Legislative mandates are forcing managers to rethink the way facilities dispose of mercury-containing lamps

The proper end-of-life handling of mercury-containing lamps presents institutional and commercial facilities with important decisions. Where once these lamps could simply be thrown away with the rest of a facility’s trash, environmental concerns centering on mercury have given rise to requirements to dispose of these products more carefully.

Increasingly, maintenance and engineering managers face questions from within their organizations about the most effective way to address the challenge — namely, whether to throw away the lamps or to recycle them.

The regulatory situation surrounding lamp recycling and disposal is evolving rapidly in ways that will affect managers’ decisions. Developing a cost-effective strategy requires that managers understand the compliance issues, their disposal and recycling options, and the key considerations in their ultimate decision.

The regulatory picture

Mercury is fundamental to the efficient operation of fluorescent and almost all high-intensity discharge (HID) lamps. In fluorescent lamps, mercury is used to generate ultraviolet light that is converted to visible light by the phosphor. A “no-mercury” fluorescent lamp loses about 70 percent efficiency. HID metal halide and most high-pressure sodium (HPS) lamps use mercury as a starting aid and for voltage control.

Mercury’s presence in fluorescent lamps used for years in many facilities nationwide has prompted regulatory action at both the federal and state levels.

The U.S. government bans the disposal of lamps that do not pass hazardous waste tests by larger businesses and has reduced the regulatory burden in recycling these lamps. Most states follow the federal rules, while some states are more stringent by banning the disposal of all lamps. Information about individual state requirements can be found at www.lamprecycle.org.

Disposal decisions

The question of whether facilities can throw lamps in the trash is a legal and compliance decision. Under federal regulations, spent mercury lamps — both fluorescents and HIDs — are hazardous waste unless the disposer has information from manufacturer or test results to prove they are non-hazardous.

The answer depends on how many spent lamps a facility generates each month. Federal regulations exempt certain small-quantity generators, those that generate less than 220 pounds of hazardous waste — not just lamps — per month.

State agencies are authorized to manage hazardous waste programs. State regulations must be equivalent to, but are allowed to be more stringent than, federal rules. For example, in a few states, there is no small-quantity exemption, and in other states there are mercury disposal bans.

In determining whether facilities can throw lamps in the trash, managers must answer three key compliance questions:

- Does my state follow the federal small-quantity hazardous waste exemption?
- Does my state allow solid waste disposal of test-compliant mercury-containing lamps?
- What will my state allow in the future when I remove lamps from service?

Mercury regulations are tightening in several states.
Assessing risk

The decision on whether lamps can be thrown in the trash also is a risk-management issue. Managers should consider their organizations’ Superfund liability because generators are liable for waste they generate. This liability is strict, joint and several, and not limited by time. There is no small-quantity exemption under Superfund laws, and liability extends to legal solid-waste disposal.

If a facility legally throws lamps in the trash as a small-quantity generator, is the organization liable under Superfund? Yes. If a facility legally throws “low-mercury” lamps in the trash, is the organization liable under Superfund? Yes. Manufacturers of low-mercury lamps recommend recycling as a disposal method.

If a facility sends lamps to a recycler that ends up causing problems, is the organization potentially liable? Yes, if the “recycling” company does not have the financial resources to correct the problems it created.

For these reasons, a manager making the decision to on whether or not to recycle, for either compliance or risk management reasons, should try to remember two sayings:

• Caveat emptor, or let the buyer beware.
• You get what you pay for.

Managing spent lamps

Spent lamps can be considered either hazardous or universal waste, except in Maryland, where the universal waste rule does not cover lamps. The universal waste classification brings with it reduced requirements, compared with those for hazardous waste:

• Storage. Universal waste can be stored for one year, compared to 90 days for hazardous waste.
• Transportation. Universal waste can be transported using a common carrier, while hazardous waste requires special transportation.
• Paperwork. Universal waste requires a bill of lading, while hazardous waste requires a manifest.

Some states have adopted the federal universal waste rule, while others have made changes to the rule. Managers who want to check for state specific requirements can visit www.lamprecycle.org for a list of state links.

Large and small generators have disposal choices. They can contract directly with recycling companies. They also can contract with third parties, including waste brokers, environmental service companies, energy service companies, utilities, lighting maintenance companies and distributors.

Spotlight: NEMA

The National Electrical Manufacturers Association (NEMA) is a federation of more than 50 diverse product sections that are grouped into eight divisions.

NEMA’s 450 member companies manufacture products ranging from X-ray machines and CT scanners to motors, generators, lamps, luminaires, cable trays, building wire, enclosures, traffic controls, nurse-call systems, and batteries.

The NEMA lamp section, one of the product sections, is responsible for lamprecycle.org. The Web site was developed by the lamp section of the NEMA to provide a one-stop source of information about spent fluorescent and high intensity discharge lamp recycling.

The lamp section represents virtually all of the lamp manufacturers of the United States.
Visit www.nema.org for more information.

Costs for these options vary based on volume, location, project and facility conditions. Typically, bulk costs for fluorescent lamps are in the range of 7-12 cents per foot. Convenience “box” services typically cost more.

Recycler considerations

In addition to traditional generic considerations such as competitive pricing and responsive service, managers must weigh some very issue-specific considerations in selecting a recycler:

• Total service. This factor includes proper packaging, labels and shipping documents, collection and transportation, waste processing, waste tracking and regulatory advice.
• Environmental protection, including such provisions as state permits, regulatory compliance, audit information and proper destination of lamp components.
• Financial safeguards, including insurance — such as pollution liability insurance for sudden and non-sudden occurrences — indemnification, facility closure plans that are fully-funded and state-approved, and strong financials.
• Experience, including the number of years in business, the caliber of employees, the company’s performance track record, and customer references.

Where we’re headed

The nation’s lamp recycling rate rose from 15 percent in 1997 to nearly 25 percent in 2002, but the goal of the U.S. Environmental Protection Agency is to exceed 50 percent in five years. Regulations and public scrutiny will continue to increase for mercury-bearing wastes, including lamps. The Dumpster will become a less attractive and allowable option.

The most efficient lamps need mercury to operate, but managers also must recognize and address the problems associated with the proper end-of-life handling of these materials. The regulatory environment related to lamps is becoming more complex quickly, and managers that successfully handle the decision are likely to be those that take time and effort now to thoroughly assess their organizations options and opportunities.

This article is adapted from information provided by the National Electrical Manufacturers Association (www.nema.org) and by www.lamprecycle.org.

Mercury-Free Lamp Options

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— NEMA