



Minnesota  
Pollution  
Control  
Agency

This fact sheet is intended for health care providers.

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# Managing Waste from Health Care Providers

Waste/Hazardous Waste #3.34 • October 2003

## Who is a health care provider?

The Minnesota Pollution Control Agency (MPCA) defines the term “health care provider” broadly to include a school or plant nurse’s office, a physicians’ office, a dental office, a medical clinic or center, an assisted-care or long-term care facility, a hospital, a veterinary clinic or animal hospital and those personnel providing health care or operating such facilities.

In addition to physicians, physicians’ assistants, nurses and other personnel found at these sites, dentists, podiatrists, veterinarians and similar providers are also included in this definition. If you or your business fits the definition of ‘health care provider’, this information applies to you.

## What are the environmental concerns?

Health care providers generate several types of regulated wastes which, if mismanaged, can harm human health and the environment. Regulated wastes include hazardous wastes, industrial solid wastes, infectious (red bag) wastes, pharmaceutical wastes, some sewerable wastes and radioactive wastes. Drugs used to treat patients can be hazardous waste when disposed of.

Facilities with boilers or generators may need an Air Quality Permit from the (MPCA). For more information about air quality requirements, see the fact sheet entitled *Air Emission Control Requirements for Health Care Facilities*

available on the MPCA Web site at [www.pca.state.mn.us/publications/aq1-26.pdf](http://www.pca.state.mn.us/publications/aq1-26.pdf).

- dental
- dialysis
- environmental services/ housekeeping/maintenance
- laboratory and pathology
- oncology
- pharmacy
- nuclear medicine
- nursing
- radiology
- sterile processing
- surgery

For examples of the different types of waste generated by each department, see the Excel table entitled *Table of Common Regulated Wastes in the Health Care Industry* available on the MPCA Web site at [www.pca.state.mn.us/publications/w-hw3-34a.pdf](http://www.pca.state.mn.us/publications/w-hw3-34a.pdf).

## What wastes are regulated?

For health care facilities, regulated wastes include hazardous, industrial solid, infectious, pharmaceutical, radioactive and sewerable wastes. Each of these is discussed in detail below.

**Hazardous wastes** are wastes that have been classified as hazardous by the federal U.S. Environmental Protection Agency (EPA) or the MPCA. A waste is hazardous if it appears on one of four lists of known hazardous wastes (F, P, K or U lists), if it displays a hazardous characteristic or if it

contains 50 parts per million or more Polychlorinated Biphenols (PCBs). A 'characteristic' hazardous waste is one that meets the definition in the Minnesota Rules for ignitability, oxidizer, corrosively, reactivity, lethality or toxicity.

Examples of wastes on the F list include xylene and acetone. Chemotherapy drug waste may be on the P or U lists or display the characteristic of Minnesota lethality. Alcohols may be ignitable. Mercury-bearing wastes are generally toxic. Strong acids and bases are corrosive. Aerosols generally are ignitable and/or take the characteristic of the waste they contain.

**Hazardous Waste – Reduced Requirements**, some hazardous and potentially hazardous wastes are common to many types of businesses. Examples include fluorescent lamps, batteries, electronic equipment, used oil and lead-acid batteries. The EPA and/or MPCA have provided specific management guidance for each waste which, if followed, usually reduces management requirements yet ensures the waste is managed safely.

For more information, see fact sheets on the MPCA Web site at [www.pca.state.mn.us/waste/pubs/business.html#hazardous](http://www.pca.state.mn.us/waste/pubs/business.html#hazardous) or the Minnesota Hazardous Waste Rules at [www.pca.state.mn.us/waste/hw\\_mnrules.html](http://www.pca.state.mn.us/waste/hw_mnrules.html).

**Industrial solid waste** is all solid waste generated from an industrial or manufacturing process, non-manufacturing activities such as service and commercial establishments, construction debris and asbestos. Health care wastes that are not liquids, not gases, not hazardous, not infectious, not pharmaceuticals or radioactive, and not office materials or food preparation waste are industrial solid waste. For health care facilities doing renovations, demolition debris and discarded machinery that do not fall into another category are also industrial solid waste. Industrial solid waste cannot be discarded or mixed with "normal trash."

