DEPARTMENT OF ECOLOGY
State of Washington

Vehicle Recycling Manual

A Guide for Vehicle Recyclers

You Auto Recycle

The Key to a Better Environment

Department of Ecology
Hazardous Waste & Toxics Reduction Program
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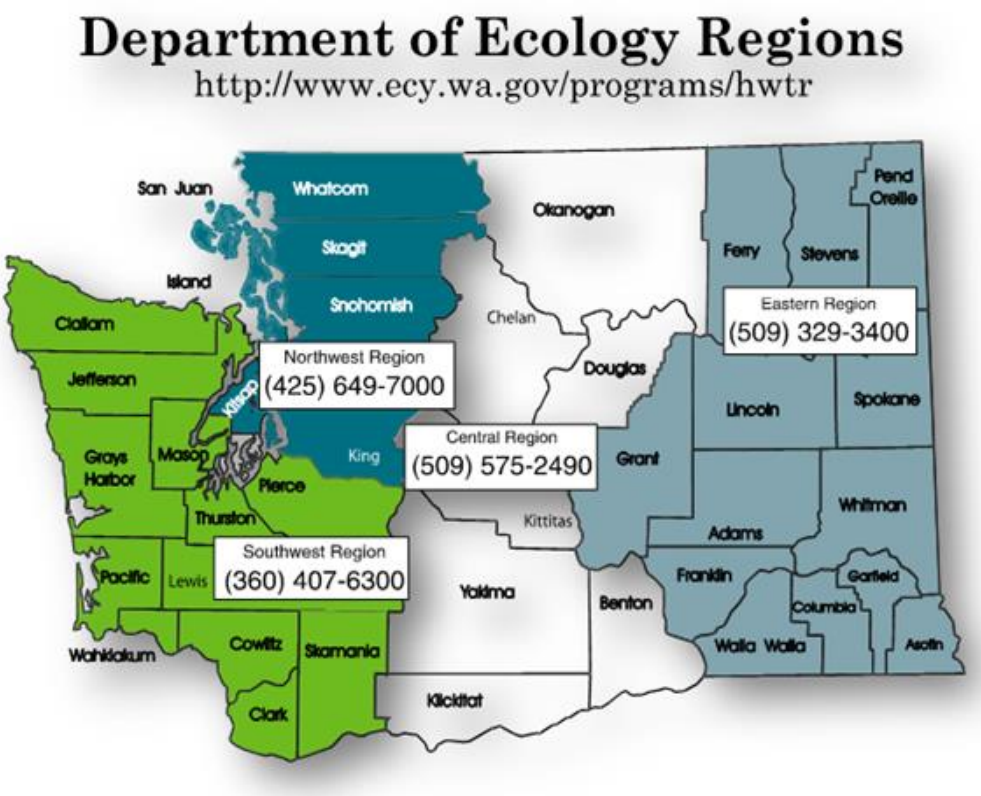
The Department of Ecology's mission to protect, preserve, and enhance Washington's environment. But we can't do it alone, we need your help. Take an active interest in pollution prevention and consider how your daily actions affect the environment. This publication will help you identify areas within your business where you may be able to reduce and manage waste at the source.

This publication is not intended to substitute for Washington's Dangerous Waste Regulations, Chapter 173-303 Washington Administrative Code (WAC). Always refer to the regulations for the most current information. If you have questions, contact your nearest Ecology regional office (see map below). We offer:

- On-site technical assistance
- Information and referral hotline
- Resource center
- Workshops and seminars
- Materials exchange information



If you need this information in an alternate format, please call the Hazardous Waste & Toxics Reduction Program at 360-407-6700. If you are a person with a speech or hearing impairment, call 711, or 800-833-6388 for TTY.

Table of Contents

Introduction 1

You Auto Recycle! 2

- What Happens When the Vehicle Gets to the Yard? 2
- Incoming Cars 2
- Vehicle Crushers and Crusher Fluids 3

