Missouri Department of Natural Resources

Preventing Pollution in the Vehicle Maintenance Industry

Department of Natural Resources fact sheet 10/2007

A Guide to Environmental Compliance and Pollution Prevention for Vehicle Repair Shops in Missouri

Preventing Pollution in the Vehicle Maintenance Industry

As environmental protection becomes more and more important across the nation, industries of every type are faced with some big questions:

- What environmental regulations apply to my facility?
- How do I comply with those regulations?
- Are there things I can do to reduce the regulations I must comply with?
- How can I protect myself from fines and liability?
- How do I protect myself and my workers from environmental hazards in the shop?

This publication was developed to help vehicle maintenance shops in Missouri answer some of those questions. The fact sheet provides basic information about regulatory requirements and suggestions for protecting yourself, your workers and the environment through pollution prevention.

Each topic in this publication deals with a separate issue that you may face in your vehicle maintenance shop. The information may not answer every question you have, but you should be able to decide if you need more information or assistance on a particular issue. The topics are listed on page 2.

Preventing Pollution in the Vehicle Maintenance Industry Table of Contents

Pollution Prevention

Vehicle maintenance shops deal with many things that can affect the environment. Materials such as waste oil, antifreeze and air-conditioning refrigerant can harm the environment and people if they are not properly managed. State and federal environmental regulations explain what legally can and cannot be done with these materials. The regulations describe how pollution (waste) should be controlled, stored, disposed of or treated. But a better solution is to prevent the waste or pollution.

What is Pollution Prevention?

Pollution prevention is simply not making the waste (or pollutant) in the first place. It means doing what we can to reduce the amount and toxicity of the pollution we generate. Preventing pollution may be something as simple as using a catch-basin to prevent spills, or something as complex as redesigning an operation to increase efficiency and reduce waste. Simple things like choosing non-hazardous solvents can protect the environment and reduce the number of environmental regulations you are faced with. Pollution prevention means thinking about the environmental impact of your actions, and trying to limit that impact.

Why Prevent Pollution?

When we generate waste or pollution, we must safely and legally manage that waste or pollution. Whether it is household trash or waste from a business, managing wastes costs money. Usually the things discarded are materials paid for when we got them. A good example is paper towels. We buy them, use them once, then pay again to dispose of them. Reducing the amount of waste generated saves money. It's as simple as that. Reducing costs is a major reason to prevent pollution. Here are a few others :

- Improved work environment and worker safety.
- Reduced liability.
- Increased efficiency.
- Fewer regulatory requirements.
- Better environmental protection.
- Enhanced marketing and public relations opportunities.

What Can Be Done At Vehicle Maintenance Shops?

There are many ways to prevent pollution at vehicle maintenance shops. Each of these fact sheets has suggestions on ways to prevent pollution. Here are a few general tips:

- Keep work areas clean and well organized to help prevent accidents.
- Use drip pans and splash guards where spills frequently occur.
- Fix leaks immediately.
- Don't buy more than is needed. The leftovers may become waste.
- Purchase the largest practical container (containers usually end up as waste), but don't purchase more than needed.
- Purchase the least toxic or hazardous product available. Check the material safety data sheets for products purchased. If the product is toxic or hazardous, ask the supplier for alternatives.
- Use the oldest items first (first-in, first-out).

- If there are excess or unneeded materials, see if the supplier can take them back.
- Include the cost of disposal when making purchasing decisions. What looks like the cheapest option may cost more because of disposal or other management costs.
- Store materials in a way that keeps them from being damaged.
- Inspect storage areas regularly for leaks.
- Make sure all items are clearly labeled. Store products in original containers.
- Store wastes separately and be sure they are properly labeled to make it easier to reuse or recycle them.
- Store items that could leak in a place where leaks will be contained and easily spotted.
- Make a list of wastes. Then try to find a way to eliminate each of them. For example, if paper towels are thrown away, consider using launderable shop rags.

Aerosol Cans

Vehicle maintenance technicians use aerosol cans for various reasons. Spray cans may contain hazardous chemicals, such as 1,1,1-trichloroethane or toluene. In some cases, the aerosol may be hazardous waste because of what it contains or once contained. It is important to carefully manage this waste to protect human health and the environment.

Aerosol cans are often recycled as scrap metal. If the empty cans are recycled, the can and the residue inside are not considered waste so most hazardous waste regulations don't apply. If the can is not empty, it can still be recycled if the recycler is able to properly capture and manage the vented contents. However, if the aerosol can contained an acutely hazardous waste such as some pesticides, it is unlikely that the recycler will be able to properly clean the container. These containers will probably require disposal. See *Hazardous Wastes* on page 21 for more information about acutely hazardous waste.

If aerosol cans are empty, recycle them or send them to a sanitary landfill for disposal.

If you have one or two waste aerosol cans infrequently, they can be sent to a sanitary landfill for disposal (even if they are not empty), if the landfill is willing to accept them. If the can contains pesticide, paint or other hazardous materials, approval from the landfill is required. If more than two cans are generated, find out whether the waste is hazardous waste and manage it properly. See *Hazardous Wastes* on page 21 for more information.

Ask the supplier to take back any defective cans. The manufacturer can sometimes repackage the materials. Many products are also available in non-pressurized spray bottles or can be purchased in bulk and used in non-pressurized or refillable pressurized sprayers.

Remember

Aerosol cans may be hazardous waste. Find out whether waste is hazardous and manage it properly.

Store hazardous products in their original container with the lid on securely until you need them again. This will prevent unnecessary VOC emissions that contribute to poor air quality and the formation of ground-level ozone. In addition, avoid storing them in extreme temperatures. By following these simple steps, you will not only prolong the life of your product, but also avoid waste and protect air quality.

Empty cans, and sometimes cans that are not empty, can be recycled. Sometimes the contents can be reused.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of waste can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Decide if these products are actually needed. If not, use it up and don't purchase any more. If they are needed, limit the use and look for aerosol cans that do not contain hazardous chemicals.
- Switch to non-aerosol products if possible, such as manual pump cans or bottles, especially if they can be refilled.
- Use as much of the material as possible, for its intended purpose.
- Purchase only the amount needed.
- Follow label directions to prevent clogging.
- If aerosol cans contain hazardous materials, look for non-hazardous alternatives.

Air Conditioning Refrigerant

Until 1995, the most common refrigerant used in automotive air conditioning units was chloroflurocarbon-12, also known as CFC-12, R-12, or Freon. In December 1995 production of CFC-12 in the United States ended. CFC-12 can still be used, but it is no longer produced.

CFC's are chlorine-containing compounds that react with sunlight in a way that destroys the protective ozone layer in the earth's upper atmosphere. This allows the amount of ultraviolet radiation reaching the earth's surface to increase. Overexposure to UV rays may cause skin cancer, eye cataracts and a weakened immune system.

If you service, repair or open an air conditioning system, one must contain all of the refrigerant using equipment approved by the U.S. Environmental Protection Agency. When replacing an air conditioning unit one must recover the refrigerant before discarding or recycling the air conditioning unit. Technicians servicing motor vehicle air conditioning systems must be trained and certified by an organization approved by EPA. This is the law according to Section 609 of the 1990 Clean Air Act Amendments.

In Missouri, shops are not required to repair leaking air conditioning systems. When a leak is found, present the customer with all options, including repair of the leak. If the customer does not want the leak repaired, refill the system with refrigerant if the customer asks for it. If refrigerant was added to detect the leak, the repairman is required to recover and recycle that refrigerant unless the customer asks for it to be left in the system.

If an air conditioning system needs a major repair, the customer may want to consider having the system retrofitted to use an EPA-approved alternative refrigerant. Although there are several approved by EPA, hydrofluorocarbon-134a, also known as HFC-134a and R-134a, is the one specified by auto manufacturers in their retrofit guidelines. HFC-134a does not contain chlorine so it does not damage the ozone layer. Some mixtures of air and HFC-134a are combustible at high pressure, so do not use compressed air to test equipment using HFC-134a.

Recycling

When recycling refrigerant Do not mix CFCs and HFCs. Recycle these separately. Do not add alternate refrigerants (HFCs) to a system using CFC-12. Under federal law, recycled or reclaimed refrigerants are not hazardous if they are not mixed. Containers of recycled refrigerant must be labeled.

Empty Containers

It is a good idea to label empty containers with the word “EMPTY.” Check with the supplier to see if the containers can be returned for reuse or recycling. If that is not possible, dispose of empty containers in the landfill.

Labeling

Federal law requires labeling of products containing ozone-depleting substances such as CFCs. Therefore, CFC-12 air conditioning units, refrigerant equipment and any containers must be labeled clearly. The label must read “WARNING Contains CFC-12, a substance which harms public health and the environment by destroying ozone in the upper atmosphere.”

An air conditioning system retrofitted to use an alternate refrigerant must have a label telling what refrigerant is in the system.

Storing

Store hazardous products in their original container with the lid on securely until you need them again. This will prevent unnecessary VOC emissions that contribute to poor air quality and the formation of ground-level ozone. In addition, avoid storing them in extreme temperatures. By following these simple steps, you will not only prolong the life of your product, but also avoid waste and protect air quality.

Remember

- Repair workers must be trained and certified before working on a motor vehicle air conditioning unit.
- When working on an air conditioning unit, EPA-approved recovery/recycling or recovery equipment must be used.
- Never mix CFCs (CFC-12, R-12, Freon) with HFCs (HFC-134a, R134a) either in an air conditioning unit or in the recovery equipment.
- Label all equipment and containers that contain CFC.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- When a leak is found, present the customer with all options. Repair can prolong the life of the air conditioning unit, decrease emissions and conserve existing limited supplies of CFC-12.
- When major repairs are needed, suggest the customer consider retrofitting to use an alternative refrigerant.

Antifreeze

Antifreeze is usually made of ethylene glycol, corrosion inhibitors and foam controllers. Ethylene glycol is toxic if ingested. It can be particularly hazardous because animals and children may be attracted to its sweet flavor. If they drink the ethylene glycol it could cause coma or death. Some antifreeze is made of propylene glycol. This material is less hazardous to humans and animals than ethylene glycol.

Used antifreeze from a vehicle can hold contaminants that it has picked up from the vehicle engine. For example, used antifreeze may contain lead because the antifreeze has dissolved some of the lead solder in the radiator. Waste antifreeze is not a listed hazardous waste under the federal hazardous waste regulations, but it may be a hazardous waste depending on the contaminants it has picked up. The test used to find out if used antifreeze is a hazardous waste is called the Toxicity Characteristic Leaching Procedure. See *Hazardous Wastes* on page 21 for more information.

Recent studies have shown that antifreeze from late-model cars and trucks is not hazardous waste. This is primarily due to reduced use of lead in radiator construction. Used antifreeze is more likely to be hazardous if it was used in heavy equipment such as bulldozers and buses.

