Hint:

Link purchasing requests to an inventory system so that excess chemicals in stock can be used before buying more. Substitute hazardous chemicals with less hazardous ones.

By changing a laboratory procedure, the Environmental Analysis Section of the Minnesota Department of Agriculture (MDA) Laboratory Services Division eliminated 99 gallons of methylene chloride waste annually.
- MnTAP Source newsletter, 2006 issue 2
HAZARDOUS WASTE

Start

Do you generate a solid or liquid waste?

NO → You are not subject to hazardous waste regulations.

YES → Evaluate your waste to determine if it is hazardous.

Is the waste exempt?

YES → You are not subject to hazardous waste regulations.

NO → Is the waste listed as hazardous waste?

YES → You generate hazardous waste. Continue on the next page.

NO → Does the waste exhibit a hazardous characteristic?

YES → You generate hazardous waste. Continue on the next page.

NO → Does the waste contain 50 ppm or greater PCBs?

NO → You are not subject to hazardous waste regulations.

YES → You generate hazardous waste. Continue on the next page.

...continued on next page
Obtain a hazardous waste ID.*

Obtain a generator license and pay fee.*

Mark and store waste properly.

Plan for emergencies.*

Train personnel.*

Choose a qualified transporter and disposal facility.

Do not exceed accumulation amounts and time limits.*

Manifest shipments.*

Keep records.*

*Requirements depend on generator size.
HAZARDOUS WASTE

If your facility generates any solid or liquid wastes through maintenance, or a manufacturing or other process, you must evaluate whether the waste is hazardous. Hazardous wastes require special management practices to protect both your workers and the environment. This section describes basic hazardous waste requirements.

For more help:
- Facilities outside the seven-county Twin Cities metropolitan area may contact the Minnesota Pollution Control Agency (MPCA) at (651) 296-6300 or (800) 657-3864:
  - Companies with fewer than 100 employees: Small Business Assistance Program, (651) 282-6143 or toll-free (800) 657-3938
- Facilities within the seven-county Twin Cities metropolitan area should contact the appropriate county hazardous waste program:
  - Anoka County (763) 422-7093
  - Carver County (952) 361-1800
  - Dakota County (952) 891-7557
  - Hennepin County (612) 348-3777
  - Ramsey County (651) 266-1199
  - Scott County (952) 496-8177
  - Washington County (651) 430-6655

STEP 1A: Evaluate your wastes
Before you can evaluate the wastes generated by your facility you must identify and inventory them. Include waste discharged to the sewer, off-specification or unusable products, recycled wastes and other wastes associated with a production process (e.g., rags used for cleaning). Material Safety Data Sheets (MSDSs) and employees’ process knowledge will help in the evaluation. It may also be necessary to have the wastes analyzed by a laboratory.

Once wastes are identified and inventoried, you will need to determine whether they are hazardous — “evaluate”. To do this, answer the four questions (below) for each waste identified on the inventory. Note that the list of exempt or listed wastes on Questions 1 and 2 only includes wastes that would typically be generated by small businesses. (“Exempt” wastes are materials that by rule are not considered hazardous waste. “Listed” hazardous wastes are materials that the U.S. Environmental Protection Agency, or EPA, has classified as hazardous.) The rule cited includes all the materials that are considered exempt or listed hazardous wastes.

QUESTION 1: Is the waste exempt?
Exempt wastes (MN Rule 7045.0120 and 7045.0127) include:
- normal household refuse
- nonhousehold refuse (unusable paper, cardboard, untreated wood and plastic)
- samples sent to a testing laboratory
- demolition debris
- used oil (not contaminated with any other solvents) that is recycled
• scrap metal that is recycled
• waste discharged to surface waters under a National Pollution Discharge Elimination System (NPDES) permit
• waste from emergency spill cleanups approved by the MPCA
• certain wastes containing trivalent chromium
• empty containers and liners used to hold a hazardous material (except for compressed gases or acutely-hazardous waste). For non-acute hazardous waste, an empty container is defined as having:
  - no more than one inch of residue in the bottom
  - no more than 3 percent by weight of residue in a container 110 gallons or less in capacity
  - no more than 0.3 percent by weight of residue in a container more than 110 gallons in capacity
  - aerosol cans that contain no product and no pressure

**Question 2: Is the waste listed as a hazardous waste?**

Certain classes of chemical wastes are specifically called out or listed in the rules as being hazardous (MN Rule 7045.0135). EPA has assigned a code for each different type of hazardous waste that is listed (e.g., F001).