Waste Reduction, A Good Start 3

- Absorbents 4
- Air Bags 5
- Air Emissions, Toxic Air Pollutants, and VOCs 5
- Antifreeze 6
- Asbestos 6
- Auto Body Shop Wastes 7
- Auto Fluff 7
- Batteries 7
- Brake and Carburetor Cleaners 8
- Brake Fluid 8
- Contaminated Soil 8
- Dust Suppression and Prevention 8
- Empty Containers 9
- Fuel and Fuel Filters 9
- Glass 10
- Hot Tank Solutions 10
- Lead Parts 10
- Safety Data Sheets 10
- Mercury Switches 10
- Plastics 11
- Refrigerants 11
- Scrap Metal 12
- Shop Towels 12
- Solid Wastes 13
- Solvents for Cleaning Parts 13
- Spray Cans 14
- Storage Tanks 14
- Stormwater 14
- Sump Sludge 15
- Testing 15
- Tires 15
- Transmission Filters 16
- Transmission Fluid 16
- Used Oil 16
- Used Oil Burned in Space Heaters 17
- Used Oil Filters 17
- Waste Handling, Storage & Disposal Practices 17
- Wastewater Management 18
- Windshield Washing Fluid 19

A Quick Look at the Waste Streams 20

Best Management Practices for Vehicle Recyclers 21

Identifying Wastes 22

Determining Generator Status 23

Requirements for Small, Medium, and Large Quantity Generators 23

- For All Waste Generators: 23
- Small Quantity Generators (SQG): 23
- Regulated generators (MQG or LQG): 24
- Plan for Emergencies 24
- Additional Training Requirements for Generators of 2,200 Pounds or More 25
- Written Contingency Plan 26
- Required Emergency Procedures 26
- Spills – Be Prepared 27
- Spills and Leaks Reporting 29
- If a spill occurs, follow these steps: 29
- Know your facility 30

County Contacts for Solid and Dangerous Waste Management 31

Other Resources 34
Subscribe to *Shoptalk* 34
Related Publications 35
Document Hyperlinks.....37
Appendix A.....39
Appendix B.....41

Introduction

Approximately 28.8 million tons[1] of dangerous waste are generated each year in the United States (U.S.). That equates to about 180 pounds of dangerous waste for every man, woman, and child in the country.

Manufacturing even a simple product produces dangerous waste. Did you know manufacturing a tennis ball creates 50 different dangerous waste streams? Producing stain resistant carpet creates 118 different waste streams. A large car (fully loaded) creates eight 55-gallon drums of dangerous waste during manufacturing! These wastes can pollute groundwater, rivers, lakes, aquifers, air, and the soil that we grow our food in and live on. It takes only one gallon of used oil to pollute one million gallons of drinking water.

Vehicles have been reused and recycled since they were first manufactured in the early 1900s. When an automobile is no longer usable, it generally ends up in the hands of a recycler. The U.S. vehicle recycling and shredding industry accounts for over $32 billion in sales annually[2]. Vehicle recyclers recover, rebuild, and resell usable parts from worn out or damaged vehicles. They also recycle materials that cannot be used in their present form. They make it easy for consumers to find clean, used parts for all vehicle types. The generation of waste is sometimes unavoidable, but vehicle recyclers help improve the quality of our environment through good waste management practices.

Waste reduction and pollution prevention practices can benefit the vehicle recycling industry in many ways, including:

- A healthier, safer work environment for you and your employees and protection from illness or serious injuries.
- Possible savings in medical insurance, fewer sick days, and increased production.
- Maintaining the ability to get insurance or bank loans.
- Fewer long-term liability concerns. You are legally and financially responsible for the proper handling of your wastes.
- Minimizing the chances of not being able to sell your property due to contamination.
- Substantial monetary savings on dangerous waste management costs.
- Fewer waste transportation and disposal costs.
- Fewer or reduced regulatory requirements.
- Reduced operating costs by using fewer raw or new materials and buying and using only what you need.
- Additional income or reduced disposal costs from selling or exchanging surplus materials with other businesses.
- Creating a great marketing and public relations tool. Tell everyone that your business is environmentally responsible!

[1] According to EPA report: https://cfpub.epa.gov/roe/indicator.cfm?i=54
[2] Automotive Recycling Industry (pdf) by ARA, ISRI, and Auto Alliance

You Auto Recycle!

Here are the facts[3]:

- ✓ Cars are the number one recycled product in the United States. Approximately 13 million vehicles are recycled annually.
- ✓ At least 95% of all cars scrapped in the U.S. are collected for reuse and recycling compared to 50% of aluminum cans.
- ✓ 86% of the material in a vehicle is currently recycled.
- ✓ Vehicle recycling generates approximately 18 million tons of recycled steel every year in the U.S. Every ton of new steel made from scrap conserves: 2,500 pounds of iron ore; 1,400 pounds of coal; and 120 pounds of limestone.
- ✓ Each year recycling saves: 100.8 million gallons of gasoline and diesel fuel; 24 million gallons of motor oil; 8 million gallons of engine coolant; 4.5 million gallons of windshield washer fluid; and 96% of all lead-acid batteries.
- ✓ Each year, recycling steel reduces greenhouse gas emissions by over 30 million metric tons.

