

Keep Your Shop in Tune

A Best Management Practices Guide
for Automotive Industries



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This manual was prepared by the Pollution Prevention Outreach Team

This team is a multi-agency cooperative group working toward a cleaner environment. The following program partners helped develop and review this document.

- City of Gresham
- City of Portland
 - Environmental Services
 - Energy Division
 - Bureau of Water Works
- City of Troutdale
- Clackamas County
 - Water Environment Services
- Clean Water Services
- Lane Regional Air Pollution Authority
- Metro
- Northwest Automotive Trades Association (NATA)
- Oregon Department of Environmental Quality (DEQ)
- Washington County

Also A Special Thanks To:

- Oregon Office of State Fire Marshal
- Oregon Occupational Safety and Health Administration
- Washington State Department of Ecology
 - “Managing Hazardous Wastes: A Guide for Automotive Repair Shops”
- Santa Clara Valley Non-point Source Pollution Control Program
 - “Best Management Practices for Automotive-Related Industries”
- United States Environmental Protection Agency (EPA)
 - “Consolidated Screening Checklist for Automotive Repair Facilities Guidebook”

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Keep Your Shop in Tune

A Best Management Practices Guide for Automotive Industries

When a car is properly maintained, it runs cleaner and more efficiently, and costs less to operate. The same is true for an automotive repair shop. By keeping your shop “in tune,” you can run a cleaner, more efficient shop and save money.

Automotive related industries create a variety of wastes, some of which may be classified as hazardous. This handbook describes Best Management Practices (BMPs) for automotive shops and related industries to help control and prevent pollution.

BEST MANAGEMENT PRACTICES ARE RECOMMENDED PROCEDURES THAT WILL HELP YOU:

- Comply with government mandated environmental requirements. *(Specific regulations may vary from one municipality to another. Use this handbook in conjunction with the ordinances in your community. Environmental regulations can be complex. This handbook does not cover all potential items.)*
- Save money by finding ways to reduce or recycle your wastes.
- Show customers they have made a wise choice by selecting a shop that protects the environment.
- Protect public health and the health and safety of your workers, by eliminating, reducing and controlling wastes.
- Reduce your liability by reducing your potential for site contamination.
- Join other automotive repair shops in Oregon that are taking pride in maintaining a clean and healthy environment.

Automotive Industry Wastes

The individual sections in this handbook discuss solutions to a variety of automotive service related pollution problems, listing Dos and Don'ts for proper handling of process wastes.

Reducing pollution may not be as hard as you think. A good place to start is to walk through your shop and review all of the processes that use toxic chemicals or generate waste. You should be able to use the information provided here to make at least one positive change for our environment.

More Information

- ✓ **For information about the Ecological Business Program**, Mercury Switch Out and related programs, call the Northwest Automotive Trade Association (NATA) at 503-253-9898 or email them at "info@aboutnata.org".
- ✓ **For more information about state and federal requirements** for proper waste management and disposal, call the Oregon Department of Environmental Quality at 1-800-452-4011.
- ✓ **For more information about recycling and proper solid and hazardous waste** disposal options in the Metro Tri-County area call Metro Recycling Information at 503-234-3000. This is also the number to call for information about Metro's Conditionally Exempt Generator program for Hazardous Waste. For locales outside the Metro Tri-County area, call the Oregon Department of Environmental Quality at 1-800-452-4011.
- ✓ **For information about local sewage, stormwater and solid waste disposal** ordinances and recycling options, call your local jurisdiction. Below are some of the more frequently called jurisdictions:
 - City of Bend (sewer/wastewater), 541-388-5515
 - City of Gresham, 503-618-2525
 - City of Eugene (wastewater and waste disposal), 541-682-8600
 - City of Medford, 541-774-2100
 - City of Portland (sewer/stormwater), 503-823-7740 (solid waste) 503-823-7202
 - City of Salem (sewer/stormwater), 503-588-6161
 - City of Troutdale, 503-665-5175
 - Clackamas County (sewer/stormwater), 503-353-4567 (solid waste) 503-353-4400
 - Clean Water Services (sewer/stormwater), 503-681-3600
 - Washington County (solid waste), 503-846-8609

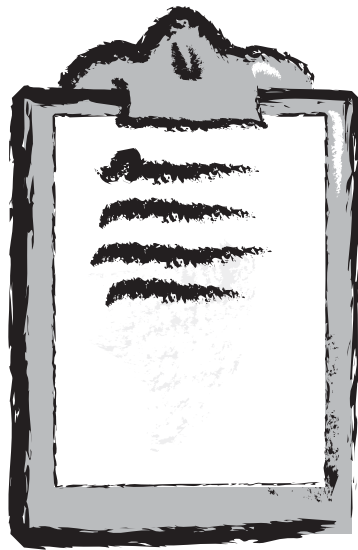
Automotive Industry Wastes

✓ Other information

Oregon Occupational Safety & Health Division (OR-OSHA) in Salem at 503-378-3272 or toll-free from within Oregon at 800-922-2689

Oregon Office of State Fire Marshal*, statewide call 503-378-3473 or visit website at www.sfm.state.or.us

**Check local listings for your area Fire Marshal*



Managing Hazardous Waste

Automotive repair shops in Oregon become regulated generators if they generate more than 220 pounds of hazardous waste per month or have more than 2,200 pounds of hazardous waste on site. (220 pounds is about one-half of a 55-gallon drum). If you think your shop may be a Hazardous Waste Generator you should contact DEQ at 1-800-452-4011. If you qualify as a Hazardous Waste Generator you will need to register with DEQ. Shops that generate less than this amount of hazardous waste are considered Conditionally Exempt Generators (CEGs) and are not required to register with DEQ as a Hazardous Waste Generator.

UNIVERSAL WASTE

You can further reduce the amount of materials listed toward your hazardous waste generator status by reviewing waste streams that may fall under the DEQ Universal Waste Rules. Pesticides, mercury-containing thermostats, fluorescent light tubes, and all types of batteries can all be handled as Universal Wastes. Contact DEQ at 800-452-4011 or online at www.deq.state.or.us/wmc/hw/hw.htm for more information.

Remember: Solvents and other substances are not wastes until the day they are no longer usable and are ready for disposal.

USED OIL

Burning used oil for shop heating, while acceptable, is not recommended due to the potential to release heavy metals as air pollutants. If you are using waste engine oil for shop heating, be sure that no other wastes are added like solvents or paints. DEQ requires facilities to properly manage used oil. You can use a registered used oil transporter to take your oil to a used oil processor. You can also burn used oil in a space heater if the used oil heater has a capacity of less than 0.5 million BTUs per hour, is vented to the outside air, and is operated according to manufacturer's specifications. Never add any hazardous waste, like chlorinated solvents or used antifreeze, to used oil. Adding these wastes may render the used oil a hazardous waste and may substantially increase your disposal costs.

ALL REGULATED AND CONDITIONALLY EXEMPT GENERATORS SHOULD FOLLOW STEPS 1 THROUGH 6 OUTLINED HERE:

These steps are required for regulated generators and suggested for Conditionally Exempt Generators.

Step 1 - Identify Your Waste and Generator Status (Required for everyone)

Check waste to see if it exhibits any of the hazardous waste characteristics (ignitability,

Managing Hazardous Waste

corrosivity, reactivity, toxicity) or appears on any hazardous wastes list, either state or federal. Additionally, DEQ allows recycling petroleum-contaminated wastewater provided there is enough fuel in it to warrant reclamation.

Step 2 - Obtain a Generator Identification Number

Regulated generators are required, and CEGs are encouraged, to obtain a site-specific EPA/DEQ Generator Identification Number. Forms are available from DEQ, call toll-free within Oregon at 1-800-452-4011 and Metro, 503-234-3000. Many hazardous waste haulers and management facilities may not accept your waste if you don't have a Generator Identification Number, even if you're a CEG and aren't legally required to have one. A Generator Identification Number is required to take advantage of Metro's CEG Hazardous Waste Program.

Step 3 - Manage Containers Properly

Many hazardous waste incidents and work-related injuries are linked to improper or unsafe container management. To avoid preventable accidents:

- Do not accumulate incompatible wastes (like acids and bases, or oxidizers and flammable material) in the same container or in the same storage areas;
- Store reactive and ignitable wastes according to the Uniform Fire Code;
- Make sure your hazardous waste storage area is clearly marked;
- Consider the location of containers with respect to: floor drains, electrical service panels, heat sources, customer/employee walkways, building access/egress by the public; and with respect to security and protection from vandalism.
- Remember there are specific limitations for the amount and length of time you are allowed to store materials onsite. If you exceed these limitations your generator status could change.

Step 4 - Record Keeping

- Record all information used to identify when, who and by what means your waste was determined to be hazardous or non-hazardous. Keep this documentation onsite.
- For both hazardous and non-hazardous waste, record all information about hauling and disposal. Note how much, when, and by whom (including their address, phone, etc.) it was picked up for disposal or recycling. Include the transporter's and destination facility's EPA identification numbers if the waste was hazardous.
- Keep manifests for a minimum of 3 years.

Step 5 - Arrange for Proper Transportation and Disposal

You are responsible for following regulations for the safe transportation and disposal of your waste, even after it leaves your premises. If you exceed the CEG waste quantities you must hire a transporter that has an EPA/DEQ Identification Number and ensure wastes are handled at a permitted hazardous waste treatment, storage or disposal (TSD) facility. If you are a CEG you may transport your own waste in accordance with DOT requirements to an

Managing Hazardous Waste

approved disposal facility or one that legitimately recycles or reclaims hazardous waste. Call DEQ toll-free within Oregon at **1-800-452-4011** to verify the transporter's Identification Number or for more information about the TSD facility closest to your shop.

Step 6 - Plan for Emergencies

Planning for emergencies can help prevent a small spill from turning into a dangerous and expensive contamination problem. Make sure you train your employees to know how to react to different types of emergencies in your shop. Be sure there is always someone on-site with authority to commit the resources necessary to deal with a hazardous waste emergency. Make sure workers who are assigned spill response and hazardous materials handling have adequate training to meet OSHA requirements for their assigned job duties.