If the waste antifreeze in the vehicle maintenance shop is primarily from late-model cars and trucks knowledge of the waste can be applied rather than testing the antifreeze. This means if it is known that the antifreeze is from late-model cars and trucks, and no other hazardous wastes have been mixed with it, it is known without testing the waste antifreeze is not hazardous.

If antifreeze from heavy equipment or industrial sources has been used, the antifreeze will need to be tested to see if it is hazardous waste unless there is some other way of knowing it is or is not hazardous.

There are several ways to safely and legally manage used antifreeze. The repair shop can:

- recycle the antifreeze at the shop (on-site recycling),
- send the antifreeze to someone else to either recycle or dispose of it (off-site recycling or disposal), or
- discharge to public wastewater treatment plant if the plant has approved the discharge.

Recycling

The Department of Natural Resources strongly encourages antifreeze recycling. Several types of antifreeze recycling equipment can be purchased or leased. Recycling hazardous wastes on-site requires a type of approval from the department called resource recovery certification. If the shop services only late-model cars and trucks, it is not required to get a resource recovery certification for recycling antifreeze on-site. If the shop services heavy equipment and wants to recycle the antifreeze at the shop, according to the amount of antifreeze recycled, either notify the department or get a resource recovery certification.
Contact the department at 1-800-361-4827 for more information.

A recycling unit will create waste such as distillation residues and used filters. One must determine if these wastes are hazardous before disposal. See *Hazardous Wastes* on page 21 for more information. If the residue is non-hazardous, it can be sent to the landfill with regular trash. However, liquids cannot go to the landfill.

There are businesses that will bring equipment to a facility and recycle antifreeze on-site. If the antifreeze is from late model cars and trucks, these companies do not need resource recovery certification. If heavy equipment is serviced, these companies will need a resource recovery certification to recycle the antifreeze.

Off-site Recycling or Disposal

There are companies that pick up used antifreeze for off-site recycling or disposal. If used antifreeze is a hazardous waste, the transporter must have a Missouri license to transport hazardous waste, and the waste must have a hazardous waste manifest with it. Make sure the facility, where the waste is taken, has a resource recovery certification or a hazardous waste treatment, storage and disposal permit.

Discharge to wastewater treatment plant (pouring it down the drain)

If the drains at your shop go to a wastewater treatment plant (not a septic system), antifreeze may be poured down the drain if you have permission from the plant. Pouring something down the drain is called a discharge. Some plants will not allow discharges of used antifreeze. Large quantities can harm the treatment plant. Also, the wastewater treatment plant may not be able to remove all the contaminants from the used antifreeze. The contaminants then enter lakes, streams and rivers.

Remember

- Do not discharge antifreeze to a wastewater plant without permission.
- Do not discharge antifreeze to a septic system.
- Do not dispose of antifreeze in or on the ground, down storm drains or into streams or lakes.

Pollution Prevention Options

- Make sure hoses, gaskets and seals are in good condition.
- Replace antifreeze only when necessary.
- When good antifreeze must be removed for repairs, save it and reuse it in the system.

Backflow Prevention

Whether a business uses water from the public water supply or a private water supply such as a well, it is important to avoid contaminating that water. In some situations, water, and any contaminants it has contacted, can flow backwards in a water line. This can contaminate the water in a building and even the entire water supply. Backflow prevention devices prevent this problem.

If the water line has places where it comes into direct contact with a potential contaminant, the contaminant can travel back into the water line when there is a change in pressure. This is called a cross-connection. For example, if process water from a parts washer or even car wash area flowed back into the water system, the entire water system could become contaminated with chemicals and dirt. Backflow prevention devices or assemblies are installed in water lines to keep this from happening. They are placed in water lines entering the building and at points in the water system where it connects to a potential source of contamination.

If a business is connected to a public water supply, state regulations require protecting the public water supply from cross-connections within the premises. If an operation could cause contamination to the water supply, it must have backflow prevention devices in place.

Drinking water regulations require that the backflow prevention assembly be placed on the water service line. It is a good idea to put additional backflow prevention devices at any location in the business where contamination could occur.

The local water supplier may have additional requirements regarding backflow prevention. Contact that office to find out.

Even if the business is not connected to a public water supply, it should install backflow prevention devices to protect employees and customers from the risk of contaminated drinking water and to prevent pollution.

The Department of Natural Resources maintains a list of approved backflow prevention assemblies. To get a copy, call the Water Protection Program at 1-800-361-4827 or (573) 751-5331.

Remember

- Preventing backflow into the water system protects anyone using the water supply.
- If the facility is connected to a public water supply system, it may be required to have backflow prevention assemblies or devices.

Brake Fluid

Brake fluid used in vehicles is a mixture of polyglycol and glycol ethers with additives to inhibit oxidation and corrosion. Because it is a petroleum derivative and is used for hydraulic power transmission it is defined as used oil in Missouri. If a vehicle maintenance shop generates waste brake fluid, it must be handled according to Missouri's Hazardous Waste Law and rules. Improper disposal of used brake fluid can cause damage to soil and surface water and pose a risk to human health.

In Missouri, it is against the law for anyone to dispose of brake fluid or any used oil into the environment. That means it cannot be used as a dust suppressant or poured onto the ground. Also, it cannot be legally disposed of in a Missouri landfill.

Brake fluid and other used oil is regulated as a hazardous waste unless it is recycled. Waste brake fluid may be mixed with other used oil, or it may be handled separately. See *Used Oil* on page 30 and *Hazardous Wastes* on page 21 for more information on how to manage this type of waste.

One problem that can arise is contamination of brake fluid with chlorinated compounds. Many brake cleaners or solvents contain chlorinated compounds. These can get into used brake fluid, causing it to need more expensive hazardous waste management. Also, some older brake fluids may have been manufactured using chlorinated compounds. If brake fluid contains chlorinated compounds and is mixed with used oil for recycling, it may be impossible to recycle it or use it as fuel. Local recyclers can determine what level is unacceptable. A test kit can be used to check brake fluid for chlorinated compounds.

One way to avoid contamination is to use cleaners that do not contain chlorinated materials. If that is not possible, take care to avoid mixing the cleaning fluids with the waste brake fluid.

Those using an on-site oil burner to manage used oil should check with the supplier or manufacturer to find out if burning brake fluid in the unit will cause problems. Burning glycol compounds could cause smoke or fumes. Keep track of any times brake fluid is burned in the unit to see if it causes a problem, and avoid burning the fluid if smoke or fumes result.

Remember

- Used brake fluid is considered a used oil.
- Used brake fluid is a hazardous waste unless it is recycled.
- Check with an oil burner's manufacturer before burning brake fluid with used oil. Don't burn brake fluid if it creates smoke or fumes.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Carefully drain brake fluid into proper drip pans to prevent spillage during emptying and transfer.
- Clean up spills as soon as possible with proper absorbent.
- Take care not to mix chlorinated cleaners or solvents with brake fluid or used oil.
- Educate do-it-yourselfers not to mix chlorinated materials with used oil.

Brake Repair

Vehicle brake pads and brake shoes are commonly made with material containing asbestos. The dust that accumulates in the brake area contains very small asbestos particles, a substance that is known to cause cancer.

Although the Missouri Department of Natural Resources does not have regulations requiring particular practices when repairing brakes, care should be taken to keep asbestos-containing brake dust out of the atmosphere.

After removing the brake pad or shoe from the brake, vacuum the brake dust. Do not blow it off with an air hose. Have a vacuum and disposable bag dedicated for brake dust only. When the bag is full it can be sealed for disposal. Because small asbestos particles can escape, it is a good idea to wear a breathing mask approved for filterable particulate material.

When brakes are bled, try to catch all the brake fluid. See *Brake Fluid* on page 9 for information on how to manage the waste fluid. If possible, avoid using chlorinated solvents for cleaning brakes since it can contaminate the brake fluid and make it difficult to recycle.

Separate used brake pads or shoes from other trash. The recommended practice is to wrap the old pads or shoes in plastic bags, then put the bagged material into a sealed container, labeled for used brake material only. The dedicated vacuum bag should also be placed in the container. When the container is full, notify the trash collection service that there is asbestos-containing material to be picked up. The service may want to pick up the material separately from the regular trash, depending on how the local landfill operates.

Remember

- Brake pads and shoes may contain asbestos.
- Try to control dust (which may contain asbestos) by using a vacuum instead of an air hose.
- Keep asbestos waste separate from other waste.
- Place asbestos waste in plastic bags, then into a sealed container, and label it.
- Notify the waste hauler that there is asbestos-containing waste.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Try brake pads and shoes that do not contain asbestos.
- Vacuum brakes; don't blow dust into the air.
- When bleeding the brake system, capture all the brake fluid and use a clean container so that any waste can be recycled.

Catalytic Converters/Mufflers

Mufflers and catalytic converters that are removed from a vehicle are usually managed by the vehicle maintenance shop. These items are made of metals that can be readily recycled.

Used mufflers and catalytic converters contain metals that can be processed as regular scrap metal. Catalytic converters from the exhaust systems of newer automobiles contain platinum, which has a higher value than steel. Some scrap metal recyclers will pay more for catalytic converters. Recycling catalytic converters separately from other exhaust system parts to get a better price should be considered.

Although Missouri does not have environmental regulations dealing specifically with waste mufflers or catalytic converters, care should be taken to manage them in a way that will not cause a public nuisance or cause harm to the environment or public health.

Those storing scrap metals outside should be particularly careful. What looks like a storage pile to some may look like a "dump" to others. To avoid potential problems, be careful that other wastes are not mixed with scrap metal and set up a regular schedule for removal. Check on city and county ordinances that may have requirements for storing materials outside. Consider storing catalytic converters separately from other scrap metal so they will not be sent to ordinary scrap metal recycling by mistake.

Remember

- Be sure scrap piles do not become a "dump." Set up a schedule for collection and keep recyclables separate from other materials.

Pollution Prevention Options

Preventing pollution, instead of treating or disposing of it, can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Follow routine scheduled maintenance.
- Check clearance on hoist lift arms before raising the vehicle to prevent damage to exhaust system parts.
- Check the exhaust system whenever the vehicle is on a hoist lift. Check for broken or damaged exhaust pipe hangers which could cause a muffler to drag and become damaged.

Floor Cleaning

Floor cleaning at vehicle maintenance shops can have an environmental impact depending on the methods or procedures used. Floor cleaning is also important from a customer relations standpoint.

The most important step in preventing environmental problems from floor cleaning is to prevent spills. Use drip-pans to catch fluid spills. Place wastes to be disposed of or recycled in proper containers. Clean up fluid spills immediately with the appropriate absorbents.

The first cleaning step should be to dry sweep the floor to remove loose, dry materials from the floor. If hazardous materials have fallen on the floor, it is possible that these sweepings could be hazardous waste. For example, sludges from cooling systems may contain heavy metals such as lead. If these sludges are mixed with floor sweepings, the sweepings could be contaminated with lead. If these sweepings are contaminated they will have to be tested and managed accordingly if they are hazardous. See *Hazardous Wastes* on page 21.