These wastes are known as listed hazardous wastes. Common listed wastes include:

- Hazardous wastes from nonspecific sources:
  - **F001**: Spent halogenated solvents used in degreasing, such as trichloroethylene, methylene chloride, 1,1,1-trichloroethane and carbon tetrachloride.
  - **F002**: Spent halogenated solvents, such as those above but not used as degreasers. Other examples are 1,1,2-trichloro-1,2,2-trifluoroethane and chlorobenzene.
  - **F003**: Spent nonhalogenated, ignitable-only solvents, such as xylene, acetone, methanol and methyl isobutyl ketone.
  - **F004**: Spent nonhalogenated solvents, such as cresols, cresylic acid and nitrobenzene.
  - **F005**: Spent nonhalogenated solvents such as toluene, methyl ethyl ketone, carbon disulfide and benzene.
    Spent solvent mixtures/blends containing 10 percent before use of F001, F002, F004 and/or F005 compounds.
  - **F006-F039**: Various spent baths and solutions, distillation bottoms, wastewater and filters.
- **K-listed wastes**: wastes from specific manufacturing processes, such as preserving wood, formulating inks, pigments, chemicals and pharmaceuticals, refining petroleum and metal smelting.
- **P-listed acute hazardous and U-listed toxic wastes**: typically these materials are discarded chemical products, off-specification products and/or spill residues.
**QUESTION 3: IS THE WASTE HAZARDOUS BECAUSE IT EXHIBITS A HAZARDOUS CHARACTERISTIC?**

A waste that exhibits one or more hazardous characteristics is a hazardous waste. Hazardous characteristics include:

**Ignitable waste - D001**
Liquid wastes having a flashpoint below 140 degrees Fahrenheit; or, a nonliquid waste capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard; or, an ignitable compressed gas. Examples of ignitable wastes include spent parts-washer waste and spent solvents.

**Oxidizing waste - D001**
Wastes that add oxygen to a fire. Oxidizing substances often have “per...” at the beginning of the name, “oxide” at the end of the name, or “...ate” in its chemical name. Oxidizers may be used in a manufacturing process to add oxygen. Typically, these materials are used up but, if they are not, the waste material may be hazardous.

**Corrosive waste - D001**
Water-based wastes having a pH of 2.0 or less (strong acids) or 12.5 or more (strong bases); also, any liquid able to corrode 1/4 inch of steel per year. Automotive battery acid is an example of a corrosive waste.

**Reactive waste - D001**
Unstable or explosive wastes; wastes that react violently in the presence of water; and, sulfide- or cyanide-bearing wastes which give off toxic vapors when exposed to pH conditions between 2.0 and 12.5. Lithium batteries (even spent ones) are an example of a reactive waste.

**Lethal waste - D001**
Wastes that have been found through testing to cause death when ingested, inhaled or absorbed. Typically, lethal wastes are poisons.

**Toxicity Characteristic waste - D001**
Wastes that, under acidic conditions, release toxic metals, pesticides or volatile organic chemicals above certain limits. Examples of toxic hazardous wastes are photographic fixers, some paints and chemical wastes.
**HAZARDOUS WASTE**

**QUESTION 4: DOES YOUR BUSINESS WORK WITH OIL-CONTAINING EQUIPMENT OR FLUORESCENT LIGHT BALLASTS THAT CONTAIN POLYCHLORINATED BIPHENYLS (PCBs)?**

Wastes containing PCBs at a concentration of 50 parts per million (ppm) or more are hazardous. Ballasts from old light fixtures may contain PCBs.

Review your answers to questions 1 through 4. If you answered 'no' to question 1 or 'yes' to questions 2, 3, or 4, you probably generate hazardous waste. Continue to the next step.

If you determine your facility does not generate any hazardous wastes, you are not subject to hazardous waste regulations. If your facility's operations change, you must re-evaluate to determine whether any new wastes are hazardous.