Everyone has a vested interest in vehicle recycling. Using recycled materials in the manufacture of new vehicles can reduce costs for both automakers and consumers while conserving valuable natural resources.

What Happens When the Vehicle Gets to the Yard?

All businesses are different—some are larger than others, some perform tasks that others do not.

These helpful best management practices (BMPs) work for any size vehicle recycler.

Incoming Cars

- ✓ Inspect incoming vehicles for leaks from engines, radiators, transmissions, differentials, fuel tanks, and damaged areas.
- ✓ Place drip pans under leaks to collect all fluids.
- ✓ Do not tip vehicles on their sides allowing fluids to spill onto the ground.
- ✓ Drain all fluids from vehicles over a covered concrete drip pad with spill containment before crushing or storing on bare ground. This includes fluids from:
  - Engines and radiators
  - Transmissions and fuel tanks
  - Heater cores
  - All hoses and lines, including brake lines
  - Differentials
  - Air conditioning units
  - Windshield washing fluid tanks
- ✓ Remove and capture refrigerants as required by the US Environmental Protection Agency.
- ✓ Remove mercury switches from hood/trunk and ABS sensors.
- ✓ Check for and remove lead wheel weights.
- ✓ Remove fuel and battery.

Warning!

Newer hybrid cars may come with lithium batteries. These batteries will cause fires or explosions if crushed or shredded. Ensure removal by a skilled and trained mechanic prior to processing. Lithium batteries must be recycled as soon as possible.

[3] Automotive Recycling Industry (pdf) by ARA, ISRI, and Auto Alliance, p. 2-4

Vehicle Crushers and Crusher Fluids

- ✓ Adequately drain fluids from vehicles prior to crushing to reduce the volume of waste fluids to manage. The yard owner is responsible for the waste.
- ✓ Position vehicle crushers and drain racks toward the center of a bermed or self-contained impervious surface, preferably under a roof and protected from the weather. Floor surface should slope to contain fluids.
- ✓ Always position mobile crushers on an impervious surface in a designated area to localize potential contamination.
- ✓ Use containers fitted to the crusher to capture fluids. Collect and dispose of the fluids that drain from the crusher properly.
- ✓ Keep crusher drains clean and dispose of the residue properly. The fluids and residue are generally dangerous waste.

Waste Reduction, a Good Start

Waste is defined as any material you intend to discard. Waste is considered yours if your actions or business operations cause clean material to become contaminated and unusable for its intended, original purpose. As a business owner, if waste is on your property (even if someone else dumped it there or left it behind) you are responsible for it.

Material is considered a waste until recycling makes it usable again. Recycling is better than disposal, but waste reduction is even more beneficial than recycling.

Waste reduction can free up labor and may even provide payback on investments through reduced disposal costs.

- ✓ Look at all your business processes that use toxic chemicals or generate solid, liquid, or air wastes.
- ✓ Think about how you can change a process so that it does not produce a waste or how you can lower the toxicity of the products you use.
- ✓ Substitute a less toxic raw material:
  - Switch to non-chlorinated compounds or a cabinet parts washer for parts cleaning.
  - Check the safety data sheet before ordering any new product.
  - Visit Ecology's website Find Safer Alternatives.
- ✓ Remember that the term "biodegradable" does not necessarily mean environmentally safe or exempt from regulations.
- ✓ When safe products are mixed with hazardous substances the entire mixture may need to be handled as dangerous waste. Call Ecology if you are unsure.
- ✓ Use good operating practices:
  - Don't let liquids evaporate.
  - Maintain equipment to prevent leaks and spills; monitor usage.
  - Use equipment and drip pans to reduce the use of absorbents. If you must use absorbents, consider reusable or combustible materials.
- ✓ Label everything (including small spray bottles) to avoid cross contamination and help facilitate recycling.
- ✓ Keep all chemicals in closed, covered, or sealed containers. Liquid storage containers need secondary containment.
- ✓ Always use funnels or pumps when transferring or dispensing chemicals.

- ✓ Place a platform or step next to storage drums so employees do not have to lift drain pans above their waists.
- ✓ Seal floor drains. Never discharge waste-water to the ground, dry wells, or septic systems. Only discharge into a sewer after you get prior approval from your sewer utility.

Don't get overwhelmed! Even small, incremental changes can make a big difference.