When washing the floor, do not use caustic cleansers or solvents that can cause damage to a public sewer and treatment system or to a private septic system. Biodegradable soaps are available and are usually gentler on both these systems. Be particularly cautious if the shop is not connected to a public sewer system. Septic systems can be seriously harmed by some chemicals. If the facility is connected to a public sewer and wastewater treatment system, contact that treatment facility to explain the materials handled and ask if they can accept the wastewater generated. There may be local regulations restricting what can be poured down the drain and discharged into the sewer system.

Do not discharge washwater to the outdoors. If wastewater is released off the property, it could be in violation of Missouri's laws.

Avoid hosing off the floor when dry sweeping is possible. Hosing off the floor uses a great deal of water, creates a greater risk of pollution and is typically not effective for cleaning oils and greases.

Remember

- If listed hazardous wastes are mixed with floor sweepings, all of the material is hazardous waste.
- Contact local sewer plants to find out about local requirements for wastewater discharged to them.
- Do not discharge wastewater outdoors.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Prevent spills and clean up spills immediately.

Floor Dry / Absorbents

Many vehicle maintenance facilities use absorbents (sometimes called floor dry) to clean up small spills. Once these materials are used, they may require special handling.

If an absorbent is used to clean up oil, it is called an oily waste. Oily waste may be sent to a sanitary landfill only if:

- it does not contain any unabsorbed liquids, and
- it does not contain any hazardous waste.

The local landfill and hauler should be consulted before sending oily wastes in the trash. The landfill or hauler may require special handling or paperwork, or they may refuse to accept the waste.

If an absorbent is used to clean up spills of a listed hazardous waste, the contaminated absorbent is then a hazardous waste. In that case, hazardous waste requirements for storage, transport and disposal of the absorbent must be followed. See *Hazardous Wastes* on page 21.

Disposing of used absorbent can be difficult and expensive. It makes good sense to reduce the amount of absorbent waste as much as possible. The best way to reduce absorbent waste is to avoid spills or leaks. The proper and frequent use of drip pans is essential in trying to do this.

Make sure drip pans are large enough to hold the amount of liquid that may leak. Use pans that cannot be easily tipped over. When removing oil-laden parts, placing them in a drip pan will keep the oil off the floor and allow recycling. Use separate drip pans for different types of liquids (oil, antifreeze, etc.) to avoid contaminating recyclable liquids.

If an absorbent must be used, sprinkle only as much as is needed. Some of the absorbent may be reusable if it is not saturated. Keep partially-used absorbent in a separate container for future use until completely saturated.

Alternatives to floor dry absorbents may be considered. Special oil absorbent mops are available that can be reused and from which used oil can be wrung and recycled. Absorbent socks may also be used and wrung out. Possible sources for these products are listed below.

Suppliers of shop towels or absorbents can be contacted about getting reusable absorbent socks or booms. Here are some possible sources:

(The department does not endorse the following companies or their products, but merely provides this information as a service to Missouri citizens.)

Oil Mop
P.O. Box 51271OCS
Lafayette, LA 70505-1271
(504) 394-6110
1-800-645-6671
www.oilmop.com

Dawg Inc.
80 Turnpike Drive
Middlebury, CT 06762
1-800-935-3294
www.dawginc.com

New Pig Corporation
One Pork Avenue
Tipton, PA 16684-0304
1-800-468-4647
www.newpig.com

Absorbents Midwest Inc.
23040 Industrial Drive East
St. Clair Shores, MI 48080
1-800-877-3116
www.absorbentsmidwest.com

Additional suppliers can be found on the Web by searching under “absorbents.”

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it, can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Minimize or eliminate the use of floor dry absorbents.
- Use drip pans to prevent spills as much as possible.
- Store used drip pans so they don’t drip, leak or spill.
- Consider alternative absorbent materials such as mops or socks.
- Pre-clean the floor with a dry broom.
- Use biodegradable soap and water to do final cleaning.

Fluorescent Bulbs

Many shops use fluorescent lights for overhead lighting. They may use high-pressure sodium, mercury vapor, metal halide, neon and high intensity discharge lights. These lights are classified as fluorescent bulbs for this fact sheet. Various vehicle lights such as headlamps and dashboard lights, may contain mercury. These would probably be classified in the broad category of fluorescent bulbs. Fluorescent lights typically use less energy and cost less to operate than incandescent lights. However, fluorescent bulbs may contain toxic metals such as mercury, cadmium and lead. When fluorescent bulbs are broken, people may be exposed to toxic levels of mercury vapor and other metals which can be easily inhaled.

The Missouri Department of Natural Resources encourages lamp recycling to protect human health and to limit the amounts of toxic heavy metals entering the environment. Bulb suppliers should have information about recycling options and low-mercury bulbs.

Businesses that generate one or two lamps infrequently and are a conditionally exempt generator of hazardous waste may dispose of these in a Missouri sanitary landfill. Before disposal, put the lamp in the box the replacement lamp came in. Put the box in a plastic bag and secure the bag before putting it in the trash dumpster. This will help keep the bulb from breaking and will help protect you and the trash hauler.

Non-hazardous Lamps

Non-hazardous fluorescent lamps may be sent to a Missouri sanitary landfill or to a lamp recycler. Landfill operators should be contacted for permission before disposal. The landfill operator can refuse any waste and may ask that a special waste disposal request be completed before accepting the material.

Lamps Sent for Recycling

Businesses in Missouri may send their unbroken lamps to an out-of-state recycler or to a recycler in Missouri that has a valid resource recovery certification from the department. If unbroken lamps are sent for recycling, a licensed hazardous waste transporter is not required in Missouri. Either a hazardous waste manifest or other shipping papers, can be used to record and track shipments of unbroken lamps.

If hazardous lamps are to be sent to an out-of-state recycler, contact the environmental agencies in the states through which the lamps will travel for their state requirements. Other states may require use of a licensed hazardous waste transporter and a manifest for shipments to a recycler even though Missouri does not.

Hazardous Lamps

Fluorescent bulbs are subject to hazardous waste regulations if they are broken. They are also subject to these regulations if they are identified as hazardous and are discarded rather than recycled. See the fact sheet on *Hazardous Waste,* for more information.

There are two ways to determine if lamps are hazardous.

1. Test the waste. The test used to find out the toxicity of fluorescent lamps is the Toxicity Characteristic Leaching Procedure. If the level of any metal is at or above the acceptable level, the lamps are hazardous waste. Acceptable levels are published in Title 40 of the *Code of Federal Regulations* section 261.24 as follows:
   Mercury - 0.2 milligrams per liter (mg/l)
   Cadmium - 1 mg/l
   Lead - 5 mg/l

2. Apply knowledge of the hazardous characteristic. Data from lamp manufacturers shows that unless they are “low-mercury” bulbs they are likely to be hazardous waste. Some may choose to assume that lamps are hazardous to avoid the costs of testing. However, disposal firms may ask for test results before taking lamps.

The hazardous waste regulations to be met depend on the amount of waste generated. It may be helpful to know that 350 of the standard four-foot long lamps weigh about 220 pounds. Those with more than 220 pounds of hazardous waste in a month or at any one time are regulated as a small quantity generator. See *Hazardous Wastes* on page 21for more information.

Remember

- Fluorescent bulbs may be hazardous waste.
- Fluorescent bulbs can be recycled.
- Do not break fluorescent bulbs.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Purchase low-mercury bulbs.
- Protect bulbs from breakage.
- Recycle bulbs.

Fuel Tanks

Used fuel tanks may present a risk of explosion or fire after being removed from motor vehicles. Most scrap metal recyclers will not accept whole tanks. Used fuel tanks will be accepted by most scrap metal recyclers if the tanks have been crushed, cut up, or have holes in them.

Preparing used fuel tanks for recycling as soon as possible after removal from the vehicle reduces the danger of fire or explosion. Drain fuel tanks as soon as possible. Remove the in-tank fuel pump, rubber and wires. Prepare the used tank for recycling by crushing the tank carefully. Avoid any source of sparks or ignition. After draining and crushing the tank, it can be recycled as ordinary scrap metal.

If whole, uncrushed tanks must be stored, be careful to store them safely. Do not store whole tanks in enclosed areas or near a spark or ignition source. Store whole tanks separately from other scrap metal.

Although Missouri does not have environmental regulations dealing specifically with waste fuel tanks from vehicles, care should be taken to manage them in a way that will not cause harm to the environment or to public health.

Those storing scrap metals outside need to be particularly careful. What looks like a storage pile to some may look like a dump to others. To avoid potential problems, be careful that other wastes are not mixed with scrap metal and set up a regular schedule for removal. Check on city and county ordinances that may have requirements for storing materials outside.

Remember

- Fuel tanks can explode or cause a fire if not properly handled. Always keep them away from any source of spark or flame.
- Be sure scrap piles do not become a dump. Set up a schedule for collection, and keep recyclables separate from other materials.

Pollution Prevention Options

Preventing pollution, instead of treating or disposing of it, can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Follow routine scheduled maintenance.
- Check the fuel tank whenever the vehicle is on a hoist lift. Check for leaks. Check the condition of the tank support straps.

GVIP - Gateway Vehicle Inspection Program

What is the Gateway Vehicle Inspection Program?

The Gateway Vehicle Inspection Program is part of Missouri's continuing effort to improve air quality in the St. Louis region. The Gateway Vehicle Inspection Program is a combined emissions testing and safety inspection program for vehicles registered in the St. Louis ozone nonattainment area. The nonattainment area includes St. Louis City and Franklin, Jefferson, St. Charles and St. Louis counties.

Why is the emissions testing program changing?

In summer 2005, the department convened the Emissions Inspection and Maintenance I/M Summit to bring the St. Louis community together to consider and build consensus for a redesign of the vehicle emissions I/M program in St. Louis. Based upon the consensus of the I/M Summit, the Missouri General Assembly passed Senate Bill 583 in 2006. As a result of this legislation, the Gateway Clean Air Program, the centralized emissions inspection and maintenance program, ended Sept. 1, 2007. The Gateway Vehicle Inspection Program began Oct. 1, 2007. The Missouri Department of Natural Resources and the Missouri State Highway Patrol jointly administer the Gateway Vehicle Inspection Program.

Why does my vehicle need to be tested?

Motor vehicles are a leading source of air pollution in the St. Louis area due to the large number of vehicles on the road and amount of miles traveled daily. The U.S. Environmental Protection Agency has designated the counties of St. Charles, St. Louis, Franklin, Jefferson and St. Louis City as an ozone nonattainment area. The area does not meet the federal health-based air quality standards for ground-level ozone, a strong lung irritant.

The Gateway Vehicle Inspection Program is an important part of the eight-hour ozone plan designed to bring the St. Louis area into attainment by June 2010. The federally-required I/M program is designed to reduce passenger vehicle emissions.