Hazardous waste technical assistance is available from DEQ. The assistance is non-regulatory in nature and is available free in the form of on-site visits and telephone consultations. The assistance can include helping you use worksheets to calculate your hazardous wastes or providing guidance on whether you may need laboratory analysis to determine if your wastes are hazardous.

Check with DEQ (toll free at 1-800-452-4011) for any upcoming free training classes on hazardous waste management or go to DEQ's website for an online training program at www.deq.state.or.us/wmc/hw/hwta.html.

MERCURY SWITCH OUT PROGRAM

Mercury is a persistent toxic compound in the environment that has been proven to cause negative health effects. Mercury is present in various light switch assemblies in new and used vehicles, especially American models. Automotive service shops are encouraged to participate in a program sponsored by DEQ, NW Automotive Trades Association, the Oregon Environmental Council and the Port of Portland. The program removes and replaces mercury switches in cars to prevent the release of mercury into the environment when vehicles are scrapped. For more information on this program and a list of participating shops see the NATA (www.aboutnata.org) or Ecobiz (www.ecobiz.org) websites or call NATA at 503-253-9898 or 800-730-7282.

METRO'S CEG HAZARDOUS WASTE PROGRAM

Shops that register with DEQ as CEGs and obtain a generator number from DEQ as part of Metro's application process are then eligible to use Metro's CEG Hazardous Waste program. Metro will accept hazardous waste from CEGs at its two household hazardous waste facilities in NW Portland and Oregon City. Appointments are required and there is a charge for this service. Call Metro at 503-234-3000 for more information and an application package.

Managing Hazardous Waste

TOXIC USE REDUCTION PLANS

DEQ requires both Small Quantity Generators as well as Large Quantity Generators to prepare a Toxic Use Reduction (TUR) plan. This is a good idea, even for Conditionally Exempt Generators. Call DEQ toll-free within Oregon at 1-800-452-4011 for copies of the forms and instructions, or download them from DEQ's website at www.deq.state.or.us/wmc/tuwrap/tuwrap-reports.html

In general, a TUR plan lists all the hazardous materials either purchased or generated in the shop. It identifies the work processes in which these materials are used or generated. It also examines if the processes are really necessary, can be done with non-hazardous materials, or could be done in a manner that generates less hazardous waste.

Your shop should set goals to reduce the use of hazardous wastes and the amount of hazardous waste generated. Regularly evaluate the effectiveness of measures already taken and determine where further measures can be implemented.

DO:

- Think about preventing pollution before you purchase.
- Ask your vendor for a less hazardous alternative.
- Ask your vendor to take back all samples, empty containers or unused materials.
- Check the Materials Safety Data Sheets (MSDS) for hazardous ingredients.
- Purchase frequently used supplies in bulk. Keep them in bulk dispensers to eliminate empty waste containers.
- Be sure you know the shelf life of materials and only order the amount you will use before it expires.
- Purchase recycled products with a significant amount of post-consumer recycled material content.
- Reduce the number of containers on your site by reducing the number of different brands or grades of materials you use. Consult auto manufacturers for more information on compatible material substitutes.
- Choose materials that are recyclable, non-toxic and are preferably water-based. Keep track of alternative products that did NOT work out. Share this useful information with others, especially your trade organization.
- Always check a shipment for leaks or damage, to avoid the risk of materials cleanup.
- When transferring materials to smaller working containers, be sure to label the new container with the contents and date the container was filled.
- Always use approved containers for flammable liquids.

Managing Hazardous Waste

- Do weekly checks of materials stored onsite including materials waiting to be used, wastes to be recycled, and wastes awaiting disposal. Keep a log of inspections and make notes regarding any observations about leaks, spills, lack of good housekeeping measures, safety issues and any evidence of unauthorized entry.
- Use an inventory system to reduce unused or out-dated materials. Instruct employees to:
 - ✓ Return opened tubes of product to a specific location. This will avoid having several open tubes in use at the same time.
 - ✓ Return unused portions of chemicals, adhesives or solvents to storage.
 - ✓ Leave the contents in the working container rather than return to bulk storage. This will reduce the risk of contamination that may render chemicals unusable.
- Consider implementing a “return the empty to get the refill” type inventory control system. A good inventory system can reduce costs as well as help the environment.
- Involve all employees in finding ways to avoid using hazardous materials or reducing the amount used. Consider incentive programs to help maintain employee interest in the effort.
- Check out the Metro Conditionally Exempt Generator program at 503-234-3000 to dispose of hazardous waste.

DON'T:

- Don't use chlorinated solvents.
- Don't use products that may harm pollution control devices at your site. For example, if you have an oil/water separator, buy detergents designed to be used with oil/water separators.
- Don't store hazardous waste and recycled waste together. It is easy to mix them and turn the contents of the entire container into hazardous waste.
- Don't store large quantities of rarely used or toxic materials. Keep on hand only the quantities of materials that you need. Use a “first-in, first-out” scheme to limit the amount of unopened cans you discard when their shelf life expires.

You can save money in purchasing and make a big difference in your waste disposal costs by carefully selecting and managing your shop materials.



Run A Dry Shop

The purpose of spill control is to keep spills small and localized, to avoid discharges to the storm or sanitary sewer system, and to reduce your cleanup expenses and liabilities. You can comply more easily with sewer and stormwater requirements by cutting down on the liquids you discharge intentionally or accidentally through spills. If you are successful, your shop's discharge will be limited to wastewater from your bathrooms going to the sanitary sewer and rain water from your roof and parking lot going to the storm sewer.

Spill Protection

DO:

- Have spill kits easily available, clearly labeled, located near drain systems or near liquid storage locations, and assure staff is trained on kit location and use.
- Keep a drip pan under the car while you unclip hoses, unscrew filters or remove other parts. Drain fluids from vehicles that will be stored for long periods.
- Have funnels or pumps available to dispense chemicals.
- Use shop wipes for small spills and dry absorbent material for larger spills.
- Sweep the floor rather than wet mopping or spraying it down with a hose. Use a damp mop for general cleanup. Consider sealing floors with non-skid impervious materials for easier clean up.
- Seal floor drains if possible. Verify that your work area drains are connected to the sanitary sewer. Pretreatment may be required prior to discharge into the sanitary sewer. Wastewater should never be discharged into storm drains or into on-site drywells.
- Maintain your equipment. Periodically check equipment used to clean up spills and leaks. Also routinely check all shop equipment for small leaks and other repair needs.
- Stencil your storm drains as a reminder that storm drains discharge to local waterways. Stencils are available from your local sewerage agency.
- Call your local sewerage agency and/or the Oregon Emergency Response System (OERS 800-452-0311 or 800-OILS-911)

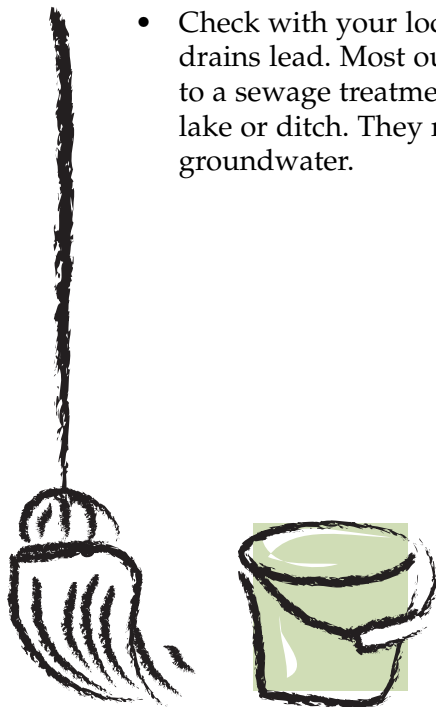
DON'T:

- Don't allow spills, drips and splatters to sit for a long time before cleaning up. These materials can wash away as water pollution or evaporate and contribute to air pollution.
- Don't leave drip pans or other open containers unattended, to prevent spills. Empty containers when they become at least half full.

Run a Dry Shop

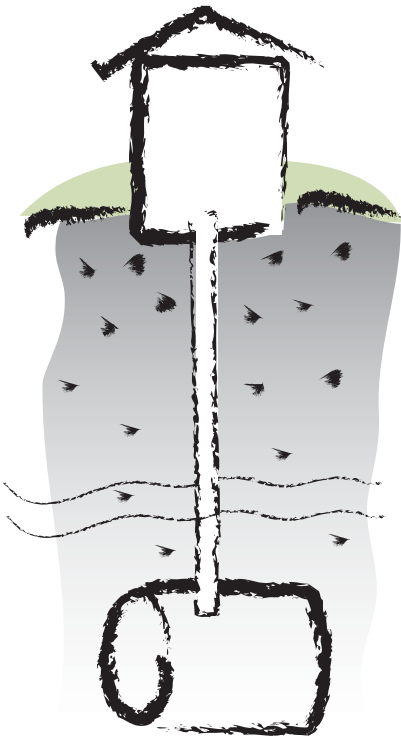
DON'T continued:

- Don't wash down or wet mop a spill. Washing just makes the material more mobile and can increase the overall volume of contaminated rinse water to manage as waste.
- Don't keep chemicals open to the air. Sealing containers with tight-fitting lids will prevent spills and limit evaporation. Tight lids also prevent the release of fumes that can create a fire hazard.
- Don't throw away dry absorbent if it can be reused. Wring liquids into an appropriate liquid waste container. Use personal protective gear when cleaning up spills.
- Don't assume used absorbents can be thrown into the dumpster. Determine whether the waste absorbent is a hazardous waste. If not, ask your garbage hauler whether they can go into the solid waste dumpster.
- Don't forget to clearly label your spill kit so that it is not accidentally used as a trash can. It should be easy to locate quickly during an emergency.
- Don't rely on dry absorbents alone. Spill kits should also contain absorbent pads and booms to contain spills. Consider use of inlet mat covers to keep drains from conveying your spill off your site.
- Check with your local sewerage agency to find out where your drains lead. Most outside drains and some inside drains don't go to a sewage treatment plant but instead lead directly to a stream, lake or ditch. They may drain to drywells and contaminate groundwater.