For more information, see Minnesota Solid Waste Rules at [www.pca.state.mn.us/waste/sw\\_mnrules.html](http://www.pca.state.mn.us/waste/sw_mnrules.html).

**Infectious waste** is waste that has the potential to transmit disease – regulated body fluids (blood and blood products and amniotic, cerebrospinal, pericardial, peritoneal, pleural and synovial fluids) and items dripping with those fluids, laboratory waste (waste cultures and stocks), infected research animal waste, sharps and pathology waste. Infectious waste is also sometimes called biohazardous, red bag or regulated

medical waste. Infectious waste is **not** the same as hazardous waste.

For more information, see the Minnesota Infectious Waste Rules at [www.revisor.leg.state.mn.us/arule/7035/9110.html](http://www.revisor.leg.state.mn.us/arule/7035/9110.html).

**Pharmaceutical waste** includes expired drugs, medications left behind when a patient expires or leaves a health care facility, waste materials containing chemotherapy drug residues (syringes, IV bags, tubing, etc.) and drugs that are intended to be discarded. You must evaluate each of these wastes to see whether they are hazardous and dispose of them accordingly. For more information on chemotherapy-related waste, see fact sheet *Managing Antineoplastic (Chemotherapy) Waste* available on the MPCA Web site at [www.pca.state.mn.us/publications/w-hw4-03.pdf](http://www.pca.state.mn.us/publications/w-hw4-03.pdf).

**Radioactive wastes** contain radioactive materials. Radioactive materials are used in, and wastes generated by, several areas of a health care facility including nuclear medicine, nuclear cardiology, radiation oncology, blood bank, clinical laboratories, and research laboratories. Although X-rays are a form of radiation, they do not "contaminate" items and therefore, are not a source of radioactive wastes. When the X-ray machine is "off", no radiation is being produced. Radioactive wastes may be solids, liquids, or gases. Occasionally, "mixed waste" will be generated. "Mixed waste" is waste that contains both hazardous waste and radioactive material; it must be managed in accordance with both U.S. Nuclear Regulatory Commission (USNRC) and EPA rules.

The USNRC is responsible for establishing and enforcing Federal regulations for the use and disposal of source, by-product, and special nuclear materials. The Federal regulations for using radioactive materials and managing their wastes are found in 10 CFR 20 and 10 CFR 35. Not all radioactive materials are regulated by the USNRC; naturally-occurring and accelerator-produced radioactive materials are regulated by individual states.

Minnesota rules regulating radioactive materials are currently found in Minn. R. Ch. 4730; however, Minnesota is currently in the process of becoming an *Agreement State* and is promulgating the rules to make that happen. When it does, all the state rules will be located in Minn. R. Ch. 4731.

**Sewerable waste** is liquid waste that is usually regulated by the generator's wastewater treatment plant authority

or, in some cases, the MPCA. Most of the metropolitan areas and many of the larger cities within Minnesota have local rules regulating the discharge of wastewater into the sanitary sewer. While rules may vary for different cities, limits are usually set for metals and pH. Some wastes may be prohibited, such as flammables, oils, solids, corrosives, hazardous, ground up solids and infectious wastes. Wastewaters, such as non-contact cooling and storm water, may also be prohibited from the sanitary sewer.

If part of an approved infectious waste management plan, blood and body fluids may be allowed to be discharged to the sanitary sewer. Check with your wastewater treatment plant authority. Certain wastes may be discharged after they have been treated, such as acids or caustics after adjusting the pH or x-ray fixer after treating to remove silver. Check with your local wastewater treatment plant operator or sewer authority to determine which wastes can be safely discharged. In the Twin Cities metropolitan area, the sewer authority is Metropolitan Council Environmental Services (MCES). In Greater Minnesota, the sewer authority is your delegated program or the MPCA. For more information, see the fact sheets on the MPCA Web site entitled *Sewering Liquid Waste and the Sewered Waste Notification Form* at

[www.pca.state.mn.us/waste/pubs/business.html](http://www.pca.state.mn.us/waste/pubs/business.html).

Keep records of even small amounts of hazardous waste and treated hazardous waste discharged to a sanitary sewer. You will be asked to report those quantities on your hazardous waste license application and annual report.