**STEP 1B: Determine your generator size**

To figure out which hazardous waste requirements apply to your facility, first determine how much waste your facility generates. Remember, exempted wastes are not counted when determining generator size. The table below will help determine your facility's generator size.

<table>
<thead>
<tr>
<th>If your facility generates:</th>
<th>Then your facility's size is:</th>
</tr>
</thead>
<tbody>
<tr>
<td>220 pounds of hazardous waste or less per month (about one-half a 55-gallon drum of liquid waste)</td>
<td>VSQG (Very Small Quantity Generator)</td>
</tr>
<tr>
<td>More than 220 pounds but less than 2,200 pounds of hazardous waste per month (about one-half to four 55-gallon drums of liquid waste)</td>
<td>SQG (Small Quantity Generator)</td>
</tr>
<tr>
<td>2,200 pounds or more of hazardous waste per month (four or more 55-gallon drums of liquid waste)</td>
<td>LQG (Large Quantity Generator)</td>
</tr>
</tbody>
</table>

Remember, the less waste generated, the fewer the requirements.

**STEP 2: Obtain a Hazardous Waste Identification Number**

Hazardous Waste ID numbers (formerly called EPA ID numbers) are each assigned to a specific location and are used for tracking where wastes are generated and where they are disposed of. If you have more than one facility, you will need a number for each location. There is no charge to obtain a number. You may not ship wastes legally without an ID number. In certain cases, VSQGs may not need an ID number; see the VSQG drop-off site information in Step 6.
A Hazardous Waste ID number can be obtained by filling out a Notification of Regulated Waste Activity Form. This form is available from the MPCA or a metropolitan county hazardous waste office (see phone numbers at the beginning of this chapter). The form is also available on the MPCA Web site at www.pca.state.mn.us/publications/w-hw7-09.pdf.

In some cases, a business generates waste in multiple buildings but ship wastes from only one location. If the buildings are on contiguous property, you need just one HW ID number. For a definition of “contiguous property,” call the MPCA or your county hazardous waste office.

Changes in your business:
• If your business moves to a different location, you must deactivate the HW ID number for the existing location and obtain a new number for the new location. Use the same Notification of Regulated Waste Activity Form to deactivate a number. Check the box marked “subsequent notification” and attach a note stating that the HW ID number is to be deactivated and why.
• If you change operations so that hazardous wastes are no longer being generated, you must also deactivate your HW ID number.

The notification form should be sent to the address on the instruction sheet available on the MPCA website at www.pca.state.mn.us/publications/w-hw7-08.pdf.

**STEP 3: Apply for an annual generator license**
All Minnesota businesses that generate hazardous waste must obtain an annual Hazardous Waste Generator License and pay an annual fee. The only exception is generators outside the metropolitan area that generate less than 10 gallons of hazardous waste per year.
• If your business is located in the metropolitan area, contact your county hazardous waste office for appropriate forms. The license from the appropriate county hazardous waste office is equivalent to a license from the MPCA.
• If your business is outside the metropolitan area and you have applied for a HW ID number, a license package will be automatically sent to you. Licenses are issued by the MPCA around June 30 of each year. Metropolitan countries may be on a different schedule.
• All licensed generators are charged a license fee that varies, depending on the amount of waste generated and how the waste is managed. Generators are also subject to a generator (Superfund) tax which is based on generator size or waste volume and management method.
HAZARDOUS WASTE

STEP 4: Place waste in marked, leakproof containers
Containers used for storing hazardous wastes must be sturdy, leakproof and made of, or lined with, materials compatible with the wastes stored. Containers must be marked with the following information:

- the words “hazardous waste,”
- name of the contents of the container (e.g., waste MEK or paint waste)
- the date the first waste was placed inside (called the “accumulation start date”)

Preprinted labels are available (but not required) for marking containers (see list below for availability). Additional information is required when the waste is shipped. The required Minnesota Department of Transportation (MnDOT) shipping label may also be used for storage. Your waste transporter should be familiar and able to help you with MnDOT shipping requirements.

PACKAGING, LABELS AND PLACARDS

The following companies sell hazardous waste packaging, labels and placards. This is not a complete list.

