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# Managing Recovered Materials

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This fact sheet is for anyone planning to recover materials from solid waste for sale, reuse or recycling. The Missouri Department of Natural Resources strongly supports resource conservation. Recovering materials that would otherwise be disposed of as waste is one way to conserve resources. If done properly, it can benefit the environment, conserve raw materials and reduce energy consumption, waste and pollution. However, a materials recovery operation must be well planned, must be done legally and must not create a public nuisance or a threat to public health or the environment. Recovered materials are defined as “those materials that have been diverted or removed from the solid waste stream for sale, reuse or recycling, whether or not they require subsequent separation and processing,” according to Section 206.200(28), RSMo.

## Planning

Recovering material without having markets for it is expensive, pointless and leads to problems. Before beginning any materials recovery, you need to plan the process from beginning to end. Just accumulating recovered materials while waiting for markets to develop or prices to rise does not constitute a plan. The plan should address all aspects of the proposed operation, from economics, to the types of materials you plan to collect, how and where you will collect them and how you will transport, process, manage, store and market them. More detailed guidance covering plan components is available from the Solid Waste Management Program.

## Economics

You need to consider the economics of managing and marketing recovered materials, including processing equipment costs, before you begin collecting them. This includes finding out how much recovered material is available to ensure there is enough to make collection and marketing economical. The department, through the Market Development Program of the Environmental Improvement and Energy Resources Authority, has information about materials recovery and marketing and some limited grant funds. Contact your Solid Waste Management District or other sources listed at the end of this document for more information.

## Things to Consider

When developing a plan for your business, you should consider how the following health and environmental issues may affect the success of your business as well as human health and the environment.

1. What types of materials are you planning to recover?
2. How are they regulated?
3. Could they be hazardous to human health or the environment?

#### 4. Could they be a fire hazard?

The by-products of human activity range from clean fill to regulated solid wastes to hazardous wastes. Some types of waste, as defined by Missouri law and regulations, are discussed below. More information about different types of waste sources listed is available at the end of this document.

Clean fill is “uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinder blocks, brick, minimal amounts of wood and metal and inert (nonreactive) solids... for fill, reclamation or other beneficial use,” according to Section 206.200(4), RSMo. Minimal means the smallest amount possible. For example, concrete containing wire mesh or reinforcing rods (rebar) may be used for clean fill if you remove the exposed rebar before use. Although clean fill is not regulated as solid waste, some recovered materials, such as asphaltic concrete, may be used only in locations where they will not contact groundwater or surface water. Under no circumstances are shingles, sheet rock or wood wastes defined as clean fill.

Recovered materials are those materials removed from the waste stream for reuse or to be made into new products. Potentially recoverable materials include clean fill as well as metals, paper, cardboard, asphalt shingles, sheet rock, concrete, lumber and other wood waste, glass, electrical wire, plastics, organics and many others. However, recovered materials must be used in some way to remain exempt from regulation as a solid waste. Recovered materials stored indefinitely with no end use and no viable markets do not retain their exempt status and will be regulated as solid waste.

Regulated solid wastes include everything in the solid waste stream except materials being properly recovered or used for clean fill. Regulated solid waste may be disposed of only at a solid waste landfill or transfer station. Open-burning regulated solid wastes is illegal. It is illegal to dump or bury them, except at a solid waste landfill or transfer station. Dumping regulated solid wastes on public or private property is illegal, even with the landowner’s permission. If that happens, everyone responsible, potentially including the contractor(s), subcontractor(s), the hauler(s) and the landowner(s), may be held liable for the illegal disposal (260.210, 260.211 and 260.212, RSMo).

#### **Hazardous Wastes**

Because improperly managed hazardous wastes are potentially so harmful to human health and the environment, it requires very careful management. Hazardous wastes may include some paints, stains, shellacs, varnishes, solvents, many chemicals, pesticides, herbicides and many other products used for building and vehicle maintenance, lawn care, cleaning, polishing, etc. If you are recovering hazardous materials, state and federal hazardous waste regulations require that you be able to show:

- The materials you have recovered are potentially recyclable with a feasible means of being recycled.
- During the calendar year (beginning on Jan. 1) the amount of material recycled or transferred to a different site for recycling equals at least 75 percent by weight or volume of the material accumulated on site at the beginning of that period.

If you believe any materials you have recovered may be hazardous, you should contact a department Regional Office as soon as possible to discuss management options.

Many people who are considering recovering demolition materials are concerned about whether or not it contains asbestos. Asbestos may be hazardous to human health if the asbestos

particles are released into the air and inhaled or swallowed. Before recovery, it is important to find out if any demolition materials contain asbestos. Asbestos is most commonly found in older buildings in ceiling or floor tiles, as soundproofing/insulation on ceilings, pipes, duct work or boilers or in transit siding or shingles. The presence of asbestos cannot be confirmed just by looking at it. A Missouri-certified asbestos inspector must inspect the building to determine the presence and condition of materials that may contain asbestos. Contact the Air Pollution Control Program's Asbestos Unit at 573-751-4817 for more specific information.

General information about recovering construction and demolition materials is available by contacting the Air Pollution Control Program office at 800-361-4827 and asking for the fact sheet *Managing Construction and Demolition Waste* -- PUB2045. The publication is available on the department's Web site at [www.dnr.mo.gov/pubs/pub2045.pdf](http://www.dnr.mo.gov/pubs/pub2045.pdf).