Underground Injection Control Wells

Underground Injection Control (UIC) wells of any type can be a problem for automotive service shops.



UICs are regulated by state and federal Safe Drinking Water Act programs and are designed to prevent surface generated pollutants from contaminating groundwater resources. The two most common UICs of concern for shops are:

- Wastewater discharge wells - otherwise called “motor vehicle waste disposal wells”
- Stormwater disposal wells.

These wells are typically shallow trench type systems or deeper drywell type systems and are located all over Oregon, especially in unsewered areas where the population is also likely to depend on groundwater as a drinking water source. During normal vehicle repair and maintenance activities, vehicle fluids may drip or spill or otherwise enter floor drains or sinks in service bays that discharge to shallow disposal well or septic systems. Drips for vehicle storage or washwater from vehicle washing can be discharged into parking and storage area inlets that go into onsite drainage drywells. These discharges can introduce various toxic chemicals into sources of drinking water and may include: engine oil, transmission fluid, power steering fluid, brake fluid, hydraulic fluid, antifreeze, chlorinated or non-chlorinated parts-cleaning solvents or degreasers, washing soaps and other small debris that may be washed off work or parking area surfaces.

Wastewater Wells Banned

- New wastewater/service bay area UICs are banned nationwide as of April 5, 2000.
- Existing wastewater UICs are banned in groundwater protection areas and other sensitive groundwater areas. Contact the DEQ to determine if your shop is located in one of these areas.
- Permanent Closure is required when wastewater discharge related UICs are found. DEQ requires owners/operators to file a pre-closure form 30 days before taking action to close their well(s).

Underground Injection Control Wells

Stormwater Wells Need Registration

- All stormwater disposal UICs, whether new or existing, should be registered with DEQ. See www.deq.state.or.us/wq/groundwa/uichome.htm for more information on registration and permitting.
- These wells will likely require a stormwater management plan that dictates shop activities to prevent discharge of pollutants.
- Some wells may be required to obtain a Water Pollution Control Facility (WPCF) Permit from DEQ.

DO:

- Identify the location of any UIC well inside your shop or anywhere on your property. This would include any floor drains, sumps or drywells not directly connected to a local sewerage agency system. You can work with your local sewerage agency to determine if these wells are connected to the agency sewer or stormwater systems, holding tanks, septic tanks, or if they discharge directly into surface waters or onto land.
- If UIC wells (dry well, drill hole) are identified, determine where and what types of waste liquids are discharged. This will be important information to use for determining the appropriate management practices for each UIC.
- Contact DEQ at 1-800-452-4011 to discuss registration and, if necessary, closure options. The DEQ website www.deq.state.or.us/wq/groundwa/uichome.htm has more information.
- Follow all dry shop, spill control, secondary containment and clean up practices suggested throughout this manual.
- Notify DEQ in writing 30 days prior to closing any well, especially wastewater/service bay related systems. Be sure these wells are closed properly, in accordance with the state regulations. Wells should be closed in a way that ensures underground sources of drinking water are protected.
- Dispose of or otherwise manage any soil, gravel, sludge, liquids or other materials removed from or adjacent to your well according to federal, state and local regulations.
- If necessary, contact local sewerage authority about the possibility or the need to connect floor drains to the sanitary sewer system.

DON'T

- Don't allow motor vehicle waste disposal wells to continue in operation inside your shop. It is illegal.
- Don't dispose of automotive fluids to a local sewerage agency system without pre-approval. Never dispose of these fluids into storm drains, septic systems, dry wells, drill holes or pour onto the ground. Look into recycling or reuse opportunities.
- Don't use area inlets as washwater disposal holes. These inlets many times go directly to the ground or to local stream systems. Use the clean shop techniques in this manual to minimize and otherwise control discharges to these systems.

Limit Your Discharges

Closing the loop on many of your services and processes by reusing solvents, cooling waters, and other catalysts can help reduce or eliminate the need to discharge wastes. The less waste generated, stored or discharged, the lower your regulatory and permit requirements.

DO:

- Prevent leaks and spills.
- Use shop equipment that does not produce wastewater. If you must use solvents, try to contain chemicals by using enclosed parts cleaners. Reuse solvent many times before disposal.
- Use recyclable and reusable products, when possible.
- Hire a recycling service to pick up used solvent and anti-freeze, or recycle them onsite with a filtration or distillation unit.
- Consider switching to water-based brake and carburetor cleaners instead of using chlorinated spray cans. Non-chlorinated solvents are also available.
- Keep an accurate inventory of all materials and wastes, in case of an audit by DEQ. Don't forget to keep track of recyclable scrap materials like metal and scrap paper. Correctly manifest hazardous wastes. Ask for and maintain a Material Safety Data Sheet (MSDS) on each chemical product used in your shop. The Oregon Occupational Safety and Health Administration (OROSHA) requires employees to know the location of the MSDS for each substance they use.
- Provide secondary containment for all liquid materials stored and used in your shop. Containment measures should be sized to hold 110% of the largest container. For example your containment measure needs to hold 60 gallons for a 55-gallon drum.
- All hazardous materials and hazardous wastes should be kept in closed containers unless materials or wastes are being transferred to or from the container. Used oil containers may be open for draining filters and other parts, but only when kept inside. Used oil stored outside must be kept in closed containers at all times.

DON'T:

- Don't use single pass cleaning units that expend high volumes of water or solvents.
- Don't dispose of materials that can be reused, recycled or traded such as solvents, batteries, metal scrap, scrap paper, cardboard, and used automobile parts. Send shop towels to an industrial laundry service.

continued

Limit Your Discharges

DON'T continued:

- Don't mix wastes. Combining wastes reduces your ability to recycle and can greatly increase your disposal costs.
- Don't throw away dirty solvent. Use all old solvent first before opening fresh solvent when cleaning parts. Using filters on parts washers can extend the life of the solvent by allowing reuse multiple times before disposal.
- Don't assume secondary containment must be a large tank or concrete wall. Consider using your shop floor. Perimeter/bay door speed bumps may be sufficient to hold spills. Any containment berming must be sealed into place with epoxy.
- Don't let spills get off your site. Consider using conical plugs, valves or oil check valves in all shop drains. These devices close off drains to protect them from spills. Open them to drain off approved discharges. Remember to re-close these devices when the approved discharge is complete.

Changing Automotive Fluids

The removal, storage and disposal of fluids are major causes of pollution for auto related industries. Follow these guidelines to protectively manage fluids used in your shop.

General Tips

DO:

- Drain and replace motor oil, coolant and other fluids in areas where there are no floor drains. If you must use floor drains, connect them to a holding tank. If drains connect to the sewer system, install an oil/water separator.
- Collect the spent fluids, store them in separate containers and recycle them when possible.
- Collect leaking or dripping fluids in drip pans. Remove materials from drip pans often.
- Separate oils that can be reused, from those that can't. Store them in labeled containers that read "Reusable Oil Only" and "Used Oil Only." Send used oil to an oil processor. Used oil handled in accordance with DEQ requirements does NOT count toward your hazardous waste generator status.
- Store hazardous waste fluids separately in a specifically designated hazardous waste storage area. Know which fluids are a safety risk when stored next to each other.
- Try not to mix leaking fluids. Mixing can contaminate the fluids and turn it all into hazardous waste.

DON'T:

- Don't incorrectly dispose of any hazardous waste. Recycle used antifreeze. Chlorinated and other solvents are considered hazardous wastes if not immediately recycled in your shop.
- Don't dispose of automotive fluids to storm drains, septic tanks, or dry wells. Never pour fluids on the ground.
- Don't mix any wastes other than automotive oils with used oil if it is used for shop heating.

Changing Automotive Fluids

Antifreeze

DO:

- Determine if filters and other recycling by-products are hazardous waste and manage them accordingly if you recycle antifreeze on the premises.

DON'T:

- Don't mix waste antifreeze with any other waste. DEQ policy prohibits mixing antifreeze waste with used oil.

Brake Fluid

DO:

- Recycle brake fluids with your used oil if the material is going to a recycler. It is also permissible to mix hydraulic fluid and lubricants with your used oil before recycling. Call your used oil recycler for their requirements.

DON'T:

- Don't mix brake fluids with other fluids if they are contaminated with a chlorinated brake or carburetor cleaner. Store and label them separately as a hazardous waste.
- Don't mix brake fluid with your used oil if the shop is heated with a used oil burner.

Changing Automotive Fluids

Crude-based fluids include used engine oil, transmission fluid, hydraulic fluid, gear lube oils, metal working oils and differential oils. These fluids can be managed as used oil. When recycled, crude-based fluids are not considered hazardous unless contaminated with hazardous wastes such as chlorinated solvents. However, if these fluids are not recycled, they may require hazardous waste handling.

You can avoid hazardous waste regulations when disposing of crude-based fluids by recycling with a used oil recycler.

Crude-Based Fluids

DO:

- Manage used crude-based fluids like you do used oil - reuse and recycle.

DON'T:

- Don't mix crude-based fluids with used oil if they are contaminated with brake or carburetor cleaner, or other wastes.

Radiator Fluids

DO:

- Recycle radiator fluids with antifreeze. If necessary, switch brands to make recycling possible.
- Reuse radiator fluids through distilling or recycling onsite to minimize waste generation.

DON'T:

- Don't mix radiator fluids with used oils - it violates DEQ policy and limits the ability to reuse and easily dispose of the resulting mixed material.



Filters and Brakes

Some automotive filters may pick up hazardous materials while performing their function. Other types are not hazardous and can be recycled rather than thrown away.