<table>
<thead>
<tr>
<th>Company</th>
<th>Address</th>
<th>Contact</th>
<th>Website</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>DASCO Label</td>
<td>7787 Ranchers Road Northeast</td>
<td>763-574-2275 OR 800-927-7701</td>
<td><a href="http://www.dascolabel.com">www.dascolabel.com</a></td>
<td>labels, placards</td>
</tr>
<tr>
<td>J.J. Keller</td>
<td>3003 West Breezewood Lane</td>
<td>877-564-2333</td>
<td><a href="http://www.jjkeller.com">www.jjkeller.com</a></td>
<td>labels, placards, forms</td>
</tr>
<tr>
<td>Uline</td>
<td>985 Aldrin</td>
<td>800-295-5510</td>
<td><a href="http://www.uline.com">www.uline.com</a></td>
<td>labels, placards, packaging</td>
</tr>
<tr>
<td>Labelmaster Company</td>
<td>Division of American Label Mark</td>
<td>800-621-5808</td>
<td><a href="http://www.labelmaster.com">www.labelmaster.com</a></td>
<td>labels, placards, packaging</td>
</tr>
<tr>
<td>Lab Safety Supply</td>
<td>PO Box 1368</td>
<td>(800-356-0783</td>
<td><a href="http://www.labsafety.com">www.labsafety.com</a></td>
<td>labels, placards, packaging</td>
</tr>
</tbody>
</table>
STEP 5: Store wastes correctly
Follow all fire and building codes for wastes stored indoors. In addition:
- Keep containers closed except when wastes are added or removed (this includes bungs and snap rings).
- Place containers holding liquids on a surface impermeable to that particular waste.
- Provide enough aisle space for easy access and visibility.
- Inspect containers at least weekly to ensure they have not deteriorated or are not leaking.
- Separate incompatible wastes with a dike, berm or wall within the storage area.
- Store wastes in an area without floor drains.

When storing wastes outdoors:
- Follow all requirements for indoor storage, listed above.
- Restrict access to individuals responsible for managing the wastes.
- Store wastes on a curved, impermeable surface.
- Protect wastes from the elements (rain, snow, sunlight) and the risk of inadvertent damage.

You must also meet storage time limits. If you store wastes past storage time limits, you will be subject to additional hazardous waste requirements.

<table>
<thead>
<tr>
<th>Size</th>
<th>Accumulation Limit</th>
<th>Storage Time Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSQG</td>
<td>2,200 lbs.</td>
<td>Ship stored waste within 180 days of the time it is accumulated. Mark on the container the date it became full.</td>
</tr>
<tr>
<td>SQG</td>
<td>6,600 lbs.</td>
<td>Ship stored waste within 180 days of the accumulation start date.</td>
</tr>
<tr>
<td>LQG</td>
<td>No limit</td>
<td>Ship waste within 90 days of the accumulation start date unless a storage facility permit is obtained.*</td>
</tr>
</tbody>
</table>

* If the treatment, storage or disposal facility is more than 200 miles away, the storage time limit is 270 days.

If you are unable to ship waste within the storage time limit, you may request a 30-day extension from the MPCA (or your metropolitan county hazardous waste office). The request must be made in writing before you reach the storage time limit. Explain why the extension is necessary, the types and amounts of waste affected and the date you now anticipate shipping the waste. If granted, the extension allows your business to remain within its generator status.

If you have wastes that accumulate slowly - consider satellite accumulation containers.
HAZARDOUS WASTE

For wastes that accumulate very slowly, designate the container a “satellite accumulation container.” This allows you to accumulate up to one 55-gallon drum of that waste (or one quart of acute hazardous waste) before the storage time clock starts. Mark the accumulation start date on the container when you begin filling it, then the fill date when the container becomes full. Move the satellite container to the permanent storage area within three days of the fill date. Based on the fill date, ship the container off-site according to the storage time limit in the table above. For more information on satellite accumulation requirements, call the MPCA or visit www.pca.state.mn.us/waste/pubs/1-041-05.pdf.