The following types of wastes may be produced by the vehicle recycling industry during dismantling or disassembly:

Possible Dangerous wastes

- ✓ Absorbents
- ✓ Air bags
- ✓ Air emissions
- ✓ Antifreeze
- ✓ Asbestos
- ✓ Auto body shop waste
- ✓ Auto Shredder Residue (Auto fluff)
- ✓ Batteries (lead-acid, lithium)
- ✓ Brake fluid (copper and asbestos)
- ✓ Brake and carburetor cleaners
- ✓ Contaminated soil
- ✓ Fuel and fuel filters
- ✓ Hot tank solutions
- ✓ Lead parts and wheel weights
- ✓ Mercury switches
- ✓ Paint(s)
- ✓ Parts washer solvent
- ✓ Refrigerants, (e.g., CFCs)
- ✓ Scrap metal and catalytic converters
- ✓ Shop towels
- ✓ Spray cans (aerosols)
- ✓ Spent antifreeze
- ✓ Storage tanks (AST/UST)
- ✓ Sump sludge
- ✓ Transmission fluid and filters
- ✓ Used oil and filters
- ✓ Windshield washer fluid

Non Dangerous Wastes

- ✓ Dust
- ✓ Empty containers
- ✓ Glass
- ✓ Plastics
- ✓ Tires

Absorbents (floor dry, foam pads, booms)

- ✓ Maintain absorbent material in areas where fluids are generated, managed, and stored.
- ✓ Soak up leaks and spills as soon as they occur and dispose of cleanup materials in a proper and timely manner.
- ✓ Do not put spent absorbent in drains, on the ground, or in vehicles to be crushed or shredded.
- ✓ Maintain written verification from your solid waste hauler regarding the disposal of absorbent in the dumpster.

Air Bags

Most new cars come equipped with air bags. The propellant used in air bags is either sodium azide or a mixture of different nitrate and perchlorate salts and may contain silver. Regardless of their composition they are dangerous waste due to ignitability, reactivity, and toxicity.

- ✓ Leave deployed air bags in vehicles. Air bags that have been deployed do not pose a risk to human health or the environment.
- ✓ Remove all undeployed air bags when vehicles enter the facility and store them indoors, protected from the weather.
- ✓ You must dispose of undeployed air bags as dangerous waste.
- ✓ You must follow US Department of Transportation shipping regulations for hazardous materials when shipping undeployed air bags.
- ✓ Follow all Washington Labor & Industries rules to ensure that employees are protected when working with air bags.

Air Emissions, Toxic Air Pollutants, and VOCs (volatile organic compounds)

These emissions may result from:

- ✓ Running engines.
- ✓ The volatilization of gasoline and solvents.
- ✓ Chlorofluorocarbons (CFCs) from air conditioning units.
- ✓ Airborne substances from spray cans.
- ✓ Cutting and welding when dismantling and cleaning.

Deploying Undeployed Air Bags

Many vehicle recyclers have developed processes to deploy undeployed air bags, making them solid waste and not dangerous waste. If you choose to deploy undeployed air bags, be sure whatever process you use is safe for your employees.

This process may be considered dangerous waste treatment and subject to treatment by generator guidelines if the airbags are deployed outside the vehicle. If the airbags are removed from the vehicle prior to deploying them, record the weight, date, and name of person performing the detonation in a monthly log.

Count the total weight toward determining your monthly generator status. If you are over the allowance for small quantity generator status obtain an RCRA Site ID Number and report as a medium quantity generator or large quantity generator. However, if deployed inside the vehicle and in a manner consistent with their intended use, they may not be subject to dangerous waste regulations.

Remember, these devices are dangerous and improper handling could lead to serious injury or death. Allow only fully trained and experienced staff to handle these devices.

A permit from your state, local, county, or city air program may be necessary if you generate hazardous, toxic, or odorous air emissions.

- ✓ Try to control hazardous emissions at the source. Keep drums, containers, and washers covered when not in use.
- ✓ Remove CFCs, using EPA approved equipment that is operated by an EPA certified technician.
- ✓ Do not air dry solvent-soaked towels or parts.

Antifreeze

Antifreeze is commonly made up of ethylene glycol, propylene glycol, or other chemicals that transfer heat from a vehicle engine to its radiator. Flushing wastes are not considered the same as antifreeze and are not typically hazardous if generated through simple water rinsing with a hose.

Antifreeze often becomes contaminated with traces of fuel, metal particles, and grit. Some recent toxicity characteristic tests have shown lead, benzene, and other contaminants present at levels that make antifreeze a dangerous waste. You should also handle still bottoms, antifreeze filters, and solids as dangerous waste.