Filters and other wastes

Type	How Managed	Hazardous	Who Handles
Oil Filters	Puncture into drain drum or crush	Possibly	Recycler
Fuel Filters	Drain drum	Yes if gasoline, no if other fuel	Hazardous waste or recycler
Air Filters	Normal Waste	Unlikely	Municipal waste or recycler
Solvent Tank Filters	Drum	Probably	Hazardous waste
Freon	Normal Waste	Possibly	Recycler
Antifreeze	Drum	Not if recycled	Recycler

Brakes

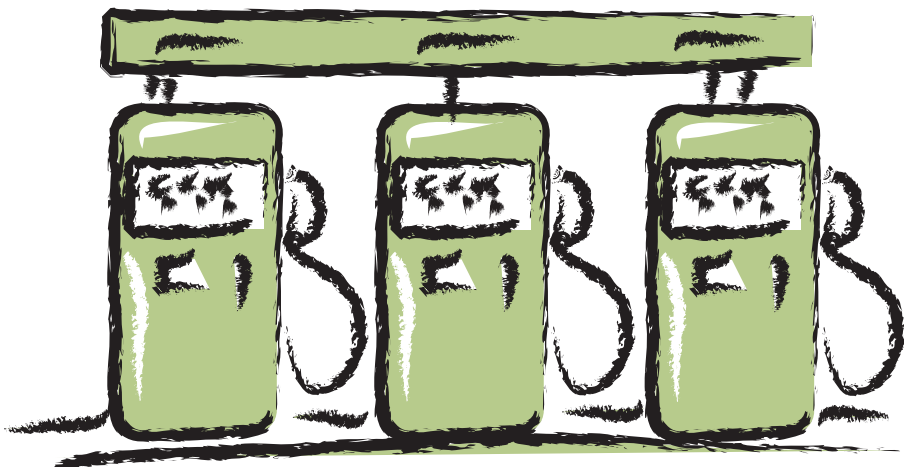
DO:

- Use a HEPA vacuum filter system to remove dust from brake area. Most old brake shoes contain asbestos. The fine dust is a health hazard and should be handled as a Special Waste. Even brake dust without asbestos can release metal pollutants, like copper, into the environment.
- Use a birdbath brake washer. This lessens asbestos exposure for workers and avoids the use of chlorinated brake spray cans. Manage the sludge from the bird bath washer as a Special Waste.

DON'T:

- Don't use chlorinated aerosol sprays for brake cleaning. They are a health hazard and once used are a hazardous waste.

Brake work has several specific hazards such as asbestos from older brakes and chlorinated solvents. Asbestos is a Special Waste and can be disposed of only in a landfill licensed for asbestos.



Fueling Vehicles

In general, your fueling area should be designed and operated to minimize spills and to control leaked fluids so they don't come in contact with stormwater.

DO:

- Clean up spills immediately with the Dry Shop Dos. (see page 11). Spread absorbent material and sweep it up with a broom. Do a hazardous waste determination, and dispose of sweepings properly.
- Clean up using a damp cloth on the pumps and a damp mop on the pavement area.
- Contact your fire department about their rules concerning the installation of fuel pump shut-offs.
- Install containment or other design features on all fuel tanks, including temporary tanks, as specified by your local fire department. Underground material storage tanks must also meet DEQ requirements.
- Cover fueling areas and drain all covered areas into an oil/water separator. Drain areas outside of fueling islands to the storm sewer.

DON'T:

- Don't allow vehicle fueling in unauthorized areas. Fueling areas should be paved, graded and drained properly.
- Don't hose down your fueling area for cleanup. This water then becomes an illegal discharge to either the sanitary or storm sewer. Gasoline is not only a troublesome pollutant but can create a high explosion danger in sewers and is expensive to clean up.
- Don't drain oily wastewater or spills directly into the sewer or storm drain. To prevent spills from reaching these systems, the fueling area must be equipped with an emergency shut-off. Use oil/water separators or other devices as needed to keep oily wastes out of your discharge.
- Don't allow customers to wash their vehicles, change oil or work on cars in parking and approach areas.



Air Conditioning Repair

Since July 1, 1992 it is illegal to release chlorofluorocarbons (CFCs) to the environment. Technicians repairing or servicing motor vehicle air conditioners must use EPA approved recovery and/or recycling equipment.

DO:

- Use EPA approved refrigerants.
- Allow only EPA-certified technicians to service air conditioning systems.
- Use EPA-approved collection and recycling equipment that meets the SAEJ 1991 or SAEJ 2209 standards and maintain it in good repair.
- Perform a leak test before recharging any air conditioner.
- Keep technician certification and shipment manifests on-site for at least three years.

DON'T:

- Don't vent freon to the atmosphere. Use EPA-approved equipment to contain freon gasses.
- Don't dispose of worn out air conditioners without first removing and recycling the freon.

For more information
call DEQ toll-free within
Oregon at 1-800-452-4011.

For more information
on federal regulations and training see
www.epa.gov/ozone/title6/609/technicians/appequip.html



Cleaning Equipment and Parts

Whenver possible, clean parts without liquid cleaners. If you use chlorinated solvents, your shop is subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) and DEQ Permitting.

If you use parts washers that contain volatile organic compound (VOC) solvents and you are located in the Portland, Salem or Medford Air Quality Maintenance areas, then you are subject to DEQ's Reasonably Available Control Technology (RACT) rules.

Call DEQ at 800-452-4011 for information about these requirements.

The RACT rules include equipment specifications and specific work practices that are not necessarily included in BMPs listed here.

DO:

- Prevent solvents and cleaners from spilling and dripping onto the shop floor. Install drip pans, drain boards and drying racks in a way that directs drips back into the sink or the fluid holding tank
- Use self-contained solvent sinks to cycle liquid directly back into a storage drum. Several services will pick up spent solvent. Be sure to get the maximum use out of the solvent before pick up. Try filtering systems to see if solvents can be changed out less frequently in recycling tanks.
- Minimize the amount of liquid cleaners used. Scrape parts well with a wire brush or use a bake oven to remove coarse particles that can dirty cleaning solutions. Use dirty cleaner for the first wash, followed by clean cleaner. Keep two containers for each solvent - one for dirty solvent and one for clean. Clearly label these containers.
- Use shop towels to clean small parts. By using a pump dispenser rather than pouring, your shop will use less cleaner, you'll save money, and your shop will generate less pollution.
- Use filters on cleaner tanks to help clean dirty solvent for reuse. Consider using recycling or distillation units that can prolong the life of your solvent. You need to remove a small amount of residue from the machine after use, which might require management as a hazardous waste.
- Consider using non-hazardous or less hazardous solvents and cleaners. Many washers use hot water and detergents instead of hazardous fluids. They are safer for your employees and may rid you of hazardous waste disposal problems. Note that non-hazardous solvents can become contaminated through use with chlorinated rattle can solvents, trace benzene from gasoline, or heavy metals such as lead from parts, making them hazardous waste.
- Be sure that your cold cleaner is equipped with a cover that is easily opened and closed. The cleaner must also have a drain rack, suspension basket, or suspension hoist that returns the drained solvent to the solvent bath. The bath shall remain less than 50% of the volume of the cleaning container and must have a visible fill line. Maintain cold cleaners in good working condition and free of solvent leaks.

continued

Cleaning Equipment and Parts

DO continued

- Post instructions or pictographs that clearly explain work practices associated with the work area of each cold cleaner including:
 - ✓ Keeping the spraying of parts to be cleaned within the confines of the cold cleaner,
 - ✓ Keeping the cover closed when not in use or when parts are being soaked or cleaned by solvent agitation,
 - ✓ Rotating solvent-cleaned parts to drain cavities or blind holes and then set to drain until dripping has stopped,
 - ✓ Storing waste solvent in closed containers and returned to the supplier or a disposal firm handling solvents for final disposal, such that no greater than 20% of the waste by weight can evaporate into the atmosphere. Handling of the waste must also be done in accordance with Solid and Hazardous Waste Rules, OAR Chapter 340, Division 100.

DON'T:

- Don't replace solvent until it is too dirty to reuse.
- Don't rinse parts with water after they have been cleaned unless a trial run shows this step is necessary.
- Don't mix solvents with any other waste. Store them in separate, labeled, closed containers. By storing separately, solvent wastes are easier to recycle or distill for reuse.
- Don't dispose of the solvents by storing them in open buckets for evaporation, because it may create harmful air emissions and produce a residue that may be hazardous waste. Evaporating hazardous waste is strictly prohibited.
- Don't dispose of spent solvent down the sewer or storm drains. Spent solvent may need to be managed as hazardous waste. Small and large quantity hazardous waste generators must use hazardous waste manifests even when transporting waste solvents to be recycled.
- Don't pour spent biodegradable solvents down the drain. They must be treated first to remove oils and metal particles that accumulate from the parts you have cleaned.
- Don't use chlorinated carburetor cleaners such as methylene chloride. Chlorinated solvents are toxic, persistent and carcinogenic, and must be disposed of as a hazardous waste. Using a methylene chloride dip bucket to clean parts now requires a federal Title V air permit.

Vehicle Washing, Engine Cleaning and Steam Cleaning

If you occasionally wash vehicle exteriors with water only (no soap), you need to take only simple precautions with the discharge. Check with your local sewerage agency because their exemptions and treatment requirements may differ. If you use soap or other cleaners, your discharge will likely have to go to the sanitary sewer.

If your shop washes cars, trucks, or field equipment, be aware that catch basin sludge may be a hazardous waste. Take the following steps to help limit the amount of pollution in your cleaning wastes.

Vehicle Washing

DO:

- Check with your local sewerage agency or DEQ first regarding rules in your jurisdiction.
- Wash vehicles in a covered, contained bay where the water can be collected and recycled as part of a water conservation program.
- Route water to a holding area where it can be appropriately treated before discharge. If you must wash outside, you can plug storm drains or install valves that plug sewer lines and pump water back into the sanitary sewer for discharge (after pretreatment).