Studies show those most affected by poor air quality are those with respiratory illnesses. When passenger vehicle emissions react with heat and sunlight, ground-level ozone is formed. Because ground-level ozone is highly reactive, high concentrations can cause throat irritation, congestion, chest pains, nausea and labored breathing for anyone exposed to this pollution. Ozone can also aggravate the breathing of those with lung or heart conditions. Performing repairs on the vehicle before emissions issues worsen will help reduce ground-level ozone.

Everyone benefits from improved air quality when the release of excessive vehicle emissions are prevented.

Are vehicles operating more cleanly today than ever before?

Vehicles manufactured in 2007 are designed to operate more cleanly than the new vehicles of 1970. Vehicle manufacturers have complied with more stringent emissions standards set by the federal government each year. New emissions devices combined with unleaded fuel have improved vehicle emissions during the past 37 years; however, manufacturers still have no control over routine maintenance of a vehicle once it leaves the dealership.

Vehicles 1995 and older registered in the nonattainment area make up 20 to 23 percent of the vehicle fleet in 2007. The impact on ground-level ozone from these older vehicles will continue to decrease as these vehicles become a smaller percent of the fleet and are phased-out.

Which vehicles will require emissions testing?

The Gateway Vehicle Inspection Program will only test gas-powered vehicles 1996 and newer and diesel-powered vehicles 1997 and newer that are registered in the St. Louis ozone nonattainment area. The program will also test vehicles with at least 51 percent of their annual miles driven in the ozone nonattainment area, regardless of where the vehicle is registered.

The Gateway Vehicle Inspection Program emissions tests even model year vehicles during even calendar years and odd model year vehicles during odd calendar years. An emissions test is also required any time an eligible vehicle undergoes a title change.

Which vehicles will not require emissions testing?

All vehicles that do not contain on-board diagnostic computer equipment will be exempt from the emissions testing requirements, however a safety inspection will still be required. Safety inspections are required biennially regardless of calendar or model years.

Exempted vehicles include

- 1995 and older gas-powered vehicles;
- 1996 and older diesel-powered vehicles;
- New motor vehicles, not previously titled and registered, for the four-year period following their model year of manufacture, with fewer than 40,000 miles at the first required biennial safety inspection;
- New and unused vehicles, with model years within two years of the calendar year, that have odometer readings of less than 6,000 miles at the time of original sale by the manufacturer or dealer; and
- Motor vehicles that are driven fewer than 12,000 miles between biennial safety inspections.

Other exemptions include

- Motorcycles and motortricycles;
- Vehicles powered by fuels other than gasoline, ethanol or diesel;
- Vehicles that are domiciled and operated exclusively in an area of the state not subject to the emissions inspection requirements;
- Historic Vehicles registered pursuant to section 301.131 RSMo;
- School buses;

- Tactical military vehicles; and
- Visitor, employee or military personnel vehicles on federal installations provided appointments do not exceed 60 calendar days.

How do motorists know when to have their vehicles emissions tested?

The Missouri Department of Revenue will continue to mail vehicle registration papers 60 days prior to plate expiration to notify motorists when to have their vehicles emissions tested and safety inspected. Vehicles with an even model year are tested in even years, and vehicles with an odd model year are tested in odd years. An emissions test is also required any time an eligible vehicle undergoes a title change. At the time of the title transfer, the seller is required to provide the purchaser with a valid emissions inspection compliance certificate or compliance waiver.

Where can I go to have my vehicle emissions tested?

The state will license auto shops in the St. Louis area to conduct the emissions testing. All currently licensed safety inspection stations are encouraged to participate in the program.

What is required of local auto shops to participate in the program?

To participate, local auto shops will apply to the state for an emissions inspection license. Licensed stations will conduct emissions inspections and have the option to repair failing vehicles. The cost of the station license is $100 per year, and will be prorated the first year the business is licensed so safety and emissions inspection station licenses can be synchronized.

Emissions inspectors will also be licensed with the state. The emissions inspector license is valid for three years and provided at no cost. The contractor will train all emissions inspectors. The inspectors will be required to pass a written and practical exam offered by the Missouri State Highway Patrol. The licensed emissions inspection stations are required to obtain Internet connections to facilitate real-time, paperless vehicle registration verification. They are also required to purchase their inspection equipment from the state's contractor.

How are vehicle emissions tested?

The Gateway Vehicle Inspection Program will use On-Board Diagnostics or OBDII testing to conduct the emissions test. This testing method accesses an advanced computer system installed in all 1996 and newer gas-powered and 1997 and newer diesel-powered vehicles 8,500 pounds or less in Gross Vehicle Weight Rating. OBDII is an early-warning system that continually monitors the vehicle's emissions-control devices and other engine-related components to ensure all are functioning properly.

When the vehicle is presented for an emissions test, an inspector will attach a connector cable to the OBD port generally located below the dash on the driver's side of the vehicle. The OBD information will be sent to the computer. Any emissions-related OBD diagnostic trouble codes or other OBD failures will be printed on the Vehicle Inspection Report.

OBDII systems provide valuable emissions information that allows motorists to invest in needed repairs and preventive maintenance to ensure that their vehicle continues to perform efficiently. The outcome of the Gateway Vehicle Inspection Program will be cleaner cars on the road and cleaner air for everyone to breathe. For more information about the emissions test, see the OBDII fact sheet on the department's Web site at www.dnr.mo.gov/gatewayvip/docs/obdfactsheet.pdf.

Are safety inspections still required by the state?

Safety inspection requirements are not changing. The Gateway Vehicle Inspection Program combines the safety inspection and emissions testing requirements for vehicles registered in the

St. Louis ozone nonattainment area. Model year vehicles 1995 and older are not subject to the emissions portion of the program, but are still subject to all safety inspection requirements. Any auto shop that currently performs safety inspections may continue to offer safety only inspections and may choose not to participate in the Gateway Vehicle Inspection Program.

What is the cost of an emissions test?

The emissions testing fee shall not exceed $24, and the safety inspection fee shall not exceed $12. The station shall determine the acceptable forms of payment. The fees shall include one free reinspection, if the same licensed station conducts it within 20 business days.

How long is my emissions test valid?

Once a vehicle receives a passing emissions test, the test is valid for registration purposes for 60 days. If the vehicle owner allows the emissions test to expire, the vehicle will have to be reinspected.

If my vehicle fails, where can I go to have it repaired?

Anyone may perform necessary repairs for the vehicle. Customers are not required to have repairs completed at the station that performs their vehicle's emissions test. It is important to note that waiver criteria may affect where a motorist chooses to have repairs performed.

What is required for retesting my vehicle?

If your vehicle has been repaired, it's time to get ready for a retest. Retests are required until your vehicle passes or until you obtain a cost-based waiver from the Missouri Department of Natural Resources.

Once repairs are completed, the vehicle must return to the initial testing station within 20 business days to qualify for one free reinspection. After 20 business days, you are required to pay the full emissions test fee again.

The vehicle owner must present a completed repair data sheet that is filled out and signed by whomever repaired the vehicle. This information will be used to provide performance ratings for Missouri Recognized Repair Technicians as well as facilitate cost-based waiver issuance.

Before you retest...drive your repaired vehicle normally for several days before returning to the station that initially performed the emissions test. Doing so can help reset your vehicle's readiness monitors. For more information on readiness monitors, see the *On-Board Diagnostics (OBDII)* fact sheet available on the department's Web site at www.dnr.mo.gov/env/apcp/docs/obdfactsheet.pdf.

Are waivers available and who is eligible to receive one?

Yes, there are three waivers offered to vehicle owners that fail the emissions test. The waivers include cost-based, out-of-area and reciprocity.

Cost-based emissions waivers are available if a motorist has spent more than $450 on emissions-related repairs and labor. However, labor costs can only apply toward the waiver amount if a Missouri Recognized Repair Technician performs the repairs. If the vehicle owner performs the repairs, the owner must spend at least $400 in qualified emission-control parts toward the waiver amount.

If vehicle owners are financially dependent solely on state and federal disability benefits or other public assistance programs and anticipate failing the emissions test, they may receive a waiver. The vehicle owner must provide reasonable and reliable proof to the department 30 days in advance of their vehicle's anticipated failure. The vehicle owner must spend at least $200 on emissions-related repairs and labor to qualify.

Out-of-area waivers are also available. If a vehicle is registered in the St. Louis ozone nonattainment area, but operating outside of that area for the next 24 consecutive months, owners may apply to the department for an out-of-area waiver.

Finally, reciprocity waivers are available. If a vehicle is in a state other than Missouri and that state conducts pass/fail OBD testing, the motorist may choose to have the vehicle emissions inspected in that state and submit a reciprocity waiver application to the department.

Vehicle owners must apply for all emissions waivers with the Missouri Department of Natural Resources. To apply please visit www.GatewayVIP.com and complete the appropriate waiver request form.

What if I purchase a used vehicle?

State law requires automobile dealers to sell vehicles that will pass the emissions test. The dealer may choose to test the vehicle prior to the sale and provide the motorist with the passing emissions test or a cost-based waiver. Purchasers should understand that if the vehicle received a waiver, it will likely fail future emissions tests. If the dealer chooses not to provide either a passing test or waiver, the owner should get the vehicle tested within 10 days or 1,000 miles of the purchase date. Should the vehicle fail the emissions test, the owner may return it to the dealer for repairs needed to get it to pass the emissions test (no waivers allowed). If the dealer cannot get the vehicle to pass the emissions test, the dealer must reach another agreement with the vehicle owner.

State law requires private sellers of vehicles to provide the purchaser with a current emissions test approval or waiver for the vehicle prior to the sale. The vehicle purchaser has 60 days from the date of the emissions test to register the vehicle. For more information, see the Consumer Protection Information for Used Car Buyers fact sheet on the department's Web site at www.dnr.mo.gov/gatewayvip/docs/consumerprotection.pdf.

I had my vehicle tested last year when I purchased it; why do I have to test it again this year?

The Gateway Vehicle Inspection Program tests even-model year vehicles biennially during even calendar years and odd-model year vehicles biennially during odd calendar years. An emissions test is required any time an eligible vehicle undergoes a title change. In some cases, when a used vehicle is sold, an emissions test may be required in two successive years.

For example, if a 2000 vehicle is purchased in 2007, the seller is required to provide a passing emissions test to the buyer to register the vehicle. The seller, not the buyer, should pay for the test that occurs in 2007. In 2008, the vehicle would be required to pass an another emissions test paid for by the new owner based on the even model year testing schedule. In this instance, the vehicle was required to have an emissions test in two successive years. However, the vehicle would not be scheduled for another emissions test until 2010.

Now that my vehicle has passed its inspections, how do I renew my license?

