

Integrating P2 into the Inspection Process

Solid Waste Reduction

Background

In the simplest sense, waste is anything left over or generated, as a result of a process, that you do not want any more. If the waste is chemical or biological in nature and potentially dangerous to humans, then it may be considered a hazardous, infectious, or medical service waste.

Solid waste is the term used to describe wastes, such as garbage, refuse or other discarded materials, that are accepted at landfill or transfer station. Unfortunately, the average U.S. resident produces more than four pounds of solid waste per day, according to the EPA. This is twice the average amount of waste produced by individuals in other industrial countries, and businesses account for about 60% of the trash volume at landfills. Businesses and consumers can help cut waste by changing what they buy and how much, and recycling as much as possible. Some states require the reduction of solid waste to lengthen landfill life and to reduce waste disposal costs. Waste reduction requires cutting back the amount and volume of discarded materials.

The year 2000 figures indicate that Kansans generated about 6.4 pounds of waste per day per person; this is nearly 1½ times as much as the 4.4 pounds per day national average.

Nationally about 37% of households recycle. In Sedgwick County 2000 recycling rates were about 15%. (*The Wichita Eagle, 1/15/01*)

Regulatory Issues

Solid wastes, excluding bulky wastes, must be removed from residential or business storage to a landfill or transfer station at least once a week. Due in part to past landfill contaminations, new landfills are required to install plastic and clay liners and leachate collection systems, as well as monitor the groundwater and surface water for harmful chemicals. These landfills normally accept non-hazardous business and domestic (household) wastes, with some waste streams requiring a “special waste authorization.” Hazardous waste is generally prohibited at landfills, but in many cases Small Quantity Generators waste can go to the landfill in Kansas. Disposal of household hazardous wastes, fluorescent bulbs, specified types and quantities of dead animals, and medical services wastes are some items that may need special evaluation using the KDHE Technical Guidance Documents. Construction and Demolition (C&D) landfills can accept solid wastes resulting from the construction, remodeling, and demolition of structures. These C&D landfills cannot accept other types of municipal solid or hazardous wastes. Some instances allow for concrete rubble to be disposed of or buried on site. Composting facilitates around Kansas accept wood and yard waste for recycling and composting, but unless the local jurisdiction has a program, much of this waste ends up in the landfill. At this point in time the state of Kansas has not mandated any solid waste reduction activities, opting to leave these decisions up to the local jurisdictions.

Where is the P2 potential?

When we think of the pollution prevention potential at a business, we may think of cardboard, plastics, pallets, and paper as targets for obvious and common waste reduction opportunities. These are large, bulky waste streams that can sometime be easily addressed through recycling.

Recycling, not always considered true P2, does not reduce the amount of waste generated, but it does reduce the amount of waste going to the landfill. In many cases, recycling may be an important first step towards other waste reduction activities at a business. It may be the start of an environmental ethic among the employees and management that sparks further P2.

It is very important to enlist employee feedback with any waste reduction or P2 program. Form a team when possible to identify different needs and opportunities. The purchasing department can often hold the key to encouraging waste reduction at the source, true pollution prevention. Source reduction is always the best choice when opportunities exist. This strategy is the most cost effective and environmentally beneficial. Purchasing or accounting staff can review orders and solid waste bills and volumes. This information is important for the team to use when evaluating where P2 opportunities exist.

A business that desires or has been identified, as a candidate for solid waste reduction may first want to ask: "What is the company's largest, bulkiest, heaviest, and/or most problematic waste stream? By asking this question, several different waste reduction opportunities may be identified. Next, the wastes need to be prioritized by identifying which ones will have an obvious positive impact, gaining the support of employees and management. According to EPA waste reduction guides, priority projects should meet one of the following criteria:

- Easy to identify and implement
- Requires low capital investment
- Delivers an attractive payback period
- Result in savings for the business
- Offer positive public image
- Improve safety for employees

- Reduce regulatory burden
- Lowers company liability
- Reduces a large volume of waste
- Lowers energy consumption
- Reduces use of toxic or hazardous materials.