DON'T:

- Don't allow clean stormwater runoff to enter your designated wash area. Consider providing a roof or other permanent cover and containment berms to isolate your washing area from stormwater runoff. Clean stormwater runoff should be routed into the storm sewer system.
- Don't allow wash water to flow across a paved parking lot or work area. Confine your wash area in a berm or through other methods.
- Don't discharge wash water directly to a storm drain. Discharges to the storm system are regulated and require a permit from DEQ. The preferred method of discharge is to the sanitary sewer with proper controls required by the local sewerage authorities.
- Don't allow wash water to run into the street.



Vehicle Washing, Engine Cleaning and Steam Cleaning

Engine cleaning and steam cleaning is allowed on site, only if you are equipped to capture all water and wastes. The best system is to completely recycle the wash water. You will need to remove oils and grease in an oil/water separator or a small treatment unit before discharge.

Engine Cleaning and Steam Cleaning

DO:

- Use an enclosed bay where the condensed steam and pressure wash overspray can be collected and treated for discharge.
- Know where your storm drains go. Check as built blueprints, building permit maps, local sewerage agency permits and records, or dye test your site's drains to verify where flows discharge. Contact your local sewerage authority before any dye test.
- Contact your local sewerage agency to identify treatment requirements and discharge authorization procedures.

DON'T:

- Don't discharge directly to a storm drain. It's prohibited.
- Don't allow wash water to run into the street or onto the ground.

Metal Grinding and Finishing

Metal wastes, like copper, zinc and lead, may have harsh impacts on the environment and on local treatment plants. Metals are also very hard to remove from wastewater and stormwater discharges, so do your best to prevent metals from escaping your shop.

DO:

- Capture and recycle metal filings produced by grinding or machining metal parts. Enclose the unit as much as possible, and keep a bin under your lathe or grinder to hold the filings.
- Consider using air vacuums or other methods to help capture filing dusts that are airborne within your work area.

DON'T:

- Don't allow chips and filings to enter the storm or sanitary sewer. Vacuum up loose materials or consider spreading a tarpaulin or plastic liner on the floor and then carefully empty the grinding materials into a storage bin.
- Don't wet-mop or hose down the machine shop floor after any grinding or finishing activity. Water only transfers your solid waste problem to a liquid waste problem.



Car Prep, Body Work and Refinishing

Filings, masking tapes, overspray papers, thinners and equipment filters may or may not be hazardous. Paints with heavy metals such as lead, nickel or chromium and thinners with their high ignitability and toxicity are the most likely to be hazardous. Filler dust from sanding, by itself, is not typically hazardous.

Refinishing operations also lead to ozone-producing air pollution. Shops in the Portland Air Quality Maintenance area (most of the Tri-county area) and Lane County are now required to obtain a permit from the Oregon DEQ. Call DEQ's Business Assistance Program at 503-229-6147 or DEQ's Northwest Region at 503-229-5263, and in Lane County 541-736-1056 for details. It is your responsibility to determine if your activities and wastes warrant compliance with hazardous materials and air regulations.

DO:

- Use spray booths and closed or recirculating systems for painting and spray gun cleanup. To clean spray equipment, use a system that minimizes solvent evaporation, recirculates solvent, and collects spent solvent for proper disposal or recycling. This equipment can save an average of 7 ounces of paint per cleaning and is required in the Portland Air Quality Maintenance Area.
- Use only DEQ/EPA compliant wash primers, precoats, primers, sealers, multi-stage coatings, specialty coatings and topcoats. (See table)
- Use the least amount of raw product and materials possible. Use High Volume Low-Pressure (HVLV) equipment with the proper tip to reduce paint usage. HVLV spray guns are required in the Portland Air Quality Maintenance Area. Contact your paint supplier or DEQ Business Assistance staff at 503-229-6147 to ask about training opportunities on efficient coating techniques.
- As spray gun solution gets dirty, add makeup thinner or solvent.
- Recover and reuse solvents by decanting (separating sludge from liquid) or filtering. For large amounts, distill waste liquids.
- Determine which materials and wastes are hazardous. Follow proper handling, storage, recycling, disposal, and manifesting requirements. (See Generator Requirements section pages 5-9)

DON'T:

- Don't cause nuisance problems by painting outdoors, in uncontrolled areas, or in unfiltered paint booths.
- Don't expose paints, solvents, and cleanup wipes to the air. Store them in airtight containers.
- Don't get in the habit of mixing a standard amount of paint or other material for every job. Mix only the amount you will use.
- Don't use thinners if you can avoid it. Consider using water-based cleaners that have no VOC emissions.
- Don't use fresh solvents to clean spray guns. Use recycled waste thinners and reuse gun wash solvents.
- Don't mix wastes. In doing so, you may increase the amount of hazardous waste you must deal with or prevent pure waste stream from being reusable or recyclable.

Car Prep, Body Work and Refinishing

Solvent (VOC) Standards Table

Pretreatment Wash Primer	6.5 lbs./gal
Primer	4.8 lbs./gal
Primer Surfacer	4.8 lbs./gal
Topcoat	5.0 lbs./gal
Basecoat/ClearCoat	5.0 lbs./gal
Topcoat System	5.0 lbs./gal
Three-Stage Coating System	5.2 lbs./gal
Multi-Coating	5.7 lbs./gal
Specialty Coating	7.0 lbs./gal

Assure all equipment
complies with the
Uniform Fire Code and
Oregon OSHA (OAR 437
Div. 2 190.107).

Radiator Shops

Most rinse water from cleaning a radiator will not test hazardous, and can be disposed of in the local sanitary sewer. Be sure to contact and get approval from the local sewerage agency before any discharge. Rinse water should never be discharged to on-site septic or drywell drainage systems.

DO:

- Follow all of the practices recommended in the other sections of this manual - especially the Changing Automotive Fluids, the Run a Dry Shop, the Storage and Disposal of Wastes and Containers and the Vehicle Washing, Engine Cleaning and Steam Cleaning sections.
- Consider whether used solder can be recycled as scrap metal or re-smelted as solder dross. Don't mix solder waste with other wastes that could limit its ability for reuse. If not recycled, solder would be characterized as a hazardous waste due to the presence of heavy metal lead. If your shop solders, consider using lead-free solder.
- Use a closed-loop recycling system for flush booth wastes. Reuse final rinse waters as make-up water in the caustic tanks when possible.
- Properly dispose of test tank water and sludge through recycling, treating for sanitary disposal or collecting and disposing as a hazardous waste.
- Clean sump and oil/water separators frequently to avoid large generation of hazardous waste. Remember the limit of accumulation is 220 pounds per month to remain a conditionally exempt generator.
- Take advantage of the DEQ rules that exclude process tank (caustic hot tanks, wastewater treatment tanks, etc.) wastes from hazardous waste requirements while they are stored in the tank. There are a number of requirements to be eligible for this exclusion. For more information contact DEQ hazardous waste.
- Offer employees work uniforms and boots that they can leave at work to reduce the possibility of tracking lead waste off property. Also, consider providing employees with shower facilities, as showers can also reduce chances of lead waste being tracked off the property.

DON'T:

- Don't dispose of flush-booth or test tank water into any storm drain, septic or dry well system. This is illegal and may expose you to liability issues related to contamination of ground or surface waters. Contact your local sewerage agency to determine pretreatment requirements for sanitary disposal.

continued

Radiator Shops

DON'T continued

- Don't maintain floor drains within your shop where they are susceptible to spills or could mistakenly be used for disposal. Seal floor drains when possible.
- Don't forget to test all tank sludges to determine whether they are hazardous. Flush booth and hot tank sludges routinely. They have significant levels of heavy metals that may make them hazardous waste. Test suspect materials and then provide for proper disposal.
- Don't solder over your test tank. Bits of solder can fall into the tank and increase the concentration of lead and zinc in the solution, increasing the rate for tank water replacement.
- Don't waste time and money testing sump and oil/water separator sludges to determine if they are hazardous. These sludges have a high likelihood of being hazardous given site conditions. It may be cheaper to assume it is hazardous than to spend money on testing to see if there is an off chance for less expensive disposal.
- Don't allow any wash or test waters to run into the street or onto the ground.



Outdoor Parking and Auto Maintenance

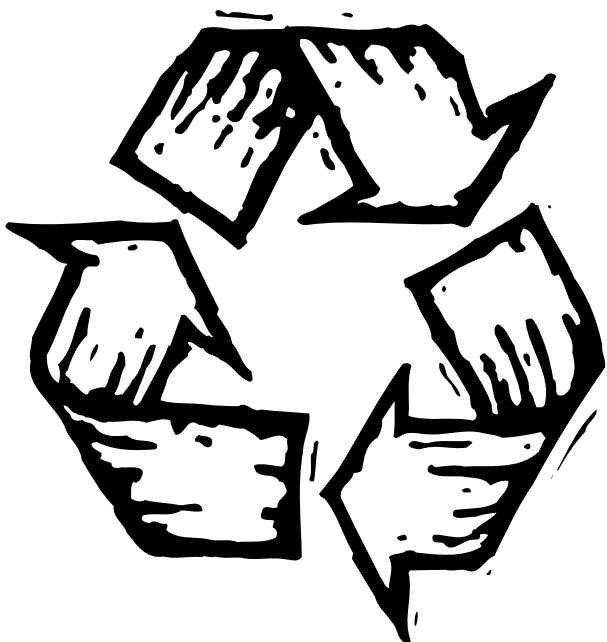
As a rule, avoid using outdoor areas for working and long term parking. If you do use any areas in this way, treat them as an extension of your service bays. Create specific designated areas and isolate them from outdoor runoff when possible. Keep them clean and use dry cleanup practices.

DO:

- Roof all work areas, if possible. Outdoor structures do need building permits, so consider in advance whether you need to work outdoors.
- Roof, pave, mound or berm outside vehicle storage areas. Surround work areas with berms. Grade work areas to be lower than the surrounding parking lots to prevent runoff from flowing into dirt lots or storm drains. Treat them as an extension of your service bays. Keep them clean and use dry cleanup practices.
- Follow the BMPs in the Auto Recycling section for long term vehicle storage

DON'T:

- Don't pave any work area with asphalt. Use concrete. Automotive fluids may dissolve asphalt or may be absorbed into the blacktop and released later.
- Don't drain runoff from a work area to a sewer without contacting your local sewerage agency. Drain to a single sanitary drain when possible. The drain may require an oil/water separator or an oil/grease trap.



