the reasonable price provision of RCRA Section 6002(c)(1)(C) to mean that there is no projected or observed long-term or average increases over the price of competing virgin items. This interpretation is supported in the preamble to OFPP Policy Letter 92-4 (57 FR 53364), which provides that there is no legal mandate to provide a price preference for products containing recovered materials over similar virgin products.

C. Promotion Program

RCRA Section 6002(i)(2)(B) requires each procuring agency to adopt a program to promote its preference to purchase EPA-designated items with recovered materials content. The promotion component of the APP educates staff and notifies an agency’s current and potential vendors, suppliers, and contractors of the agency’s intention to buy recycled products.

EPA believes that an agency’s promotion program should consist of two components: an internal promotion program, targeted toward the agency’s employees, and an external promotion program, targeted toward the agency’s vendors and contractors.

1. Internal Promotion

Procuring agencies can use several methods to educate their employees about their APP. These methods include preparing and distributing agency affirmative procurement policies through in-house electronic mail and other media, publishing or posting articles in agency newsletters and on the Agency's World Wide Web home page, including APP requirements in agency staff manuals, and conducting workshops and training sessions to educate employees about their responsibilities under agency APPs.

2. External Promotion

Methods for educating existing contractors and potential bidders of an agency's preference to purchase products containing recovered materials include publishing articles in appropriate trade publications, posting notices on the agency's World Wide Web home page, participating in vendor shows and trade fairs, placing statements in solicitations, and discussing an agency's APP at bidders' conferences.

D. Estimation, Certification, and Verification

Agencies should use standard contract provisions to estimate, certify, and, where appropriate, reasonably verify the recovered materials content in a product procured by an agency. Programs also must be monitored and tracked to ensure that they are fulfilling their requirements to purchase items composed of recovered materials. E.O. 13101 requires agencies to report compliance annually to the FEE.

E. Procedures to Monitor and Review the Procurement Program

Procuring agencies should monitor their APP to ensure that they are fulfilling their requirement to purchase items composed of recovered materials to the maximum extent practicable. RCRA Section 6002(i)(2)(D) requires the APP to include procedures for monitoring and annually reviewing the effectiveness of an agency's APP. RCRA Section 6002(g) requires OFPP to submit a report to Congress every 2 years on actions taken by federal agencies to implement the affirmative procurement requirements of the statute. Section 402 of Executive Order 13101 directs each agency's Environmental Executive to track and report on agency purchases of EPA-designated items. Section 302 directs the FEE to submit a biennial report to the President on

Executive agency compliance with the Executive Order. In order to fulfill their responsibilities, the FEE and OFPP request information from appropriate agencies on their affirmative procurement practices. It is important, therefore, for agencies to monitor their APP to ensure compliance with RCRA Section 6002 and Executive Order 13101.

In order to comply with the Executive Order, agencies will need to evaluate their purchases of products made with recovered materials content. This also will allow them to establish benchmarks from which progress can be assessed. To evaluate their procurements of products containing recovered materials, procuring agencies may choose to collect data on the following:

- # The percentages of recovered materials content in the items procured or offered.
- # Comparative price information on competitive procurements.
- # The quantity of each item procured over a fiscal year.
- # The availability of each item with recovered materials content.
- # Performance information related to the recovered materials content of an item.

EPA recognizes that a procuring agency may be unable to obtain accurate data for all designated items but believes that estimates will be sufficient to determine the overall effectiveness of an agency's APP.