STEP 6: Transport and dispose of waste correctly
Generators of wastes are responsible forever for their hazardous wastes. This means that even when you give your waste to a transporter or disposal facility, you may be liable for cleanup costs if a release occurs. To ensure your wastes are properly managed and to reduce your liability, choose a transporter and disposal facility with care.

Before you contact a transporter, you need to know:
• kinds and amounts of waste you wish to have picked up
• form of the wastes (solid, liquid or sludge)
• types of containers holding the waste
• how often you need to ship the waste
• which recycling, treatment or disposal facility the wastes are to be shipped to

Most hazardous wastes are managed by sending them off site. Some wastes can be treated and disposed of on site. Used oil generated by your business or dropped off by the public (not from another business) can be burned for heat recovery on site provided the burner is rated at less than 500,000 Btu/hour and is vented outside. If the total capacity of all fuel-burning equipment on site is less than or equal to 2,000,000 Btu/hour, these emissions are insignificant in terms of air emissions permits. No other hazardous wastes may be burned on site.

Corrosive wastes may be discharged to the sewer once they are neutralized. Before you discharge any materials, check with your local wastewater treatment plant to ensure it can accept these wastes. A sewering notification form may also be necessary before you discharge wastes. Check with the appropriate metro county hazardous waste office or the MPCA to determine whether you need to complete this notification form. Do not place any industrial wastes in a septic system. Septic systems are not designed to handle this type of material even if it has been neutralized.
Do not let cost be the only criterion you use in selecting a transporter or disposal facility. Other important factors in selecting a transporter include:

- Is the transporter currently licensed by the Minnesota Department of Transportation (MnDOT)? See [www.dot.state.mn.us/cvo/carriersnapshot.html](http://www.dot.state.mn.us/cvo/carriersnapshot.html).
- Does the transporter have a good track record? Have they been cited for violations within the last two years? Have they had spills or accidents within the past two years? If so, were appropriate cleanup actions taken? Ask the transporter for the names of other customers and call them for their opinion.
- Does the transporter maintain adequate insurance? Depending on what is hauled and how it is transported, the transporter is required to have between $1 million and $5 million liability insurance.
- Are drivers given proper training? Drivers must be trained on emergency-response procedures, placarding and labeling vehicles, filling out shipping papers, manifesting wastes, labeling and marking hazardous waste containers, loading and handling wastes, and safe vehicle operations.
- Will the transporter ship wastes to the disposal facility you select?

Very Small Quantity Generators (VSQGs) may be able to drop off their own wastes at a collection site where wastes from many VSQGs are consolidated and then shipped to a disposal facility. Although each business must still pay disposal fees, the drop-off program is a convenient and low-cost disposal option. To take advantage of this, you must:

- Apply and receive approval from the drop-off collection site. (There are certain cases where a HW ID number is not needed. The drop-off collection sites can help you determine whether you need a HW ID number).
- Transport wastes from your business only in your business vehicle.
- Follow MnDOT requirements for transporting wastes. For more information, contact the collection program you intend to use.
- Keep all receipts for wastes delivered to drop-off sites. For a list of VSQG drop-off sites, see [www.pca.state.mn.us/publications/w-hw2-51.pdf](http://www.pca.state.mn.us/publications/w-hw2-51.pdf).

Factors to consider when selecting a disposal facility include:

- Does the facility have a good track record? Check with the environmental regulatory agency (similar to the MPCA) in the state where it is based and check with other customers. Often trade associations or peers can also help you.
- How will the facility dispose of your waste? The longer a waste remains in a form that can be released, the higher the liability. For example, incinerating wastes may be more expensive, but liability is much lower.
- Does the facility carry the necessary insurance?
- Does the facility have a plan to deal with spills or accidents? Has the facility ever had to use it?
- How are ash, sludge and empty containers managed?

If possible, visit the facility. Look for general good housekeeping, workers using safety equipment, warning signs, fencing to restrict access to the site, and condition of building, tanks and equipment.
STEP 7: Manifest hazardous waste shipments

A manifest is a multiple-page shipping paper that must accompany each shipment of hazardous waste (VSQGs using drop-off sites only need shipping papers per MnDOT requirements). The manifest is the tracking document used to show that your wastes reached their proper destination. One manifest is prepared for each shipment of waste.