Auto Recycling

Cars and parts stored for reuse can present environmental problems. Drips, leaks and spills from stored vehicles can cause significant impacts to the environment.

DO:

- Drain and properly store fluids removed as part of the dismantling procedure or before crushing the vehicles. These fluids include:
 - Fuel
 - Motor Oil
 - Transmission Fluid
 - Brake Fluid
 - Antifreeze
 - Refrigerant
- Remove and store all batteries in a covered storage area on an impervious surface or in leak-proof plastic containers with lids.
- Remove mercury switches from all hood and trunk lighting fixtures. Store switches in a closed receptacle clearly marked "Waste Mercury Switches." Take special care with switches encased in glass. Contact NATA at 503-253-9898 or 800-730-7282 for information about collection and disposal options. (Collection and disposal options may not be available in all parts of Oregon.)
- Assure that all wash waters and solvents are recaptured onsite for recycling or disposal. See the Cleaning Equipment and Parts section of this handbook for more information.

DON'T:

- Don't store vehicles just anywhere on your site. Follow all the recommended practices in the Outdoor Parking and Auto Maintenance Section of this manual.
- Don't store fluids outside if at all possible. Ideally fluids should be stored inside a building in closed, well-marked containers. If fluids must be stored outside, assure there is adequate secondary containment. See the Changing Automotive Fluids section for more.
- Don't assume that all metal parts and scrap metals are clean. Store any metals contaminated with oily residues as you would fluids - inside in a covered container. Engines and transmissions should always be stored either under a permanent roof on an impervious surface, or outside in a weather and leak-proof container.
- Don't forget to follow regulations governing refrigerant removal. Make sure you use the appropriate recovery machine (R-12 or R-13). Use certified machine operators and licensed vendors for recycling and disposal services.
- Don't store large quantities of tires on-site. Tires are unsightly, can breed mosquitoes, and can leach materials into stormwater runoff. Recycle or dispose of tires regularly.



Removing-Storing Batteries

Up to 97% of a lead-acid battery is recyclable. Store used batteries in secondary containment. Remember that used battery acid is probably hazardous due to both the acid in the battery and lead contamination.

Universal Waste

Virtually all batteries - lead-acid, alkaline-carbon, nickel-cadmium and lithium - can be recycled as Universal Waste. When properly recycled, they do NOT count toward your hazardous waste generator status.

DO:

- Store cracked batteries in a watertight secondary containment, such as a sealed plastic case or a concrete bin with sealer on the floor and walls. If you drop a battery, treat it as if it's cracked.
- Return used batteries to your supplier, who will recycle them with a battery reclaimer. Batteries sent for reclamation are exempt from hazardous waste regulations.
- Recycle your used alkaline-carbon, nickel-cadmium and lithium batteries as Universal Waste. Contact your lead-acid battery recycler or call Metro 503-234-3000, to locate firms that handle these batteries as Universal Waste.

DON'T:

- Don't assume baking soda or other absorbents used to neutralize spilled acid are safe. The spill residue is dangerous and must be disposed of as hazardous waste. Handle spilled acid from broken batteries with care.
- Don't assume any battery is completely dry. Take storage precautions even after the acid has been drained out.



Storage and Disposal of Wastes and Containers

The main goal of proper waste storage is to keep different kinds of wastes separate. Separate storage of used oil, antifreeze or solvents allows you to recycle wastes that might otherwise be considered hazardous. Keep your non-recyclables separate, too.

For more information, call Metro's recycling line at 503-234-3000. Outside the Metro area call DEQ, toll-free within Oregon at 1-800-452-4011.

DO:

- When choosing storage locations for waste containers, keep the following in mind:
 - floor drains
 - electrical service panels/heat sources
 - customer/employee walkways
 - building access/egress by public
 - stormwater drainage and contamination
 - vehicle movements
- Keep outdoor liquid containers on an impermeable surface (preferably concrete). Store them under cover and within a berm or other secondary containment feature to prevent spills from running off into your drains or yard.
- Store and handle hazardous wastes in closed containers. Know your generator status (see Managing Hazardous Waste section pages 5-9) and the rules that apply to your classification.
- Select recyclers, hazardous waste haulers and disposal companies with care. Ask for references and review the firm's permits and DEQ files.
- Gasoline might be recyclable through your used oil recycler. Gasoline contains the hazardous material benzene. If you can not recycle gasoline, treat it as a hazardous waste.
- Keep a recycled waste profile worksheet that lists your shop's waste streams, how wastes are evaluated for recyclability, volume of recycled materials shipped, and percent of total wastes recycled. Keep a record of who picked up the material for recycling, how often it is recycled, and where it was taken.

DON'T:

- Don't mix different types of wastes. Separate used oil such as engine oils, brake fluids, transmission and differential oils from antifreeze and solvent.
- Don't keep used oils and hazardous wastes in an unsecured area.
- Don't let rain water come in contact with old parts or dumpsters. The leakage from dumpsters may be hazardous. Keep scrap parts and other metals in a shed or under a roof, cover or tarpaulin.

Storage and Disposal of Wastes and Containers

Spray Cans

DO:

- Use the entire spray can before starting a new one.
- Aspirate out all propellant, or use an approved puncture system to empty spray cans.
- Consider using a refillable can that is pressurized with shop air.



DON'T:

- Don't throw spray cans into the trash if they contained ignitable or chlorinated solvents (like many older degreasers).
- Don't throw broken or partially full spray cans in the trash. If a spray tip of any other item breaks or malfunctions, treat the can as hazardous waste.

Empty Containers

Many containers can be disposed of in your regular trash if they meet the specific definition of an "empty container." A container is defined as empty if:

- All materials are removed using common practices like pouring, pumping, aspirating, etc., AND
- Containers are drained as completely as possible. No more than one inch of residue (2.5 centimeters) should remain at the bottom of the container or inner liner.

Tires

DO:

- Take old tires back to a dealer or arrange with an approved recycler for proper disposal. Some tires are burned for energy recovery.

DON'T:

- Don't throw tires away or take them to a landfill. Tires can be recycled into other useful products such as speed bumps and sports field surfaces.

Storage and Disposal of Wastes and Containers

These tables highlight the preferred methods of waste management practices.

	Recommended Storage	Preferred Management Practice *	Hazardous Waste?
LIQUIDS			
Used Oil	Drum; can go in used oil drum or above ground tank	Used oil recycler	Possibly, but not if recycled or used for energy
Transmission Fluid	Drum; can go in used oil drum	Used oil recycler	Possibly, but not if recycled or used for energy
Gear Oil	Drum; can go in oil drum	Used oil recycler	Possibly, but not if recycled or used for energy
Solvents (Solvent Tank)	Solvent tank	Solvent recycler or redistilled on or off-site	Possibly. Definitely, if chlorinated and not recycled
Solvents, Thinners & Miscellaneous Fluids	Tank/drum (segregate)	Fluids recycler	Possibly
Brake Fluid	Bottle or tank	Used oil recycler	Possibly
Used Antifreeze	Tank/drum (segregate)	Recycle from all other wastes	Possibly, but not if recycled
Paints, oil based	Original container	Hazardous waste facility	Yes, if solvent-based; Metro has a used-paint program
GASES			
Air Conditioner Refrigerant	Recycling machine	Reuse in-house or through a refrigerant recycler	Yes, unless recycled

*Check with your local recycler to obtain correct procedures for handling, packaging and storing materials that are to be recycled.

Storage and Disposal of Wastes and Containers

These tables highlight the preferred methods of waste management practices.

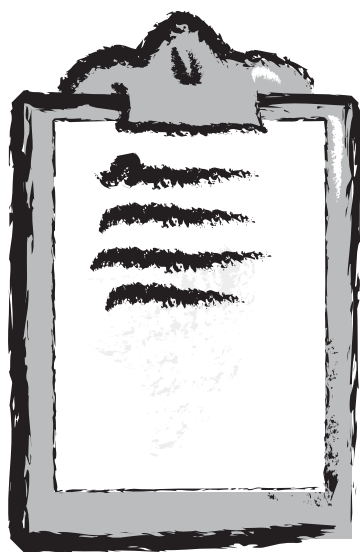
	Recommended Storage	Preferred Management Practice *	Hazardous Waste?
SOLIDS			
Used Parts: Clean Metal Scrap	Bin (indoors or covered)	Scrap recycler or parts rebuilder	No
Metal Shavings	Bin (indoors or covered)	Scrap recycler	No
Asbestos Filings	Sealed bin	Approved hauler	No, other regulations apply
Tires	Open rack	Suppliers or tire hauler	No
Car Batteries	Use secondary containment, either indoors or covered	Battery supplier or Universal Waste recycler	Yes, unless recycled as Universal Waste
Other batteries (lead-acid, alkaline-carbon, nickel-cadmium and lithium)	Any dry container	Universal Waste recycler	Yes, unless recycled as a Universal Waste
Aerosol Cans	Puncture or aspirate completely	If punctured or aspirated completely, then scrap metal recycling bin or regular trash otherwise a hazardous waste hauler	Yes, unless punctured or aspirated completely
Oil, fuel and transmission-fluid filters	Drum (drain first), puncture or crush completely	Oil recycler or metal recycler	Not if recycled
Used Shop Towels	Rag bin with lid	Industrial laundry	Possibly, unless washed by an industrial laundry

Storage and Disposal of Wastes and Containers

	Recommended Storage	Preferred Management Practice *	Hazardous Waste?
SOLIDS continued			
Empty Cans, Bottles, etc.	Drum	Recycler or regular trash if rinsed thoroughly	No
Soiled Cleanup Absorbent	Drum	Hazardous waste facility or special waste at municipal landfills	Possibly, depending on what was absorbed
Used Plastic Containers	Drum	Plastic recycler or regular trash if rinsed thoroughly	No, if rinsed completely
Fluorescent Lamps, Thermostats (containing mercury)	Original supply box	Universal Waste or hazardous waste	Yes, unless handled as a Universal Waste
Used Solder	Drum	Metal Recycler	Yes, unless recycled

*Check with your local recycler to obtain correct procedures for handling, packaging and storing materials that are to be recycled.