Consider recycling antifreeze. You don't need to count antifreeze that is recycled and labeled "SPENT ANTIFREEZE" toward your dangerous waste accumulation status. See Ecology publication #03-04-017, *Focus on Spent Antifreeze* for more information.

- ✓ Drain antifreeze from radiators and heater cores as soon as possible.
- ✓ Determine if the antifreeze is reusable or waste fluid.
- ✓ Store all antifreeze in closed containers on an impermeable concrete surface with spill controls and secondary containment.
- ✓ Consider keeping antifreeze in three separate, closed containers: one for antifreeze that cannot be reused marked "DANGEROUS WASTE ANTIFREEZE ONLY, TOXIC" one for antifreeze to be recycled on site or off site marked "SPENT ANTIFREEZE," and one marked "USABLE ANTIFREEZE ONLY."
- ✓ Recycle by reuse, distillation, filtration, or ion exchange. Recycling can be done on site or off site by an antifreeze recycling service.
- ✓ Don't mix waste antifreeze with other wastes.
- ✓ Don't dispose of antifreeze down storm drains, in septic tanks, dry wells, sewer systems, or on bare ground.
- ✓ You are required to add an aversive agent to any antifreeze you sell or give away. Keep records of whom you sell or give antifreeze to. A vehicle license number is recommended.

Asbestos

The Toxic Substances Control Act (TSCA) declared airborne asbestos hazardous to human health. Typically, brake shoes and clutches are not removed for reuse in vehicle recycling and are crushed with the vehicle. This may pose a significant problem at the shredder site if asbestos particles become airborne. Human health may also be affected during transport to the landfill.

If you remove brake shoes and clutches at your business, you may be exposed to asbestos dust through small dust particles that cannot always be seen with the naked eye. These invisible particles may be asbestos or other brake lining material. Asbestos is only one of many materials used in brake linings today.

Washington and California have banned asbestos in brake pads. The Washington Better Brakes Law and the *Better Brakes Rule* were enacted in January 2015. The newness of the rules and the fact that they do not apply in all states suggest asbestos brake pads will continue to be a reality for some time to come. Limit exposure and health damage to your workers by using proper controls, and preventing or containing brake dust in the air.

- ✓ Don't clean brakes or clutches with air hoses, dry brushes, wet brushes, rags, garden hose, liquid squirt bottles, solvent spray, or ordinary wet-dry vacuum.
- ✓ If you clean brakes or clutch assemblies, use a "HEPA" filter vacuum cleaner.
- ✓ If you remove brake shoes or clutches, use specially designed, low-pressure spray equipment that wets down brake or clutch dust and catches the run-off. This may help prevent the release of asbestos in the garage.
- ✓ Dispose of asbestos waste according to federal and local regulations. Call your nearest regional Ecology Air Quality Program office for more information.
- ✓ Place asbestos waste in a double-tied, heavy plastic bag, and store in a leak proof, airtight container designated for asbestos waste.
- ✓ Do not eat, smoke, or drink in asbestos work areas and wash thoroughly before eating.
- ✓ Wash thoroughly and change into clean clothes before going home.
- ✓ Don't take work clothing home. Asbestos particles can become embedded in clothing, carried home, and released into the air that your family breathes.

Auto Body Shop Wastes

If your vehicle recycling facility also does auto bodywork, you need to consider the waste streams associated with bodywork and painting. See Ecology publication #09-04-015, *Shop Guide for Dangerous Waste Management*.

Auto Fluff aka "Auto Shredder Residue"

After vehicles are dismantled, the bodies to be salvaged are shredded. Then, metal pieces are magnetically picked from the shreddings. The residue after picking is called "fluff." Auto fluff has been known to contain high levels of cadmium, chromium, lead, and PCBs if fluids were not totally drained from the vehicle before the vehicle was crushed. **Drain all fluids from vehicles before crushing.**

Batteries (lead-acid)

Spent lead-acid batteries contain lead and corrosive acids that are considered dangerous waste if not recycled or returned to a battery manufacturer.

- ✓ Test batteries to determine usability or resale quality.
- ✓ Sell reusable batteries. If not reusable, remove cable ends from batteries and store the lead cable ends in a covered container that is strong enough to hold the weight of the lead. Most battery recycling firms provide specially designed battery recycling containers for vehicle recyclers to use. Non-lead cable ends should be recycled with scrap.
- ✓ Leave reusable lead battery cable ends attached to scrap batteries for recycling.
- ✓ Place cracked or leaking batteries in a closed leak-proof storage container or on a curbed,

impermeable asphalt surface with spill controls. Battery acid can degrade concrete.