Vehicle owners may register online at www.plates.mo.gov. The Department of Revenue will mail your renewal stickers soon after they finalize your online renewal. You should allow 10 days for your stickers to arrive and plan your renewal accordingly. Vehicle owners should apply the stickers properly to their license plates. The stickers are proof that the vehicle owner has renewed their license, not the online confirmation. The vehicle owner can also visit a license fee office for vehicle registration and plate renewal purposes. For a list of Missouri Department of Revenue's contract license fee offices, visit www.dor.mo.gov/mvdl/offloc.

Hazardous Wastes

Most vehicle maintenance shops generate hazardous waste. It is very important that these shops determine if their wastes are hazardous and that they carefully follow the law when managing the wastes.

What is a Hazardous Waste?

A waste is a material no longer being used and expected to be discarded. It can be a solid, liquid or gas. A waste is hazardous if it has properties that could be dangerous to human health and the environment. Solvents and degreasers are examples of wastes that could be hazardous.

It is a maintenance shop operator's responsibility to determine if his waste is hazardous. A waste is hazardous if:

- It is listed as a hazardous waste in the federal regulations;
- It exhibits a hazardous characteristic;
- It is a hazardous waste by Missouri law; or
- It is a mixture of a listed hazardous waste and any other waste.

Listed Hazardous Wastes

The federal government publishes lists of hazardous wastes. There are four different lists: The F list, the K list, the P list and the U list. Wastes that are on the P list are called "acutely hazardous" and are regulated more strictly then the others.

Characteristic Hazardous Waste

Some wastes that are not on the lists may still be regulated hazardous wastes because they have characteristics that make them hazardous. The four characteristics are:

Ignitable - A waste with a flashpoint of less than 140 F, or solids that catch fire easily and burn so rapidly they create a hazard. Some solvents are ignitable.

Corrosive - A waste with a pH less than or equal to 2.0 or greater than or equal to 12.5. An example is battery acid.

Reactive - Wastes that are normally unstable, react violently with water, can explode or release poisonous gases.

Toxic -Contains defined concentrations of volatile organic chemicals, heavy metals or pesticides when tested by the Toxicity Characteristic Leaching Procedure (TCLP). An example might be lead solder or a gas filter (benzene).

Missouri-specific Hazardous Waste

An individual state can regulate wastes as hazardous even if they are not on the federal list. For example, in Missouri certain dioxin wastes are regulated at smaller quantities than in the federal rules.

Mixed Waste

If any waste is mixed with a waste that is on the F-, P- or K- lists, all of it is hazardous, even if there is a very small amount of listed waste.

Determining Hazardous Waste

To determine if waste is hazardous, check to see if it is on the lists of hazardous wastes or if it is a hazardous waste in Missouri. If it is not, it should be checked to determine if it exhibits one or more of the hazardous characteristics. Check the Material Safety Data Sheet or contact the chemical supplier for information. If there is uncertainty whether a waste is hazardous, it may need to be tested in a laboratory.

Managing Hazardous Wastes

There are very specific requirements for managing a business's hazardous waste. The requirements that must be met depend on what and how much waste is generated. Businesses need to know how much acutely hazardous waste (P-listed) and non-acute hazardous waste they generate each month. They also need to know how much of each of these types of waste they accumulate at any one time.

Types of Hazardous Waste Generators

There are three types of generators. Large quantity generators, small quantity generators and conditionally exempt small quantity generators . Below are some general guidelines that can help businesses determine their generator status.

Businesses that generate in one month or accumulate at any one time . . .

- more than 1 kg (2.2 pounds) of acutely hazardous waste are a large quantity generator.
- 1,000 kg (2,200 pounds) or more of non-acute hazardous waste are a large quantity generator.
- more than 100 kg (about 220 pounds), but less than 1,000 kg (2,200 pounds) of non-acute hazardous waste and less than 1 kg of acutely hazardous waste are a small quantity generator.
- no more than 100 kg (220 pounds) of non-acute hazardous waste and less than 1 kg of acutely hazardous waste are a conditionally exempt small quantity generator.
- In Missouri, anyone generating 1 gram or more of dioxin waste (2,3,7,8-tetrachlorodibenzo-p-dioxin) is a a large quantity generator.

The federal requirements for hazardous waste can be found in the Code of Federal Regulations, Title 40, Part 260 through Part 280 (40 CFR 260-280). The Missouri Hazardous Waste Law is in the Revised Statutes of Missouri (RSMo), Sections 260.350-260.552. The hazardous waste rules are in the Code of State Regulations, Title 10, Division 25 (10 CSR 25).

Remember

- A business is responsible for determining if its waste is hazardous.
- A business will need to register as a hazardous waste generator if it generates in a month or accumulates at any one time more than
    - 1 Kg (2.2 lbs.) of acutely hazardous waste;
    - 100 Kg (220 lbs.) of non-acutely hazardous waste; or
    - 1 gram (0.0022 lbs.) of dioxin waste.

Hoses and Gaskets

Vehicle maintenance shops often have waste hoses and gaskets from engine repair. Hoses and gaskets may contain residues of fluids and may need special handling. Some of these items may also be recyclable.

When hoses are changed in a vehicle, the old hoses may still contain some liquid such as coolant. Some gaskets may also be very wet when removed from a vehicle. Liquids cannot legally go to a landfill. If a waste container has liquid in the bottom from items such as old hoses, the waste hauler may refuse to take it because of this restriction.

A simple way to drain hoses is to attach a clip to the shop wall in an out of the way place. Clip the top of the hose, making sure it is still open to the air. Put the bottom end into a container. It may take overnight to completely drain. Keep separate containers for antifreeze, used oil and any other common automotive fluids. The drained material can be added to recycling batches.

Remember

- Liquids cannot be sent to the landfill.

Pollution Prevention Options

- Never mix fluids unless they are usually recycled together. Mixing could change a recyclable substance into a hazardous waste.
- Do not put liquids into trash containers.
- Replace hoses and gaskets when recommended by the manufacturer.

Lead-Acid Batteries

(In this document the term “battery” means lead-acid battery.)

Lead-acid batteries from motor vehicles contain materials that can pose a risk to people and the environment. These batteries contain sulfuric acid, lead and other materials that can be hazardous. Used batteries are banned from sanitary landfill disposal in Missouri. Do not put them in the trash or dumpster. Non-leaking batteries need to be handled in one of three ways:

Recycling Program for Lead-Acid Batteries

The current recycling program for batteries is extremely successful, and the requirements are less stringent, so the waste batteries will probably be handled under this program. This program requires battery wholesalers and retailers to accept used batteries from their customers in quantities at least equal to the number of new batteries sold.

No matter how a business handles its used batteries, if it sells a battery to someone, it must take their old battery if asked. The business must then arrange for those batteries to be recycled. Batteries cannot be stored longer than 90 days unless the Missouri Department of Natural Resources gives its approval.

The law also requires anyone selling batteries at wholesale or retail to post a sign about recycling batteries. The sign has to be four inches by six inches or larger and must say, “It is illegal to discard a motor vehicle battery or other lead-acid battery. Recycle your used batteries. State law requires us to accept used motor vehicle batteries, or other lead-acid batteries for recycling, in exchange for new batteries purchased.”

Universal Waste

Used batteries can be handled as universal waste. This option has more stringent requirements than the recycling option listed above. Batteries must be sent to a recycling facility, a resource recovery facility or a permitted lead smelter. Those choosing to handle batteries as universal waste should see the fact sheet on *Universal Waste*, PUB2058. This publication is available on the Web at www.dnr.mo.gov/pubs/pub2058.pdf.

Hazardous Waste

Used batteries can be handled as hazardous waste. Cracked or leaking batteries must be handled as hazardous waste. This option is normally the most costly and has the most stringent requirements. Those choosing to handle used batteries as hazardous waste should read *Hazardous Wastes* on page 21.

Storage of used batteries

Storage of batteries must be done in a way that protects human health and the environment. The safe storage of batteries begins with a suitable location. Batteries should be stored indoors or under cover to keep them dry and to prevent damage to the casings caused by freezing and thawing. The storage location should not be where the batteries can be hit or run over. Batteries should not be stored near combustibles, such as gasoline, and the storage area needs to be well ventilated. Precautions should be taken to contain spills. One way is to store batteries on or above a sealed concrete floor with a curb. Storage of batteries outdoors may require a storm water permit from the department.

Those storing batteries should have written procedures for handling spills or leaking or cracked batteries. Spills should be neutralized with a material such as agricultural lime, baking soda or a commercial spill kit and be cleaned up immediately. Cracked or leaking batteries should be placed in a container impervious to acid, such as a five-gallon plastic bucket. Anyone handling the batteries or spilled material should wear protective clothing, gloves and eyewear. An eye wash sink or eye flush kit should be available. Cracked or leaking batteries need to be handled as hazardous waste. See *Hazardous Wastes* on page 21 for more information.

Transporting Used Batteries

All used batteries need to meet federal and Missouri Department of Transportation requirements for transporting hazardous materials. Hazardous waste batteries must be transported using licensed hazardous waste haulers.

The part of the law dealing with lead-acid batteries is §260.260-260.266, *Revised Statutes of Missouri*.

Remember

- Do not put batteries in the trash. They cannot go to a landfill.
- Those selling batteries must take the customer's old one if asked.
- Those selling batteries must post a sign with specific language about recycling.
- Cracked or leaking batteries are hazardous waste.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Store batteries where they will not be damaged or frozen.
- Store batteries so that leaks will be caught and contained.

- Anchor batteries when transporting.
- Use long-life batteries.
- Inspect stored batteries regularly for cracks or leaks before they become a problem.

Mercury Switches

Many older vehicles contain mercury switches. They are located in some hood and trunk light switches, ABS G-force sensors, ride control switches and air bag sensors. Liquid mercury and mercury vapor are hazardous to both humans and the environment. Mercury is released to the environment when vehicles containing mercury switches are crushed, shredded or melted for recycling. Removal of mercury switches from vehicles before they are recycled is an important part of keeping mercury out of the environment. Also, make sure the mercury-containing device does not break when removed from the vehicle. Mercury-containing devices that have broken need to be handled as hazardous waste. See *Hazardous Wastes* on page 21.

The National Vehicle Mercury Switch Recovery Program was created in 2006 to promote and fund the removal of mercury switches from end-of-life vehicles. Collection buckets are provided free of charge by End of Life Vehicle Solutions, a not for profit corporation set up by the National Vehicle Mercury Switch Recovery Program. ELVS will also ship the full buckets to a recycler and return an empty bucket to your facility at no cost to you. As an additional incentive, End of Life Vehicle Solutions will pay $1 for each mercury switch that is removed and shipped to their recycler.

If you want to participate in the National Vehicle Mercury Switch Recovery Program, follow the collection and shipping instructions furnished with the End of Life Vehicle Solutions bucket. If you choose not to participate, store the unbroken switches in a leak-proof, closed container in a manner that will prevent the capsule from breaking. Mark the container “Universal Waste-Mercury Switches,” “Waste Mercury Switches” or “Used Mercury Switches.” Mark the date the first switch is placed in the container. Switches must be sent off for recycling within a year. A hazardous waste transporter will not be required in Missouri.