Other Practices to Control Pollution

This section describes controls that are more extensive and, in general, more costly than the other everyday practices recommended in the previous sections. Advanced pollution control takes a number of forms and may include a wide range of solutions.

Pretreatment Devices and Practices

If your local sewerage agency finds that your discharge is too contaminated to accept, you may need to install equipment to treat wastewater before discharging. This is known as “pretreatment”. If your facility has a significant stormwater problem, you may need to separate some of the stormwater, pretreat it, and discharge it to the sanitary sewer rather than to a storm drain.

For most shops, the best advice is to avoid on-site treatment. For some shops, this means using dry practices or assuring that rain does not contact dirty areas and become contaminated. Most of the available treatment equipment is costly to purchase and operate. The best way to avoid the need for pretreatment is conscientious implementation of the activities in this handbook. If you must pretreat and discharge wastewater, you will need a permit from your local sewerage agency. That agency will specify a schedule for monitoring your discharge and the constituents that need to be monitored.

DO:

- Test your wastewater to determine if it is hazardous before installing any treatment equipment. Remember that some wastes that are unacceptable for the sanitary sewer are not classified as hazardous waste. Call your local sewerage agency before any discharge.
- Use an oil and grease trap, sand filter or other pretreatment device. These facilities will reduce the amount of oil, grease and other pollutants leaving your site.
- Cover parking, storage and fueling areas to keep rain from contacting cars, equipment, service areas and waste materials. Route roof downspouts directly to storm drains.
- Use concrete paving instead of asphalt in areas where autos leak, such as fueling islands, outdoor work spaces and heavily-used parking areas. Asphalt absorbs contaminants and can be dissolved by some fluids.

DON'T:

- Don't dispose of wastewater without notification to DEQ or your local sewerage agency.

continued

Other Practices to Control Pollution

Using on-site equipment to purify and recycle spent automotive fluids can fully “close the loop” and avoid generating a hazardous waste.

DON'T continued:

- Don't assume once the treatment equipment is in that you're done. All pretreatment devices need routine maintenance.
- Don't assume that storage, parking and service areas are only problems when vehicles are present. Drips and leaks accumulate in these areas and can be a source of contaminants.
- Don't put work areas in low lying parts of your site. Grade parking lot and approach areas to mound and contain work areas to prevent contaminated runoff.

Recycle Spent Fluids On-Site

DO:

- Recycle solvents, antifreeze and other fluids onsite. Many materials can be filtered to extend their useful life or distilled to almost new quality.

DON'T:

- Don't treat recycling residues as safe materials. Often the residue from purifying used automotive fluids contains metals and is a hazardous waste that needs to be handled accordingly.
- Be careful accepting other people's wastes. The mixtures you receive could harm your recycling and distilling equipment and you could end up with a hazardous waste to dispose of. Always use a sniffer to check used motor oil for gasoline or chlorinated products.



Solid Waste Reduction

Reducing solid waste saves money, natural resources, and will increase the overall efficiency of your business. Waste prevention decreases the amount of waste that must be managed. It also reduces the cost of collection, recycling, and disposal. Source reduction involves paying attention to what we make into products, what we buy, how we use products, and how we reuse these products when we no longer need them.

Waste Prevention

Reduce

DO:

- Print and copy on both sides of paper.
- Minimize margins and fonts for more text per page.
- Save money by purchasing products in bulk.
- Remind staff to be aware of their waste habits.

Reuse

DO:

- Reuse packaging materials.
- Make a scrap paper box for reuse.
- Encourage staff to use durable cups and dishes.
- Provide cloth towel dispensers to replace paper towels.

Recycle

DO:

- Contact your local solid waste hauler for recycling assistance.
- Provide adequate containers with clear labels.
- Train employees to properly sort recyclables.

DON'T:

- Don't contaminate recycling with garbage.

Buy Recycled

- Purchase paper with at least 30% post-consumer recycled-content.
- Create a "Buy Recycled" purchasing policy.
- Let your suppliers know that your business is interested in purchasing recycled and remanufactured products.
- Promote your program to your customers.

Solid Waste Reduction

**For help in evaluating your shop's
solid waste streams, call the
technical experts listed below:**

DEQ Solid Waste Program

800-452-4011

www.deq.state.or.us/wmc/solwaste/rsw.htm

Metro Recycling Information Center

503-234-3000

www.metro.dst.or.us

Clackamas County, Community Environment Division

503-353-4400

www.co.clackamas.or.us

City of Gresham

503-618-2656

www.ci.gresham.or.us

City of Portland, Solid Waste Division

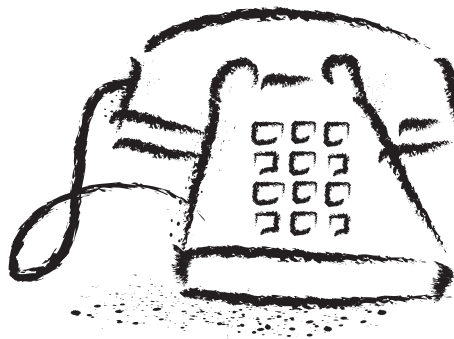
503-823-7202

www.sustainableportland.org

Washington County, Solid Waste and Recycling

503-846-8609

www.co.washington.or.us/deptmts/hhs/wste_rcy/waste_1.htm



Water and Energy Savings

Energy and water management can save shops hundreds of dollars a year just using good common sense methods.

DO:

- Practice the good habits you use at home to save water and energy. Turn out lights, computers and water when not in use, and lower heating settings.
- Repair leaking faucets and toilets
- Use high efficiency lighting, automatic thermostats and low flow toilets and faucets.
- Educate employees about new equipment and new resource wise procedures. Changes will only be successful with employee participation. Use their suggestions.
- Budget or borrow money to buy recycling and resource conservation equipment. Ask about rebates, tax credits, and other incentives. For tax credit information from DEQ, call 1-800-452-4011 or check the DEQ website at www.deq.state.or.us/msd/taxcredits/txcp.htm. Also check out the Business Energy Tax Credit Program from the Oregon Office of Energy at 1-800-221-8035 or online at www.energy.state.or.us.
- Audit your energy and water use. Identify locations where you can conserve energy and water to save money on your utility bills.

DON'T:

- Don't forget that you pay for the energy and water use at work, too.
- Don't keep using inefficient equipment. New, more efficient models will save money and help the environment.
- Don't ignore the comfort factor when making conservation changes. Changes in heating, cooling and water use practices may involve consultation with employees to determine what is acceptable.
- Don't assume because some equipment is costly, it's not for you. Resource efficient equipment is a good investment, especially where incentives are offered.
- Don't think you have to figure all this out on your own. Get help from the experts listed below.

Water and Energy Savings

For more information about resource saving opportunities, contact the organizations listed on this page.

THE EXPERTS

ENERGY

Oregon Office of Energy - 503-378-4040 or 1-800-378-4040
www.energy.state.or.us/bus/bushome.htm

City of Portland, Energy Division - 503-823-7222
www.sustainableportland.org/energy

Portland General Electric - 503-464-7900
www.portlandgeneral.com/business/energy_efficiency/

Pacific Power - 1-800-222-4335
www.pacificpower.net

Northwest Natural - 503-220-2364
www.nwnatural.com/business/

Energy Trust of Oregon - 503-493-8888
www.energytrust.org

Northwest Energy Alliance - 1-800-411-0834
www.nwalliance.org

Energy Ideas Clearinghouse - 1-800-872-3568
www.energyideas.org

Eugene Water & Electric Board - 541-484-2411
www.eweb.org

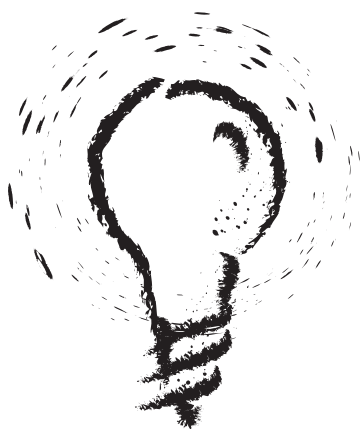
WATER

Regional Water Providers Consortium
www.conserveh2o.org

Portland Bureau of Water Works - 503-823-4527
www.water.ci.portland.or.us

Powell Valley Water District - 503-761-5011

Tualatin Valley Water District - 503-642-1511



Train Yourself, Your Employees and Your Customers

High performance shops require well-trained employees. Employee misunderstandings about how to handle waste could lead to a costly pollution incident.

DO:

- Train employees to use the practices in this handbook. Assign experienced workers to train new employees. Keep abreast of new developments. Participate in workshops, group meetings and seminars. Call DEQ, your local jurisdiction, and your trade group to find out about these events.
- Train employees in the proper use and storage of supplies, waste reduction and management, spill prevention and how to use spill cleanup equipment. Make sure your training includes how to contact the business owner, the local sewerage agency and 911 depending on the severity of the spill.
- Document all your training including dates, subjects, instructors, attendees and copies of the materials presented.
- Make sure all employees understand the proper procedures to handle the chemicals and wastes found on-site.
- Educate employees about your hazardous waste generator status. (Generator Requirements pages 5-9). Document all training.
- Make sure employees know the location of Material Safety Data Sheets (MSDS) for all products they use.
- After training, ask employees these questions; "What would you do if this material spilled?" and "What would you do if this material caught fire?". Make sure they don't forget the notification step in their response.
- Learn about the various pathways that pollution can escape from your site; down a drain, into the air, into the ground, overland drainage, or being transported off site.
- Check with your local sewerage agency to confirm hookups and drainage locations. Stencil storm drains to remind employees that your site drains to a local waterway. See the Resources section for stenciling contacts.
- Walk your site and identify proper storage areas for supplies, hazardous waste, waste awaiting recycling and regular waste. A weekly walk-through with employees can help identify potential difficulties before they become major problems.
- Tie hazardous waste reduction directly to job responsibility. Offer employees incentives to reduce hazardous waste.
- Let your customers know how you are minimizing wastes and recycling fluids. Show your customers that you are a "good neighbor" and encourage them to be the same.