## How must I manage regulated waste?

### Managing Hazardous Waste

Hazardous waste is usually a small percentage of the waste generated by health care providers; however, all hazardous waste must be managed appropriately. First, you need to identify which waste is hazardous and why. This is called ‘evaluating the waste.’ For help, see MPCA’s hazardous waste fact sheet 1.01 entitled *Evaluate Waste; Determine Generator Size* available on the Web at [www.pca.state.mn.us/publications/w-hw1-01.pdf](http://www.pca.state.mn.us/publications/w-hw1-01.pdf).

The amount of hazardous waste a facility generates per month determines its generator size, the number of rules it must follow and the length of time it can accumulate waste on site:

- **Minimal Quantity Generator (MQG)** – generates 100 pounds or less of non-acute hazardous waste per year (some Twin Cities metropolitan counties do not separate MQGs from Very Small Quantity Generators; check to see whether yours does);
- **Very Small Quantity Generator (VSQG)** – generates 220 pounds or less per month non-acute hazardous waste *and* less than 2.2 pounds per month acute hazardous waste;
- **Small Quantity Generator (SQG)** – generates less than 2200 pounds per month non-acute hazardous waste *and* less than 2.2 pounds per month acute hazardous waste;
- **Large Quantity Generator (LQG)** – generates 2200 pounds per month or more non-acute hazardous waste *or* 2.2 pounds per month or more acute hazardous waste.

Store hazardous waste in containers that are in good condition and marked with the words “Hazardous Waste,” a clear description of the waste (e.g. *Waste Xylene*) and the date waste was first placed in the container – the ‘accumulation start date.’

Close containers and place them on an impermeable surface (no cracks or floor drains). Leave enough space around them to allow you to thoroughly inspect each container weekly; keep records of inspections. If containers are leaking, unmarked, or there are other problems, correct the problem(s) and write the corrections in the inspection records.

Wastes that appear on the P list (some drugs are on the P list) are *acutely* hazardous (pose severe risk to human health and the environment) and have more stringent requirements.

Keep incompatible hazardous wastes segregated. Because some materials become unstable or explosive when they are obsolete or outdated, dispose of items promptly or arrange for reverse distribution.

If waste is being accumulated in small amounts at or near the point where it is generated and the waste is under the control of the employees who generate it, you may be able to follow ‘satellite accumulation’ requirements. Under these requirements, you do not need weekly inspections. For more information, see MPCA fact sheet 1.04, *Mark and Store Waste Correctly* on the Web at [www.pca.state.mn.us/waste/pubs/1-041-05.pdf](http://www.pca.state.mn.us/waste/pubs/1-041-05.pdf).

You must ship most hazardous waste off site using a hazardous waste manifest and a hazardous waste

transporter registered with the Minnesota Department of Transportation (MNDOT), to a hazardous waste disposal facility. Ship those wastes that can be recycled, such as dental amalgam, to the appropriate recycling facility.

Certain hazardous wastes can be managed under reduced requirements described in the next section. Some wastes, in small amounts or after treatment, can be discharged to a sanitary sewer – but never to a septic system/drainfield. Before discharging any waste\* to a sanitary sewer, you must notify and receive permission from your local wastewater treatment plant operator or sewer authority. Facilities having medical waste incinerators should not incinerate hazardous wastes because incineration does not destroy the hazardous element. Rather, incineration simply causes that element to become airborne where it can travel great distances and affect air and water quality.

\*Water from normal hand washing and flushing toilets can be discharged without notification.

For more information, see MPCA hazardous waste fact sheets 1.04/1.05, *Mark and Store Waste Correctly* ([www.pca.state.mn.us/waste/pubs/1-041-05.pdf](http://www.pca.state.mn.us/waste/pubs/1-041-05.pdf)) and 1.06, *Transport and Dispose of Waste Correctly* ([www.pca.state.mn.us/waste/pubs/1-06.pdf](http://www.pca.state.mn.us/waste/pubs/1-06.pdf)).

Detailed information that will help you comply with Minnesota's Hazardous Waste Rules is available on the MPCA's Web site at [www.pca.state.mn.us/waste/pubs/business.html](http://www.pca.state.mn.us/waste/pubs/business.html). It includes topics such as obtaining an EPA or Generator identification number, obtaining a license, if needed, training personnel, planning for emergencies, reporting, and keeping records.