Those planning to send the mercury switches to a company out-of-state should contact the environmental agencies in the states through which the switches will travel for their state requirements. Other states may have additional transportation requirements.

If the mercury switch cannot be reused, many of the companies that handle fluorescent bulbs also handle other mercury containing items. We have a list of companies that can handle fluorescent bulbs. This list will usually note when the company also accepts other items. This list, *Fluorescent Bulb Recyclers*, is available online at www.dnr.mo.gov/pubs/pub451.pdf.

The following Web sites contain information that might be helpful in mercury switch removal.
www.elvsolutions.org/educational.html
www.epa.gov/mercury/switch.htm

Remember

End of Life Vehicle Solutions will pay $1 for every mercury switch that is removed and shipped to their recycler.

- Properly package and label mercury switches.
- Broken mercury switches must be handled as hazardous waste.
- Mercury switches must be sent off for recycling within one year from the time they are deemed a waste.

Parts Washers

Various types of parts washers are available for removing dirt and lubricants. Most systems use either solvent or water-based cleaners. Depending on the cleaner used and the items being cleaned, the waste from parts washers may be hazardous.

Solvent Washers

Many people use solvents for cleaning parts. Some solvents evaporate readily and can cause air pollution problems. For this reason the use of certain solvents is restricted in some areas, such as St. Louis and Kansas City. The local air pollution control office or the Missouri Department of Natural Resources can provide information on special requirements for specific solvents.

Some solvents used in parts washers are hazardous waste when disposed. Solvent suppliers and manufacturers can provide information on whether a used solvent is a hazardous waste. The Material Safety Data Sheet may have this information. It is the user's responsibility to make sure the solvent is handled properly and the paperwork is done correctly.

Even if the unused solvent is not hazardous, the used solvent can be hazardous waste due to contamination from the parts that have been cleaned. The supplier may be able to provide information on typical contaminants, or the waste solvent may need to be tested. See *Hazardous Wastes* on page 21 for more information.

Some businesses use solvent-distillation units, often called stills. These remove contaminants to allow the recycling of the solvent. Those recycling hazardous waste solvent on-site must notify the department of these activities. Those recycling more than 2,200 lbs. of hazardous waste in a month must get a resource recovery certification from the department. The sludge and still bottoms from these units may be hazardous waste.

Water-based Washers

Many water-based parts washers are available. Typically these are closed units which use very hot water and detergents with rust inhibitors. They work very much like home dishwashers. The units are often designed to filter oil and impurities from the water during operation.

Those using this type of washer must still be concerned about hazardous waste issues. Contact the supplier to learn if the detergent is regulated as a hazardous waste. As with solvent units, the contamination from the parts being cleaned could cause the waste to be hazardous. The wastewater, filters or sludges may need to be tested to find out if they are hazardous.

Before putting wastewater from a parts washer down the drain, contact the local sewer system personnel to make sure it is okay with them. If the wastewater is treated by an on-site system, such as a lagoon or septic tank, wastewater from the business operations cannot be put down the drain. It will need to be contained and disposed of at a facility able to accept it. For this reason, it may be more costly to use a water-based parts cleaning system if a business is on a septic system. See the fact sheet on *Wastewater* for more information. Do not let untreated wastewater drain out on the ground or to any body of water.

Remember

- It is the user's responsibility to make sure the waste solvent is handled properly.
- Solvents or detergents used in parts washers may be regulated as hazardous waste.
- Contaminants from dirty parts can cause waste solvent or wastewater to be hazardous.
- The department must be notified if hazardous wastes are recycled on-site. Those recycling more than 2,200 lbs. in a month must get a resource recovery certification.

- Check with the local sewer plant to see if it is okay to pour wastewater from a parts cleaner down the drain.
- Never drain untreated wastewater onto the ground, into storm sewers or into any body of water.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Close the lid on the parts washer and turn off the spray nozzle when not in use. This will decrease evaporation of solvent.
- Consider a solvent distillation unit (still). These units can extend the life of the solvent, saving raw material expense and hazardous waste disposal costs.
- Use slightly dirty solvent for initial rinsing of parts and clean solvent for final cleaning.
- Maintain parts washers. Check to make sure seals are tight and there are no leaks.

Petroleum Storage Tanks

Some vehicle maintenance facilities may have storage tanks containing oil or fuel. These tanks have the potential for leaking and spilling oil or fuel, causing harm to the environment. Storage tanks, depending on size, usage or type, are regulated by several agencies.

Aboveground Storage Tanks

Federal law requires a Spill Prevention Control and Countermeasure Plan if an oil, used oil or petroleum storage tank is located where it could contaminate water due to a spill, for example on or near a stream, lake or river. A Spill Prevention Control and Countermeasure Plan plan is needed if there is

- total aboveground storage capacity (of containers 55 gallons or greater) over 1,320 gallons, or
- total underground storage capacity over 42,000 gallons that is not regulated by Underground Storage Tank standards.

The basic requirements of a Spill Prevention Control and Countermeasure Plan include what is being done to prevent spills, how any spills will be contained and how spilled oil or fuel will be removed and disposed of. Also, the storage tanks must have some form of secondary containment.

Facilities with greater than 20,000 gallons in aboveground storage tanks are required to obtain a storm water permit. Contact your regional office for details.

Aboveground petroleum storage tanks at a service station or a bulk terminal are regulated by the Missouri Department of Agriculture. Businesses that include these operations can contact the Department of Agriculture at

Missouri Department of Agriculture
Division of Weights and Measures
P.O. Box 630
Jefferson City, MO 65102
(573) 751-4278

Underground Storage Tanks

Those with Underground Storage Tankslarger than 110 gallons must register those tanks with the Missouri Department of Natural Resources whether or not the tanks are in use, unless they were taken out of service before Jan. 1, 1974. There are requirements in Missouri for the way new tanks are to be constructed and installed. Existing tanks were required to meet these requirements or be properly closed by Dec. 22, 1998. Those planning to install a new underground storage tank must notify the department at least 30 days before beginning installation. Underground storage tanks must have approved methods of release detection for both the tank and piping, along with corrosion protection and spill and overfill protection.

The department must be notified by calling (573) 634-2436 as soon as possible within 24 hours of a suspected release from an underground storage tank or for spills greater than 25 gallons. Spills and overfills must be immediately contained and cleaned up.

Those planning to take an underground storage tankout of service temporarily or permanently, or wanting to use it for something besides petroleum products, should contact the department for information on what needs to be done.

Owners and operators of petroleum underground storage tanks must demonstrate financial responsibility for releases of products from the tanks. Several options are available for demonstrating financial responsibility. Missouri has a Petroleum Storage Tank Insurance Fund, which provides for cleanup of contamination from both Aboveground storage tank and underground storage tank releases. Contact the Petroleum Storage Tank Insurance Fund at 1-800-361-4827.

Remember

- An underground storage tank larger than 110 gallons must be registered with the department even if it is not being used.
- Those who store large quantities of petroleum products (i.e., oil, gasoline) or waste oil need a Spill Prevention Control and Countermeasure Plan.
- Spills or releases must be reported to the department as soon as possible within 24 hours.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Prevent overfilling and spilling.
- Label tank contents to prevent mixing.
- Properly maintain tanks to prevent corrosion.
- Place tanks where leaks can be easily contained without entering the environment.
- Inspect tanks daily for leaks and spills.
- Maintain appropriate spill containment equipment and train employees on proper usage.
- Clean up spills as soon as possible.
- Close out unused or out-of-service underground storage tanks in accordance with the department’s regulations.

Radiators

Used radiators may contain materials such as lead, transmission fluid and antifreeze, which are harmful to both people and the environment. Metal radiators may have value as scrap metal. Radiators must be properly prepared before some scrap metal recyclers will accept them.

Before storing, recycling or disposing of radiators, take care to drain the liquid from the radiator. Be careful to avoid spills and to clean up any spills immediately. Antifreeze and radiator sludge may have contaminants that cause it to be regulated as hazardous waste. Antifreeze from late-model cars or trucks is not considered a hazardous waste in Missouri. However, antifreeze from heavy equipment or industrial sources may be regulated as a hazardous waste. See *Antifreeze* on page 7 for more information.

Separate radiators that have been prepared for recycling from those that have not been cleaned/prepared to avoid sending dirty radiators to the scrap metal recycler.

Particular care must be taken with scrap metals stored outside. What looks like a storage pile to some looks like a "dump" to others. To avoid potential problems, be careful that other wastes are not mixed with scrap metal and set up a regular schedule for removal. Check on city and county ordinances that may have requirements for storing materials outside.

Remember

- Be sure scrap piles do not become "dumps." Set up a schedule for collection and keep recyclables separate from other materials.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Repair used radiators when possible.
- Follow routine scheduled maintenance. Check antifreeze solution regularly to prevent acid and corrosion buildup in the radiator.

Shop Towels

Discarded shop towels or rags, either cloth or paper, may be contaminated with hazardous wastes. If they are, the towels or rags may be hazardous waste.

Some materials at a facility may be hazardous waste. Listed hazardous wastes include solvents such as methyl ethyl ketone, toluene, xylene, and others. A waste can also be hazardous if it is toxic, ignitable, reactive or corrosive. This type of waste is called a characteristic hazardous waste. See *Hazardous Wastes* on page 21 for more information.

Any waste that is mixed with a listed hazardous waste becomes a hazardous waste. Towels with a listed hazardous waste on them become hazardous waste themselves when discarded. The towels could also be characteristic hazardous waste, particularly if they are contaminated with metals like lead or chromium or if they can burst into flames.

The best way to deal with this issue is to prevent the problem. The use of non-hazardous cleaning solvents will not cause the towels to become hazardous.

If used towels or rags are laundered and reused, they are not regulated as a solid waste or as a hazardous waste. The laundry should be told what kind of chemicals are on the shop towels to make sure they can handle that type of material.

Those who wash their own shop towels should be sure to check with the local wastewater treatment plant to find out if they can accept the wastewater discharge being put down the drain. Wastewater may need to be pretreated. Do not launder contaminated shop towels if the wastewater does not go to a sewer system and treatment plant.

Do not launder towels or rags used to clean up spills of hazardous waste. If shop towels are used to clean up spills of hazardous waste, the shop towels are hazardous waste and must be disposed of at a permitted hazardous waste treatment, storage or disposal facility.

Those who plan to throw away dirty shop towels or rags need to find out if they are hazardous waste. If the shop towels are hazardous, the regulations for management, storage, transport and disposal of hazardous waste must be followed.

Non-hazardous used towels may be sent to a sanitary landfill. Landfills cannot accept liquids, so be sure to collect and use any liquid from the towels.