Learn more about
what you can do to
protect your workers.
Call Oregon OSHA at
1-800-922-2689

Train Yourself, Your Employees and Your Customers

DON'T:

- Don't assume one training session is enough. Reinforce the pollution prevention activities listed in this handbook with signs, notices, additional training or other reminders. Routinely inspect shop equipment and procedures.
- Don't assume that any product is exempt from handling, storage or disposal regulations.
- Don't dump any waste down any drain on your site without proper permission from the local sewerage agency. See page two for phone numbers.
- Don't assume biodegradable means environmentally safe.
- Don't unknowingly create or move a waste problem from one location to another. For example, if you use rags to soak up a solvent spill, don't throw the rags in the garbage. You are just making a liquid waste problem into a solid waste problem. Contain the spill and use absorbing materials that you can wring out, allowing for reuse of the solvent and the absorbent material.
- Don't allow customers to dispose of materials and wastes improperly on your site. Post "don't top off" signs at gas pumps. Lock dumpsters at night and stencil "No Dumping - Drains To Stream" on storm drains. See the Resources section to find out more about stenciling.
- Don't assume you have to do trainings all by yourself. Have manufacturer or sales representatives provide training in the proper use of products and equipment. Use the free, voluntary technical assistance programs provided by regulating agencies to train you and your employees. See the Resources section for contact information.



Show Your Stuff

If you have put this handbook to use and made the recommended changes, you can be proud of your environmental improvements. You have joined the ranks of automotive professionals who help limit the environmental impacts of their shop's activities. It is only right for you to show off what you have accomplished. Being a mentor to other shops is a good way to spread the environmental message.

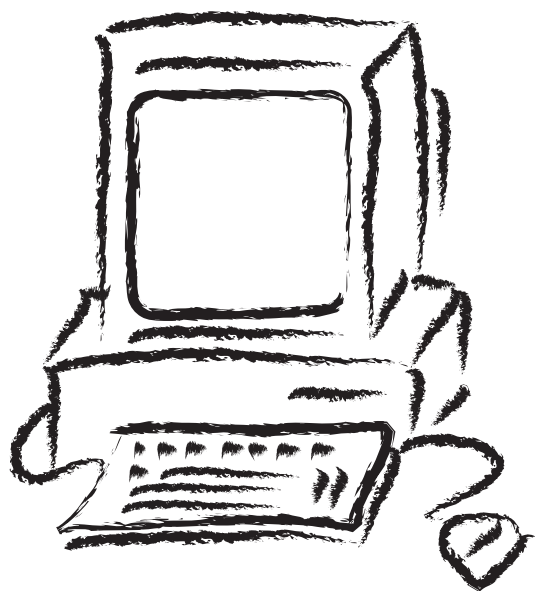
DO:

- Share what you have learned with other shop owners and your trade association. Be an active member of trade associations and share success, cost savings, and environmental tips with other members.
- Give tours of your shop to other shop owners, customers and environmental or regulatory agency groups.
- Discuss environmental issues in your shop newsletter to customers.
- Have a charge on the service bill for hazardous materials fees. Provide a brochure to explain the importance of this charge to your customers.
- Advertise your Ecological Business environmental certification in your ads and bills. Be sure to include the symbol in your yellow page ad.
- Apply for other award programs in your local community, such as BEST (www.sustainableportland.org) or BRAG (www.bragaward.org).

DON'T:

- Don't be shy and forget to claim credit for your good work.





Appendix A

Resources

Resources

- Pollution Prevention Outreach Team & EcoBiz Program, 503-823-7807
- Northwest Automotive Trades Association (NATA), 503-253-9898
- Oregon Department of Environmental Quality (DEQ), toll-free 1-800-452-4011

DEQ Regional Offices

- Northwest Region – Portland, 503-229-5263
- Western Region – Eugene, 541-686-7838
- Western Region – Salem, 503-378-8240
- Western Region – Medford, 541-776-6010
- Eastern Region – Bend, 541-388-6146
- Eastern Region – The Dalles, 541-298-7255
- Eastern Region – Pendleton, 541-276-4063

Hazardous Waste Management

- DEQ Hazardous Waste & Toxic Use Reduction Program, 503-229-5913
www.deq.state.or.us/wmc/hw/hw.htm or toll-free 1-800-452-4011
- Metro’s Conditionally Exempt Generator program (Via the RIC), 503-234-3000
www.metro.dst.or.us/rem/hazw/smlbuspg.html

Solid Waste/Other Waste Management

- Metro Recycling Information Center, 503-234-3000
www.metro.dst.or.us/rem/mri/mri.html
- Metro Paint Program - paint recycling and purchasing, 503-234-3000
www.metro-region.org/paint/index.html
- DEQ Solid Waste Program - paint recycling and purchasing, 503-229-5913
www.deq.state.or.us/wmc/solwaste/rsr.htm or toll-free 1-800-452-4011
- Clackamas County, Community Environment Division, 503-353-4400
www.co.clackamas.or.us/dtd/garb/

Resources

City of Gresham, 503-618-2656
www.ci.gresham.or.us/departments/des/solidwaste/

City of Portland, Solid Waste Division, 503-823-7202
www.sustainableportland.org

Washington County, Solid Waste and Recycling, 503-846-8609
www.co.washington.or.us/deptmts/hhs/wste_rcy/swr.htm

Local Sewerage Agencies

City of Gresham, 503-618-2431
www.ci.gresham.or.us/departments/des/wastewater/

City of Portland, Bureau of Environmental Services, 503-823-7740
www.cleanrivers-pdx.org/business_svc/index.htm

City of Troutdale, 503-665-5715
www.ci.troutdale.or.us/pw_web/pw_stp.htm

City of Wilsonville, 503-570-1551
www.ci.wilsonville.or.us/departments/pw/pw.html

Clackamas County, Water Environment Services, 503-353-4567
www.co.clackamas.or.us/wes/

Clean Water Services, 503-681-3600
www.cleanwaterservices.org

Oak Lodge Sanitary District, 503-653-1653
www.oaklodgesanitary.com

Dump No Waste Drains to Stream Stencils

City of Gresham, 503-618-2657
www.ci.gresham.or.us/departments/des/stormwater/public_education/index.htm

City of Portland, 503-823-5320
www.cleanrivers-pdx.org/pdf/bmp11.pdf

Clackamas County, Water Environment Services, 503-353-4567
www.co.clackamas.or.us/wes/

Clean Water Services, Washington County, 503-681-3600
www.cleanwaterservices.org/

Resources

Air Quality

(information on parts cleaners, vapor degreasers and freon recycling)

DEQ Air Quality Program, 503-229-5359
www.deq.state.or.us or toll-free 1-800-452-4011

Lane Regional Air Pollution Authority, 541-736-1056
www.lrapa.org

Mobile Air Conditioning Society (MACS), 241-679-2220
www.macsw.org

Underground Systems

DEQ Underground Storage Tank Program, 503-229-5733
www.deq.state.or.us/wmc/tank/ust-lust.htm or toll-free 1-800-452-4011

DEQ Underground Injection Control Program, 503-229-5189
www.deq.state.or.us/wq/groundwa/uichome.htm or toll-free 1-800-452-4011

Other Groups

DEQ Small Business Assistance Program, 503-229-6147
www.deq.state.or.us/aq/BAP/index.htm or toll-free 1-800-452-4011

Oregon OSHA, Health and Safety, 503-229-5910
www.cbs.state.or.us/external/osha/ or toll-free 1-800-922-2689

State Fire Marshal, 503-378-3473
www.sfm.state.or.us/

Appendix - B

Glossary



NESHAP

National Emission Standards for Hazardous Air Pollutants

Special Waste

Wastes that require special handling. The regulations are separate from the Hazardous Waste regulations. For example, asbestos from brake shoes may not be handled dry, but must be wetted to avoid airborne dust. Asbestos may only be disposed of in special landfills that segregate asbestos materials in specific locations.

Universal Wastes

Material covered by a set of regulations that becomes exempt from the Hazardous Waste Regulations. Universal Wastes are exempted from counting toward generator status determination when; 1) the waste is recycled or disposed of at a permitted hazardous waste facility; AND 2) is managed in accordance with practices described in the universal waste rules. (OAR 340). In Oregon, these materials include batteries, fluorescent lamps, mercury thermostats and certain banned and canceled pesticides.

Used Oil

Any oil that has been refined from crude oil, or any synthetic oil that has been used as a lubricant, coolant (non-contact heat transfer fluids), hydraulic fluid or for similar use and as a result of such use is contaminated by physical or chemical impurities. Used oil includes, but is not limited to, used motor oil, gear oil, greases, machine cutting and coolant oils, hydraulic fluids, brake fluids, electrical insulation oils, heat transfer oils and refrigeration oils. Used oil does not include oil mixed with hazardous waste except as allowed in 40 CFR 279.10(b), oil (crude or synthetic) based products used as solvents, antifreeze, wastewaters from which oil has been recovered, and oil contaminated media or debris.

Underground Injection Control (UIC) Wells

Shallow wastewater or stormwater disposal systems (septic systems, drill holes or drywells) that receive or have received fluids from vehicle repair, maintenance or washing activities often through floor drains, wash basin or area inlets in the surface facilities or on the storage / parking areas of the property. Facilities that might have a motor vehicle waste disposal well include: service stations, auto body repair shops, new and/or used auto dealers, specialty repair shops such as transmission, brake and muffler repair, fire stations, county or city garages, or any facility that performs vehicle repair.

VOC

Volatile Organic Compounds. There are air quality limitations on the maximum amount of VOCs allowed in paints.





**Pollution Prevention Outreach Team
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www.ecobiz.org

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