It is very important to measure waste reduction activities. Use these tip to get started:

1. Have management explain that waste reduction is a company priority, not just a job for a few!
2. Establish your baseline; know your starting point, *Get data from purchasing, finance, facilities, etc. on what you are currently spending, buying, how many times/month the trash is hauled, etc.*
3. Take aim at your goal; set your mark, *Without a goal you cannot know if you were successful.*
4. Make an action plan to achieve the goal. *You throw "x" amount away now; you will reduce it by "y."*
5. Set the plan in motion. *Start with "low hanging fruit."*
6. Start keeping a database. *Keep a monthly record or log of trash hauls, recycled qty., etc.*
7. Do not recreate the wheel. *Network, borrow good ideas -- this is not a patented process.*
8. Take incremental steps. *How do you eat an elephant? One bite at a time. It is normal to allow several years for a good program to bear fruit. A large number of drops of water can become a mighty river.*



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Solid Waste Reduction P2 checklist

Remember, think pollution prevention or source reduction first, then recycling.

- Form a pollution prevention or green team to identify waste reduction opportunities at your business. Train these folks to look for waste reduction.
- Use a "Just-in-Time" ordering system.
- Establish a centralized purchasing system .
- Use a computer-assisted plant inventory system.
- Conduct frequent inventory checks.
- Perform a dumpster dive or waste inventory.
- Identify outlets for items that can be recycled.
- Buy products made from recycled materials. Whenever possible, "close-the-loop."
- Select quantity and package type to minimize packing waste.
- Change to reusable shipping containers.
- Order items in bulk when possible.
- Require employees to duplex copies when possible.
- When possible, use both sides of printer paper for draft documents, e-mails etc.
- Issue all newsletters and memos via e-mail rather than paper.
- Inspect material before accepting a shipment to verify correct shipments, expiration dates.
- Establish material use guidance documents to reduce excess use. Do you really need all of these items?
- Conduct periodic materials tracking.
- Set up staffed control points to dispense materials/chemicals and collect wastes.
- Find less critical uses for off-spec material (that would otherwise be disposed).
- Test effectiveness of outdated material.
- Eliminate shelf-life requirements for stable compounds.
- Properly label all containers.
- Switch to less hazardous raw materials.
- Use rinsable/recyclable drums.
- Order chemicals in exact amounts needed, if possible.
- Encourage chemical suppliers to become responsible partners (e.g., accept outdated supplies), or switch to a vendor that will work with you on these issues.
- Establish an inventory control program to trace chemical use.
- Rotate chemical stock.
- Develop a running inventory of unused chemicals for other departments' use.
- Utilize interbusiness, local or Web-based material exchange programs.
- Offer unwanted office supplies, furniture, or equipment to employees, charity services, etc.
- Solicit and reward all employees for ideas that result in waste reduction.

Case study and cost benefit

One large printing company discovered that it could turn pallet waste from a cost to a profit center. Instead of sending pallets to the landfill, the company repaired and rebuilt pallets. And then sold them. This turned a \$100,000 waste cost into a \$300,000 net profit! This worked because the company generated a large number of waste pallets.

A Kansas company sending nine tons a week of a plastic material to a local landfill recently explored a recycling opportunity with the help of the SBEAP. A plastic manufacturer in an adjacent county was willing to transport and accept the material every week for purposes of recycling it for the manufacturer of railroad ties and related plastic lumber. The plastics manufacture even agreed to take the other 10 to 20,000 pounds a year of miscellaneous plastic material normally disposed of at the landfill. This amounts to just under a million pounds of plastic material being diverted from the local landfill annually.

According to WasteWise, one ton of paper recycled saves -

- 17 tress
- 386 gallons of fuel oil
- 7,000 gallons of water
- 89 cubic feet of landfill space
- one home powered for six months

Additional resources

WasteWise is one of the most common sites targeted at business addressing waste reduction business needs: <http://www.wastewise.org/>.

These Web site provides a comprehensive pollution prevention checklist for several different waste origins and types: <http://www.epa.state.oh.us/dhwm/chkall.htm>, www.cleanerproduction.com.

Several material exchange programs are available through the web:

- www.surplusexchange.org click on Special Projects, then click on Kansas Rural Reuse.
- www.xsmaterials.com is another on-line material exchange resource. It provides generators of excess materials with a single Internet location where they can list their materials for sale or exchange. This site links you to either featured auction or material exchange sites, listed by materials type such as chemicals, textiles, etc. or by state.
 - Other U.S. material exchange programs can be found at: www.reuse.org or www.imex.org
 - Redo can help you set up a material exchange program. Visit it at www.redo.org