Remember that oily or solvent-soaked towels can catch fire easily. Store them safely. Some people spray the rags with water to prevent fires.

Remember

- Shop towels used to clean up spills of listed hazardous waste must be managed as hazardous waste.
- Shop towels contaminated with hazardous waste are hazardous waste.
- If dirty shop towels are laundered and reused, they are not waste. Let the laundry know what type of solvents or other material is on the dirty towels.
- Don't wash dirty shop towels unless the wastewater goes to a wastewater treatment plant. Check with staff at the treatment plant to be sure it can handle the wastewater.
- Those throwing away contaminated shop towels must find out if they are hazardous waste and follow the regulations that apply. (See the *Hazardous Waste* fact sheet.)

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Use non-hazardous cleaners and solvents.
- Don't use shop towels to clean up spills of hazardous materials. Use drip pans to prevent spills and appropriate absorbents for cleanup.
- Use the least amount of solvent needed.
- Collect and recycle solvents from contaminated shop towels. Use a wringer to remove the liquid or simply allow the towels to drain over a container. Reuse solvents if possible.

Used Oil Disposal and Recycling

Improper disposal of used oil can cause damage to the environment and result in costly clean up. In Missouri, there are certain things that must be done and certain things that cannot be done when managing used oil from your business.

Used oil cannot be disposed of at a landfill or with the regular trash. Used oil cannot be disposed of into the environment or create a public nuisance. It cannot be used for dust suppression or killing weeds on gravel roads, parking lots or elsewhere.

Used oil is regulated under the federal and state hazardous waste laws and regulations. Recycled used oil is regulated under special used oil regulations. Recycled used oil includes oil that is re-refined, reclaimed, reprocessed or burned for energy recovery. Used oil that is not recycled is regulated as a hazardous waste. The waste code for used oil in Missouri is D098. See *Hazardous Wastes* on page 21 for more information.

Off-Site Shipments of Used Oil

Used oil must be hauled by transporters who have EPA identification numbers and Missouri licenses. Contact the department for a list of transporters with Missouri licenses.

A business can transport its own used oil if:

- It transports 55 gallons or less at any time.
- It is its own used oil or used oil accepted from do-it-yourselfers or exempt farmers.
- It takes the oil to an used oil collection center or used oil aggregation point.
- It uses its own vehicle or an employee's vehicle.

Mixing Other Wastes With Used Oil

Care should be taken when mixing other wastes with used oil. Certain ignitable hazardous waste can be mixed with used oil if the final mixture is not ignitable. If a business is a small or large quantity generator of hazardous waste and if the hazardous waste is hazardous for some reason besides being ignitable (for example if it's also a listed hazardous waste), mixing it with used oil will make the used oil a hazardous waste. For example, mixing any F-listed spent solvent with used oil will cause all of the oil mixture to be hazardous waste. See the fact sheet on *Hazardous Waste* for more information.

Burning Used Oil in On-Site Space Heaters

Some shops burn their own used oil, oil from do-it-yourselfers and oil from farmers who generate fewer than 25 gallons per month, in specially-designed used oil space heaters. Used oil space heaters must have a capacity of 500,000 BTU per hour or less and be vented outside.

Shops burning used oil do not need to notify the department, but they must notify the department if they are collecting used oil from do-it-yourselfers or farmers. See the *Used Oil From Do-It-Yourselfers* fact sheet.

Neither small quantity nor large quantity hazardous waste generators can burn any mixture of used oil with hazardous waste in a used oil space heater. Conditionally exempt generators of hazardous waste that is hazardous only because it is ignitable may mix it with their used oil for burning.

Before adding anything to used oil, check with the used oil transporter or used oil space heater manufacturer. Make sure this practice is acceptable and will not damage the space heater or release hazardous emissions into the atmosphere.

Remember

- Used oil cannot be sent to the landfill or poured out onto the ground.
- Used oil, if not being recycled, is a hazardous waste.
- Those hauling used oil must have an EPA identification number and be registered with the department.
- Used oil may be burned in a used-oil burner smaller than 500,000 BTU/hour that is properly vented.
- Those who collect and burn used oil from do-it-yourselfers or exempt farmers must first notify the department that they are a do-it-yourself used oil collection center.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Keep used oil separate from other wastes.
- Place oil laden parts on a drip pan rather than the floor.
- Do not use the oil drip pan to collect antifreeze or solvent.

Used Oil Filters

A short time ago, the majority of used oil filters were disposed of in landfills. Today, millions of filters are recycled. Oil filters are generally made from paper, metal and rubber. Used oil filters have value because they can be burned for fuel and/or the metal components can be recycled. Businesses throughout the country are choosing to recycle, rather than meet minimum standards for filter disposal.

After the filter has been removed from the vehicle, residual oil must be removed before disposal or recycling. Used oil can be removed from filters by:

- puncturing the filter anti-drain back valve or dome end and hot-draining
- hot-draining and crushing
- dismantling and hot-draining or
- any other hot-draining method that will remove used oil.

To hot-drain a filter, remove the filter while the engine is hot, then keep the filter above 60° F while it drains for 12 hours. Oil filters that have been hot-drained can be sent to a sanitary landfill for disposal. Collect the oil removed from oil filters and manage it properly as used oil. Undrained oil filters must be shipped as used oil with transporters who have a Missouri license and a U.S. EPA identification number.

Recycling used oil filters saves natural resources and helps protect the environment. There are two ways filters are usually recycled. The entire filter can be burned for fuel, or the parts of the used filter can be separated, with the scrap metal being recycled and the paper and rubber burned as fuel.

Scrap steel processing or recycling facilities, as well as steel smelters, can recycle the metal components of the filter. Some accept whole or crushed filters, while others only accept the metal components. Used oil filters can also be sent to industrial burners (such as cement kilns) where the entire filter, or just the paper and/or rubber components, can be burned for fuel.

There are also companies that specialize in oil filter recycling. The Filter Manufacturers Council established a Used Filter Hotline in 1994. A list of companies that provide filter management services can be found at 1-800-99FILTER. This information can also be found at www.filtercouncil.org.

The legal requirements for managing used oil filters can be found in the federal regulations, 40 CFR 261.4(b)13.

Remember

- Used oil filters must be properly drained before they can be recycled or sent to the landfill.
- Used oil drained from filters must be collected and managed properly See *Used Oil* on page 31.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- When removing the oil filter, use a drip pan under the vehicle to catch oil spills.
- When draining filters, carefully collect the oil to avoid spills.
- To prevent spills, put filters on a tray or in a container before moving them.
- Store filters in a container large enough to hold any used oil that might seep from the filters.
- Some shops use mobile oil filter-draining containers on wheels for clean, easy transporting.
- Empty the mobile containers into the used oil storage container routinely to avoid overflow.
- Recycle used oil filters through a scrap metal or used oil filter recycler.

Used Oil From "Do-It-Yourselfers"

Many people choose to change their own vehicle oil. In the United States, an estimated 200 million gallons of used motor oil are improperly disposed of by do-it-yourselfers. Vehicle maintenance facilities can accept oil from do-it-yourselfers if they follow a few basic requirements. This service can help protect the environment by giving people an easy way to safely manage their do-it-yourself used oil.

Used oil generators can accept used oil from householders and from farmers who have less than 25 gallons of used oil a month (called "exempt farmers"). Missouri's regulations require that the Missouri Department of Natural Resources be notified by those wanting to be a do-it-yourself used oil collection center. To do this, send a letter that includes:

- Name and location of the collection center,
- Name and phone number of the owner/operator. If there is a different person serving as facility contact, include that person's name and phone number,
- Type of collection center (do-it-yourself), and
- Dates and hours of operation.

Send the letter to the Missouri Department of Natural Resources, Hazardous Waste Program, P.O. Box 176, Jefferson City, MO 65102-0176.

Do-it-yourself used oil collection centers must comply with the used oil generator requirements. See *Used Oil* on page 31. Public access to the used oil storage tank must also be controlled. This can be done by having an attendant present during business hours and limiting after-hours

access to the tank by a barrier such as a fence or locating the tank inside a locked building. Do-it-yourself used oil cannot be stored longer than twelve months.

Used oil collected from do-it-yourselfers and exempt farmers, along with oil generated on site, can be burned in an on-site space heater. If shipped off-site, do-it-yourself used oil should be managed the same as the business's own used oil. Inform businesses that they cannot use the do-it-yourself collection tank. Businesses who generate used oil must comply with the used oil generator requirements.

One concern is that homeowners may add other substances to their used oil. Fortunately, surveys of used oil collection programs show that is very rare. However, used oil can become contaminated with chlorinated solvents from brake and carburetor cleaners. Inexpensive test kits or halogen leak detectors can be used to check for contamination. Checking the do-it-yourself oil as it is brought in or providing a separate tank or container for do-it-yourselfer used oil are two ways to limit liability. Testing the used oil for contamination before adding it to a larger used oil storage tank will limit contamination to a small volume and decrease disposal costs. Work with the used oil hauler to develop a plan for what to do if a load of used oil is contaminated.

Although it is not required, some facilities choose to keep a collection log, having customers sign it with the date, their name and address and the amount of used oil brought in.

Remember

Those accepting used oil from do-it-yourselfers must

- comply with used oil generator requirements, and
- notify the Missouri Department of Natural Resources, and
- control access to the used oil storage tank, and
- store the used oil for no longer than 12 months.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Have facility personnel, rather than customers, add used oil to the collection tank to prevent spills. Handle used oil as little as possible.
- Keep an assortment of pads and socks on hand to absorb oil spills.
- Have trash cans available for used do-it-yourself containers. Encourage customers to reuse containers.
- Post warnings against mixing and ask customers if their used oil has been mixed with anything.
- Post a sign describing the types of oil that you will and will not accept.

Used Oil Storage

Improper storage of used oil can increase the risk of spills and leaks that could harm the environment and prove costly to clean up. In Missouri, there are some legal requirements for storing used oil from a business.

Those storing used oil must

- label the storage container(s) with the words “Used Oil.”
- keep containers in good condition.
- do not store used oil collected from do-it-yourselfers longer than 12 months.
- keep containers closed if they are exposed to rain or snow (except when removing or adding used oil).
- inspect storage areas regularly for leaks or spills. Clean up spills and leaks.
- if a container is leaking, fix it immediately or move the oil to another container.

To help prevent spills, consider putting used oil containers in a “secondary containment” structure. Secondary containment is the name used to describe a structure or container that holds the storage tank and can hold the liquid if the storage tank leaks. The secondary containment should have a volume at least as large as the largest container or 10 percent of the total volume of all the containers, whichever is greater.

Those storing a large amount of petroleum products and used oil (a total of more than 1,320 gallons in an aboveground tank) are required to have spill prevention measures. See *Petroleum Storage Tanks* on page 27 for more information.

Local communities or counties may have specific requirements for storing oil. Check with local authorities, particularly the fire department.