You can obtain blank manifests from your transporter, disposal facility or the Minnesota Bookstore (651)297-3000.  http://www.comm.media.state.mn.us

Make sure the manifest information is correct. Remember, you are responsible, not the transporter. The most common problems found on manifests include:

- Not legible — use a ball-point pen, press hard and print legibly.
- Missing required signatures and dates — make sure to complete all information in the certification section.
- Valid numbers — make sure you use a valid HW ID number for your location and that the transporter and disposal facility also use valid ID numbers.
- MnDOT information missing or incorrect — make sure to complete all information in this section carefully.

The universal manifest contains six pages which are distributed as follows:
- give pages 1-5 to transporter
- send a photocopy of page 6 to the appropriate address in the chart below
- keep page 6 for your records

When the disposal facility receives the waste, it will sign and send a page back to you. Within five days of receiving it, make a photocopy and mail to the appropriate address above. Keep the page with your records for at least three years. If the disposal facility does not send you a signed page within 35 days, contact them to ensure they received the waste. If you do not receive it within 45 days of shipment, notify the MPCA.
STEP 8: Emergency planning
All generators are required to prepare for an emergency. Basic requirements all generators must meet include:

- A system to alert employees to an emergency. (For small shops, verbal communication is acceptable.)
- Emergency telephone on site to call outside responders.
- Fire-control equipment suitable for the materials used or stored.
- Spill-control equipment necessary for the types of materials being used or stored.
- Decontamination equipment, such as emergency showers.
- Routine testing and maintenance of emergency equipment.
- A storage area free of drains, unless they are plugged or protected so waste cannot be released.
- Documented arrangements with local authorities/responders in the event of an emergency.
- Adequate aisle space to access leaking containers.
- Containers stored away from equipment routes to prevent releases.

Additional emergency planning requirements apply to small and large quantity generators (SQGs and LQGs). Call the MPCA for fact sheets on these requirements or visit www.pca.state.mn.us/waste/pubs/business.html#general.

STEP 9: Train personnel
SQGs and LQGs are subject to training requirements for hazardous waste. Personnel at VSQG facilities should be familiar with safe waste-handling and emergency-response procedures. OSHA programs require employees to be adequately trained in using fire-suppression equipment and in cleaning up small/incidental spills.

SQGs are required to train personnel according to their responsibilities:

- Proper waste handling (proper containers, marking and labeling, storage requirements, weekly inspections, preparing containers for shipment and manifesting wastes).
- Emergency procedures (fire and spill response).

SQGs must document training activities. Documentation should include names of employees trained, training dates and content of the training.

LQGs have more extensive training requirements. Call the MPCA for fact sheets discussing SQGs and LQGs training requirements or visit http://www.pca.state.mn.us/waste/pubs/business.html.

STEP 10: Keep records
Your business is required to keep a number of records. For your own protection from future liability, the MPCA recommends you keep these records indefinitely. Electronic records may be used in place of paper copies.
HAZARDOUS WASTE

The following records must be maintained for at least three years:

• Manifests and manifest exception reports.
• Your copy of your initial license application and subsequent renewals.
• Analytical reports for wastes.
• Documentation of employee training (must be kept for three years after the last date the employee worked for your company).
• Weekly inspection logs of storage areas and containers.
• Receipts for used oil and used oil filters.
• Records of universal waste, if you are a large quantity universal waste handler. See www.pca.state.mn.us/publications/w-hw4-62.pdf.
• Documentation for feedstocks or byproducts. You may use some wastes in other products you manufacture. To do this, you must request and receive approval to classify these materials as feedstocks or byproducts.
• Land Disposal Restriction (LDR) notification forms. LDR applies to Small and Large Quantity Generators. Keep these forms with your manifests.

Other records to keep include:

• Documentation showing how nonhazardous wastes were determined to be nonhazardous.
• Any correspondence from the MPCA, EPA or metro county hazardous waste office.
• A log of telephone calls regarding hazardous waste management.
• Certificates of destruction or recycling from the disposal facility.
• Spill and cleanup records.

Sample spreadsheets and logs for weekly inspections and training records are available from the MPCA or at www.pca.state.mn.us/waste/pubs/business.html#hazardous.