### **Managing Hazardous Wastes Having Reduced Requirements**

Certain hazardous wastes, such as mercury-containing equipment, fluorescent bulbs, used oil and used electronics, generally have specific management requirements. If these requirements are followed, the generator does not have to evaluate the waste. Other generator requirements may also be reduced or waived. For more information on managing these or other specific wastes, see the MPCA Web site at [www.pca.state.mn.us/waste/pubs/business.html#specific](http://www.pca.state.mn.us/waste/pubs/business.html#specific).

### **Managing Industrial Solid Wastes**

Industrial solid waste needs to go to a landfill or industrial burner that can accept it. Not all landfills or

burners can accept industrial solid waste. Some can accept only certain types of industrial waste. The type of waste a landfill or burner can accept is dictated by its Industrial Solid Waste Management Plan which lists in detail how each waste will be evaluated, profiled, delivered and managed when it reaches the facility. These requirements help ensure wastes are managed in a way that will not harm human health or the environment.

Work closely with your waste hauler and disposal facility to determine how to evaluate, profile and deliver each industrial solid waste.

### **Managing Infectious Wastes**

**Infectious waste is not the same as hazardous waste** – although some wastes can be both hazardous and infectious.

**Manage wastes that are both hazardous and infectious as hazardous waste.**

**(Example: blood from used lab samples that have been mixed with a reagent that contains mercury.)**

Infectious waste, also called biohazardous or red bag waste, cannot be placed in the normal trash for disposal at a landfill or industrial burner. Infectious waste must be segregated and go through a decontamination process before it is considered safe for routine handling as a solid waste. For this reason, infectious waste is routinely collected in special containers, sharps containers and red bags, for example, to indicate the need for decontamination before disposal. After decontamination, the waste can be handled by haulers, storage, treatment and disposal facilities that have submitted solid waste management plans to the MPCA according to Minnesota Solid Waste Rules. The management plans address packaging and labeling, handling and segregation, storage, transportation, spill response, treatment and disposal.

Decontaminating infectious waste adds cost to waste disposal. Keep costs down by ensuring only infectious wastes are added to the infectious waste collection containers. Infectious wastes include all of the following that have not been decontaminated:

- **laboratory waste** – waste cultures and stocks of agents that are generated from a laboratory and are infectious to humans; discarded contaminated items used to inoculate, transfer, or otherwise manipulate



cultures or stocks of agents that are infectious to humans; wastes from the production of biological agents that are infectious to humans; and discarded live or attenuated vaccines that are infectious to humans;

- **blood** – waste human blood and blood products in containers, or solid waste saturated and dripping human blood or blood products (including serum, plasma, and other blood components);
- **regulated body fluids** – cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, and amniotic fluid that are in containers or that drip freely from body fluid soaked solid waste items;
- **sharps** – discarded items that can induce subdermal inoculation of infectious agents, including needles, scalpel blades, pipettes, and other items derived from human or animal patient care, blood banks, laboratories, mortuaries, research facilities, and industrial operations; and discarded glass or rigid plastic vials containing infectious agents; and
- **research animal waste** – carcasses, body parts, and blood derived from animals knowingly and intentionally exposed to agents that are infectious to humans for the purpose of research, production of biologicals, or testing of pharmaceuticals.

Check with your wastewater treatment plant authority to determine whether blood and blood-related liquid products or body fluids may be discharged to the sanitary sewer.

## Managing Radioactive Wastes

For radioactive wastes generated by health care facilities, there are four primary management options:

- decay in storage
- discharge to a sanitary sewer
- shipment to a radioactive waste disposal facility; and
- return to vendor

Each management option has pros and cons discussed below.

**Decay in Storage:** 10 CFR 35.92 specifically authorizes decay in storage for byproduct material with a physical half-life of less than 120 days. To accomplish this, the waste generator should store the waste in a secure location for a period of time necessary to reduce the levels of radioactivity to background, as measured with

an appropriate survey instrument. The amount of time is generally ten times the half-life. For example, if you were to hold Tc-99m (half-life = 6 hrs) for decay in storage, you should hold it for 60 hours and then survey it. Many waste generators find it convenient to group together radioactive wastes with similar half-lives. For example, collecting together radioactive wastes with a half-life of up to three days allows the waste to be surveyed at around 30 days and, if no radioactivity above background is detected, disposed of without regard to it ever having been radioactive. Any labels indicating radioactivity must be removed or obliterated.