The department recommends not storing used oil in underground tanks.

Storing containers on an impervious surface (like sealed or treated concrete) helps contain spills and makes clean up easier. Some shops store their used oil containers on pallets or slightly elevated in some way to make it easier to spot spills or leaks.

Clean up all spills immediately. Spills of more than 25 gallons of used oil or other petroleum products from underground storage tanks must be reported to the department. Petroleum spills from any other source must be reported if the spill is more than 50 gallons. However, if the petroleum spills into a waterway such as a creek, lake, river or stream, or into a ditch that drains to a waterway, it must be reported to the department no matter how small the spill.

Note: The legal requirements for used oil storage can be found in Missouri Code of State Regulations, 10 CSR 25, Chapter 11 and in the Code of Federal Regulations, 40 CFR Part 279.

Remember

- Label storage containers and keep them in good condition.
- Inspect storage areas regularly. Fix leaks immediately or move the oil to another container.
- If containers are exposed to rain, keep them closed except when adding or removing used oil.
- Check with local authorities to learn if there are local requirements.
- Oil spills as noted must be reported to the department.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Keep used oil separate from other wastes.
- Have separate storage containers for antifreeze, solvents or other fluids that could accidentally be mixed with used oil.
- Use large drum funnels or fill tubes when filling used oil drums. Store funnels on a drip pan to collect dripping oil.
- Clean spills with a rag or mop that can be wrung-out and reused. A biodegradable soap and water solution may be used to clean up oil sheens.

Scrap Tires

Repair shops and tire retailers remove old or damaged tires to install the new ones they sell. Tires that are too damaged or worn for use as vehicle tires are scrap tires. Since 1990, the storage, hauling and disposal of scrap tires have been regulated under Missouri's Solid Waste Management Law.

Storage

Scrap tires must be stored in a way that does not cause pollution, health or nuisance problems. Because tires can collect water and create breeding grounds for mosquitoes, tire storage areas should be protected from rainwater or provided with some other way to control mosquitoes. Tires may also pose a fire hazard, so they should always be stored away from ignition sources.

Store tires intended for resale or retreading separately from scrap tires. Do not mix scrap tires with tires intended for resale or retreading. Tires intended for resale or retreading are not regulated as scrap tires. Anyone storing 25 to 499 tires is regulated as a scrap tire collection center and must meet certain requirements. See the fact sheet on *Scrap Tire Collection Centers* for more information.

Anyone who stores 500 or more tires must have a permit from the Missouri Department of Natural Resources as a scrap tire site. A scrap tire processor that cuts, shreds, bales, chips or otherwise alters scrap tires and accumulates 25 or more must apply for a scrap tire processor permit.

Hauling

Anyone who hauls scrap tires for consideration or commercial profit must get a permit from the Department of Transportation, Motor Carrier Services. However, no permit is needed for those who haul tires solely generated from their own business. The tires may be hauled to a tire processor, scrap tire site, another tire hauler or to a landfill (if they are cut, chipped or shredded).

A tire hauler's permit is good for one year and only applies to the person or business to which it is issued. Check the expiration date and name on the permit to be sure it is valid. To get the list of permitted scrap tire haulers or check the permit status of a hauler, contact the department at 1-800-361-4827 or check the Solid Waste Management Program's Web page at www.dnr.mo.gov/env/swmp/index.html.

Recordkeeping

A record should be kept of how many tires are taken in and removed from a shop each month. Include the name of the hauler and the date the tires were removed. A recordkeeping form is available from the department or on the Web site at www.dnr.mo.gov/forms/780-1596.pdf.

Beneficial Use

Sometimes a person wants a few scrap tires for a home project or farm erosion control. If someone wants to use over 100 tires, they need to get approval from the department. Individuals can haul their own scrap tires for their own use.

Disposal

Never burn tires in Missouri. Even in areas where home waste burning is allowed, burning tires is prohibited. Businesses are not allowed to burn any type of waste for disposal.

You cannot dispose of tires in a landfill unless the tire is cut up in three pieces or in half circumferentially (forming two circles). Special equipment is usually needed to cut tires for disposal. There are places to legally take scrap tires in Missouri. They usually charge a fee per tire and can accept whole tires. Call 1-800-361-4827 or check the Web site at www.dnr.mo.gov/env/swmp/index.htmlfor a list of sites.

Uses for Scrap Tires

There are options for using scrap tires rather than disposing of them. Scrap tire chips can be used for many things such as mulch on playgrounds or as fuel in electrical plants.

The legal requirements for scrap tires can be found in §260.270-279*, Revised Statutes of Missouri* (RSMo) and in 10 CSR 80, *Chapter 8* of the *Code of State Regulations*.

Remember

- Do not burn scrap tires.
- Scrap tires cannot go to the landfill unless they are cut into three or more pieces or in half circumferentially (in two circles).
- Those storing 25 or more scrap tires must follow requirements for scrap tire collection centers. See *Scrap Tire Collection Centers* on page 38 for more information.
- Anyone hauling scrap tires for commercial profit needs a permit from the Missouri Department of Transportation.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions for reducing generation of scrap tires:

- Avoid fast starts and stops.
- Drive at a moderate rate of speed.
- Properly inflate tires.
- Properly balance and align wheels.
- Buy and sell retreaded tires. Selling retreads creates a market for used tire casings and keeps them from disposal.

Scrap Tire Collection Centers

In Missouri, the law requires anyone dealing with scrap tires to follow certain rules. *Scrap Tires,* on page 36, has general information about managing scrap tires in Missouri. This summary includes the requirements that must be met for those who have more than 24 but less than 500 tires. Anyone storing 25 to 499 tires in Missouri is a scrap tire collection center and must meet the following requirements.

Storage

Scrap tires must be stored in a way that does not cause pollution, health or nuisance problems.

Fire protection

Local and national fire protection standards must be met for storage of rubber tires. Contact the local fire department for information on what those requirements are.

Location

Tires cannot be stored in a wetland, sinkhole or floodplain.

Vector control

Store tires in a way that is "unfavorable for the harboring, feeding and breeding of vectors." In other words, scrap tires need to be stored so that mosquitoes, rats and other insects or animals do not cause a problem. This should be done in one of the following ways:

- Drain any water out of the tires and store them indoors or under cover, or
- Cut or "alter" the tires so they cannot hold water, or
- Treat the tires with mosquito pesticides, or
- Get prior approval from the department for any other method of control.

Recordkeeping

Scrap tire collection centers must keep a record of the following information:

- The number of scrap tires accumulated each month,
- The number of scrap tires removed each month,
- Where the scrap tires went,
- The name and permit number of the scrap tire haulers bringing tires to the site or taking them away, and
- Records of vector control activities (for example, when a pesticide is sprayed).

Records must be kept for at least three years. The department has recordkeeping forms for scrap tire collection centers that must be used. To get a copy of the forms, contact the department.

Disposal

Never burn tires. Even in areas where home waste burning is allowed, burning tires at home is prohibited. Businesses may not burn any type of waste for disposal.

Tires cannot be disposed of in a landfill unless the tire is cut up in three or more pieces or in half circumferentially (cut into two circles). Special equipment is usually needed to cut tires for disposal. Chipped tires may also go to a landfill as long as the pieces are no bigger than one-third to one-half of a tire.

The legal requirements for scrap tires can be found in §260.270-279, *Revised Statutes of Missouri* and in 10 CSR 80, *Chapter 8* of the *Code of State Regulations*.

Remember

- Anyone storing 25-499 tires is a scrap tire collection center and must meet the requirements under the law.
- Do not burn scrap tires.

Pollution Prevention Options

Preventing pollution instead of treating or disposing of it can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Educate customers on how to extend the life of tires.
- Be cautious when using pesticides. Follow label directions exactly and use only the amounts needed.
- Follow storage requirements carefully to prevent fires and to protect the environment.

Wastewater

Vehicle maintenance shops generate wastewater during daily operations. Some sources of wastewater include hot tank solutions and rinse water from parts cleaners and general shop floor clean-up. These wastewaters may contain metals that can cause them to be hazardous or they may be corrosive hazardous wastes. They may also contain oils, greases, solvents and detergents.

Most communities provide sewer collection and wastewater treatment facilities. Businesses connected to a sewer and treatment plant should contact them to explain the materials they wish to dispose of in the sewer system. The wastewater may need to be pretreated in some way before putting it in the sewer. For example, an oil/water separator or treatment for a particular contaminant may be required. By pretreating its wastewater, a business helps assure the community's sewer and treatment system continues working for everyone.

Shops in areas where a wastewater treatment facility is not available or cannot take their water must carefully control the management of their wastewater. If the wastewater is hazardous, it must be managed as a hazardous waste and sent to a permitted hazardous waste facility. See *Hazardous Waste* on page 21 for more information. If it is not hazardous, it can be taken to an approved wastewater treatment plant. Also, if the wastewater is not hazardous, it may be able to be treated and discharged, but this will likely require a permit from the department to assure that the treatment process will properly treat the wastewater.

Shops that cannot connect to a wastewater treatment plant may be able to discharge domestic wastewater, from restroom or kitchen facilities, to a septic system depending on the amount of wastewater. But, any industrial wastewater (from parts washers, floor cleaning, etc.) will still need to be collected and managed as described above. Do not put industrial wastewater down the drain if not connected to a sewer and treatment plant and have permission from the plant.

Management practices that reduce, reuse and recycle the wastewater will greatly reduce the disposal costs and will help protect sewer systems and treatment plants. See the section on pollution prevention for some suggestions.

Remember

- If a shop is connected to a sewer system and treatment plant, operators should contact the treatment plant to find out if they can put their wastewater down the drain. Some wastewater may need to be pretreated before it goes to the treatment facility.
- Shops not connected to a sewer system and treatment plant can:
    - Get permission from the department to treat the wastewater and discharge it, or
    - Collect the industrial wastewater and determine if it is hazardous waste. If it is hazardous waste, send it to a permitted hazardous waste facility. If it is not, take it to an approved wastewater treatment plant.
- Do not send wastewater from a shop (except restroom or kitchen waste) to a septic system.
- Never let wastewater from a shop go onto the ground, down a storm drain or into a body of water without approval from the department.

Pollution Prevention Options

Preventing pollution can save money, protect the environment and reduce risk to people. Here are some suggestions:

- Collect and recycle petroleum-based fluids such as used oil, transmission fluid and brake fluid.
- Collect and recycle coolants from radiators.
- Reuse dirty rinse water as make-up water in a hot tank or jet spray washer to pre-rinse parts.
- Use drip pans to catch leaks before they hit the floor.
- Use absorbents to clean up minor fluid leaks and spills.
- Sweep floors prior to washing.
- Accumulate all sludges in a closed, marked container. Determine if they are hazardous waste and dispose of properly.

For more information

Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102-0176
1-800-361-4827 or (573) 751-3443
www.dnr.mo.gov