**Where will you dispose of the materials that cannot be reused or recycled and how much will it add to the cost of doing business?**

Generally, recovered materials will contain minor amounts of unwanted and unusable items (contaminants). For example, cans, bottles or old shoes may be found in yard waste, plastic dinnerware in food waste or paper and cardboard in a load of roofing shingles. Most of these unwanted items are regulated as solid waste and must be disposed of at a permitted solid waste landfill or transfer station. Garbage and other wastes that decompose quickly must be stored in covered containers and should be removed from the premises within 24 hours or during the next regularly-scheduled trash pick up. These wastes should never be stored on the premises longer than one week. Wastes that do not decompose quickly should be removed within 30 days of receipt. Recovered materials, with or without processing, should be removed from the premises within six months of receipt. For your own protection, it is extremely important to keep records available that show when recovered materials were brought in, when they were removed or used and where they were taken for recycling or disposal. Otherwise, you risk liability for illegal disposal, since you will have no record of when recovered materials were delivered to the site or how often you remove the unwanted items for disposal. Please keep in mind that these storage guidelines are for permit-exempt facilities. Storage and removal requirements for permitted facilities are more stringent than these.

**How will you store the recovered materials until you can market or process them? If they need to be stored under cover, how much will this add to the costs? If you store them outside, how will you keep the storage area neat, safe and free from rodents and insects? Will the recovered materials lose value if you store them outside?**

A common complaint received by department staff concerns improperly stored recovered materials. All recovered materials should be properly stored until they are sold or processed. Inside storage usually costs more than outside storage. However, inside storage is safer, cleaner, reduces the likelihood of complaints from neighbors and helps recovered materials retain their market value. Some local ordinances may require inside storage.

Most recovered materials lose value when exposed to the elements. Storing recovered materials that have lost their value for reuse or recycling may be considered illegal disposal. Depending on how outside storage is managed, improperly stored materials may harbor rodents, provide breeding grounds for insects, attract scavengers or pose a fire hazard. Storing or processing recovered materials outside will usually require a storm water permit. Local ordinances may require privacy fencing to shield outside storage or processing areas from public view.

## **State and Local Environmental Permits and Approvals**

State and local permitting requirements for handling recovered materials vary, depending on these factors.

The Missouri solid waste law allows most source-separated materials to be recovered or processed without a solid waste permit as long as the activity does not create a public nuisance, harm public health or pollute the environment. Source separated means the recovered materials are kept separate or removed from regulated solid wastes at the source. Recoverable materials mixed with regulated solid wastes and removed from the site where generated must be sorted at a permitted solid waste processing facility or at a facility having a permit exemption from the Solid Waste Management Program. Sorting or separating mixed (commingled) recovered materials is a permit-exempt activity. For example, newspapers, milk jugs and aluminum cans could all be put into one container for collection and sorted later without a solid waste permit being required.

You may need a permit from the Air Pollution Control Program if the processing produces any emissions such as dust or odors. You will probably need a storm water permit from the department's Water Pollution Control Branch if any part of the operation, including materials storage or processing, takes place outside. For more information about the departments permitting requirements, contact the sources listed in this document.

Local permits or approvals may be required, depending on the specifics of your proposed operation and its location. Contact local code enforcement officers, planning and zoning officials or public works departments for more information. We recommend contacting local officials early in the planning process to find out what permits you may need and approximately how long it will take to get them. You also need to know if any zoning restrictions may apply.

### **A Word of Caution**

It is important that all parts of your material recovery operation be conducted according to applicable laws and regulations. If you have any questions about whether a proposed activity complies with the environmental requirements, contact a Regional Office or the Solid Waste Management Program. A few examples of illegal material recovery include:

- Open burning any kind of waste, such as electrical wires, tires or cores from motors to recover metals.
- Venting any gases from appliances, air-conditioning units, etc., into the open air.
- Allowing materials stored outside to contaminate surface or groundwater, harbor rodents or insects or wash or blow off your property.
- Creating a public nuisance such as foul odors, blowing litter or other offensive conditions.
- Allowing fluids from engines, motors, appliances, etc., to run onto the ground.
- Operating without required permits or permit exemptions.

### **Sources for More Information**

More information about recovered materials and possible permit requirements is available from these sources:

Air Pollution Control Program	573-751-4817
Hazardous Waste Program	573-751-3176
Solid Waste Management Program	573-751-5401
Water Pollution Control Branch	573-751-1300

**Regional Offices**

Kansas City Regional Office	816-622-7000
Northeast Regional Office (Macon)	660-385-2129
St. Louis Regional Office	314-416-2960
Southeast Regional Office (Poplar Bluff)	573-840-9750
Southwest Regional Office (Springfield)	417-891-4300
Environmental Improvement and Energy Resource Authority Market Development Program	573-526-5555
University of Missouri, Small Business Development Center	573-882-7096

Environmental publications are also available at [www.dnr.mo.gov/pubs/pubs.htm](http://www.dnr.mo.gov/pubs/pubs.htm).

**For More Information**

Missouri Department of Natural Resources  
Solid Waste Management Program  
P.O. Box 176  
Jefferson City, MO 65102-0176  
800-361-4827 or 573-751-5401 office  
573-526-3902 fax  
[www.dnr.mo.gov/env/swmp/index.html](http://www.dnr.mo.gov/env/swmp/index.html)