**Discharge to a Sanitary Sewer:** An option for certain radioactive wastes is to discharge to the sanitary sewer. The Code of Federal Regulations (CFR) contains the strict requirements you must follow in 10 CFR 20.2003.

Sometimes decay in storage may be combined with discharge to the sanitary sewer. By holding isotopes with relatively short half-lives for a period of time, you can reduce the amount of radioactive material discharged to the sanitary sewer. This procedure may help you to comply more easily with 10 CFR 20.2003 (a)(2) and (3).

## Shipment to a Radioactive Waste Disposal Facility

If there is no other way for you to dispose of radioactive waste, you may ship it to a licensed disposal facility. To make a shipment, you, as the generator, must prepare the material in accordance with:

- all USDOT rules for transport
- all USNRC rules
- any applicable State rules; and
- any conditions required by the receiving facility

This form of disposal is very expensive and time consuming.

**Return to Vendor:** Certain sealed sources that are obtained from commercial sources may be returned to the vendor after the source's useful life is complete. You must first obtain authorization from the vendor. Most commonly, sources used for brachytherapy, teletherapy, blood irradiation or as markers are returned to the vendor. Returning sources to the vendor is much less expensive than sending them to a disposal facility, but in both cases, all U.S. Department of Transportation (USDOT) rules apply. For more information, see the Nuclear Regulatory Commission Web site at [www.nrc.gov](http://www.nrc.gov) or contact the Minnesota Department of Health.

## Managing Sewerable Wastes

Different cities or metropolitan areas within Minnesota operate different programs that administer wastewater disposal rules. Before discharging waste to the sewer, contact your wastewater treatment plant operator. Hospitals and clinics in smaller cities should contact the MPCA. Ask for a copy of the rules; find out whether a wastewater discharge permit is necessary. The appropriate wastewater regulatory authority for your facility will tell you which wastes are prohibited and which wastes may be treated and discharged. (An example of a treated wastewater would be x-ray/photo fixer that has been treated for silver or acids/caustics that have been pH adjusted.) Hazardous wastes which are discharged with or without treatment must be covered under a hazardous waste generator license and approved by the local sewer authority.

Non-regulated liquid wastes that cannot be discharged to a sanitary sewer should be placed in a closed, marked container and shipped with a waste hauler as a non-regulated waste. Never place liquids in the industrial solid waste or normal trash.

## Managing Pharmaceuticals

Pharmaceutical wastes, including antineoplastic/cytotoxic drugs, should not be sewered, disposed of in solid waste, incinerated or disposed of with infectious (red bag) waste. (For more information see *Managing Antineoplastic (Chemotherapy) Waste* on the MPCA Web site at <http://www.pca.state.mn.us/publications/w-hw4-03.pdf>.) Because of drug residues passing through the body and previous practices of sewerage pharmaceuticals, many drugs are now showing up in measurable amounts in surface water that some communities use for drinking water.

Some pharmaceuticals, such as outdated samples in their original packaging and unusable drugs, may be returned to the manufacturer through a reverse distribution process. Open containers and partially-used liquid drugs do not qualify for reverse distribution; evaluate them to determine the correct disposal method. Most will need to be disposed of as a hazardous waste. Usable pharmaceuticals returned to the manufacturer or through the reverse distribution process as product are not considered “waste.”

Syringes, IV bags and tubing, etc. that are *empty* (all material has been removed that can be removed by normal means and less than three percent of material, by weight, remains) and that do not contain P-listed drug

residues may be disposed of as infectious waste (sharps) or industrial solid waste (bags and tubing). Check with your infectious waste hauler – you may be required to segregate waste, for example, place it in yellow bags. (Using yellow bags is the best management method for this waste.) See definitions for what is included in each type of waste.

Manage containers that held P-listed drugs such as, epinephrine, greater than 0.3 percent warfarin, and some chemotherapy drugs as hazardous waste. If rinsed three times, containers that held P-listed wastes are considered *empty* and do not require management as hazardous waste. (The rinseate, however, is hazardous.) Since drug “containers” in the health care setting are often sharps, tubing or bags that pose risk to the handler or extreme difficulty to rinse, the entire container plus any contents or residual is managed as a hazardous waste.

Some pharmaceuticals, such as barbiturates, may be regulated as a hazardous waste *and* as a Drug Enforcement Agency (DEA) controlled substance. Manage these drugs in a way that meets both sets of requirements. When shipping off site, use a transporter that is licensed by the USDOT as a hazardous waste transporter *and* licensed by the DEA to transport controlled substances. For more information about DEA controlled substances, see <http://www.dea.gov>.

Do not discharge a controlled substance to a sanitary sewer system unless you have first contacted your local sewer authority and received permission to discharge.

## More Information

**Waste Management** – The MPCA and your metropolitan county have hazardous and solid waste staff available to assist you with waste management questions. Contact your metropolitan county or the MPCA office nearest you for help. (See page 7.)

**Sewering** – If you reside in the Twin Cities metropolitan area, direct questions regarding sewerage to Metropolitan Council Environmental Services (MCES), Industrial Waste Section. If you reside in Greater Minnesota, direct questions regarding sewerage to your local wastewater treatment plant operator or the MPCA. (See page 7.)

**Reducing Waste** – The Minnesota Technical Assistance Program (MNTAP) has case studies of successful waste reduction at health care facilities and staff available to help you identify ways to reduce waste. (See page 7.)

#### Metro County Hazardous Waste Offices

Anoka .....	763-422-7093
Carver .....	952-361-1800
Dakota .....	952-891-7557
Hennepin .....	612-348-3777
Ramsey .....	651-266-1199
Scott County .....	952-496-8475
Washington County .....	651-430-6655
Web sites.....	<a href="http://www.co.[county].mn.us">www.co.[county].mn.us</a>

#### Minnesota Pollution Control Agency

Toll free (all offices).....	1-800-657-3864
Brainerd .....	218-828-2492
Detroit Lakes .....	218-847-1519
Duluth .....	218-723-4660
Mankato .....	507-389-5977
Marshall .....	507-537-7146
Rochester .....	507-285-7343
St. Paul .....	651-296-6300
Willmar .....	320-214-3786
Web site .....	<a href="http://www.pca.state.mn.us">www.pca.state.mn.us</a>

#### Minnesota Technical Assistance Program

Toll-free .....	1-800-247-0015
Minneapolis .....	612-624-1300
Web site .....	<a href="http://www.mntap.umn.edu">www.mntap.umn.edu</a>

#### Metropolitan Council Environmental Services

St. Paul.....	651-602-1000
Web site .....	<a href="http://www.metrocouncil.org">www.metrocouncil.org</a>

**Fact Sheets** – The following fact sheets provide detailed information about hazardous waste requirements. Find them and other hazardous waste-related fact sheets at [www.pca.state.mn.us/waste/pubs/business.html#general](http://www.pca.state.mn.us/waste/pubs/business.html#general).

- Evaluate Waste; Determine Generator Size [1.01]
- Get a Generator Identification Number [1.02]
- Get a License; Pay a Fee [1.03]
- Mark and Store Hazardous Waste Correctly [1.04/1.05]
- Transport and Dispose of Waste Correctly [1.06]
- Manifest Waste [1.07]
- Plan for Emergencies [1.08a-b-c]
- Train Employees [1.09 [b-c]
- Keep Hazardous Waste Records [1.10]

**Web Links** – Find Web links and more information for the health care provider on the MPCA Web site at [www.pca.state.mn.us/waste/index.html](http://www.pca.state.mn.us/waste/index.html).

This fact sheet prepared by the Minnesota Pollution Control Agency in partnership with

- The Minnesota Technical Assistance Program (MnTAP)
- Metropolitan Council Environmental Services (MCES)
- The Metropolitan Counties Solid Waste Management Coordination Board (SWMCB) and
- Health care environmental management staff from Park Nicollet, HealthEast, HealthPartners and Mayo Clinic Rochester