- ✓ Store batteries indoors. If stored outdoors, the area should be covered to keep rainwater from collecting and causing runoff. Protect batteries from freezing to prevent cracked battery casings.

Brake and Carburetor Cleaners

- ✓ Keep containers of brake and carburetor cleaner closed when not in use.
- ✓ Do not mix brake/carburetor cleaners with other solvents, e.g., solvents from parts washers.
- ✓ Conduct a waste designation on spent cleaners and dispose of properly.

Brake Fluid

Brake fluid is typically hazardous, due to toxicity and contamination from chlorinated solvents in brake cleaners.

- ✓ Collect contaminated brake fluid in a separate, labeled, closed container.
- ✓ Use a waste hauler that recycles contaminated brake fluid.
- ✓ Do not put brake fluid down any drain or on the ground.
- ✓ Recycle *uncontaminated* brake fluid in your used oil collection.

Contaminated Soil

Past or ongoing vehicle handling practices can cause soil contamination at some facilities. The severity of the contamination depends on factors such as the toxicity of the pollutant, total cumulative fluid loss to the ground, and spill cleanup procedures.

- ✓ Be proactive about preventing spills before they happen.
- ✓ If a spill does occur, assess the potential for groundwater contamination.
- ✓ Collect the soil in appropriate containers and store in a covered, impermeable containment area until soil can be cleaned or transported.
- ✓ Cover remaining contaminated soil with plastic cover to prevent contact with rainwater.
- ✓ Divert stormwater away from contaminated soil.

Dust Suppression and Prevention

Listed below are some techniques to prevent and suppress dust at your facility:

- ✓ Vegetate or mulch areas that don't receive traffic.
- ✓ Apply gravel or rock, or pave high-traffic areas.
- ✓ When possible, reduce traffic and speed limits on roads.
- ✓ Clear vegetation only from areas you will be working on immediately.
- ✓ Construct natural or artificial wind breaks or wind screens.
- ✓ Apply water to reduce dust from temporary sources.
- ✓ Surface-apply chemical suppressants to non-traveled areas. Used oil cannot legally be used for this purpose and will be very costly to clean up.
- ✓ See Ecology publication #96-433, *Methods for Dust Control*.

Empty Containers

A container is considered empty after all contents are removed by normal practical means, such as inverting and draining, shaking, scraping, or scooping. The container is empty when:

- No more than 1 inch or 3% of the container volume remains for containers less than 110 gallons.
- No more than 0.3% of the container volume remains for containers greater than 110 gallons.
- Compressed gas pressure inside the container is equal, or nearly equal to atmospheric pressure.

✓ Store empty containers in an area protected from the weather.

✓ Make sure all containers are covered, bungs tightly in place, and all labels removed except one label indicating the container is "EMPTY." Include the name of the last product stored in the container (if known) and the date it was emptied. **Do not use DOT specification "EMPTY" preprinted labels as these denote empty containers that previously held radioactive substances.**

✓ If you do not plan to reuse the empty containers on site, recycle them if possible.

✓ Tripe-rinse containers of acutely dangerous waste, extremely toxic dangerous waste, or pesticides marked with the words "DANGER" or "WARNING" on the labels. Reuse or properly dispose of the rinse water. Refer to Ecology publication #96-431, *Safe Handling of Empty Containers*.

Fuel and Fuel Filters

✓ Remove fuel tanks as soon as possible after the vehicle enters the facility.

✓ If tank is still in place on the vehicle, use air-driven pump or self-contained portable gas pump to remove fuel and drain into storage tank or drum.

✓ Determine if fuel is reusable or a dangerous waste fuel.

✓ Remove plug where sensor and gas line enter the tank and pour into containers or drums.

✓ Clearly label containers "REUSABLE FUEL" or "DANGEROUS WASTE."

✓ Store dangerous waste fuel in a closed, leak-proof container that is labeled "DANGEROUS WASTE" and has a major risk label, such as "FLAMMABLE," and an accumulation start date. Ensure that all final accumulation containers have adequate secondary containment.

✓ Do not mix fuel with any other waste streams.

✓ Drain excess fuel from filters into a proper fuel container.

✓ Accumulate used fuel filters in a separate, fireproof container marked "USED FUEL FILTERS ONLY."

✓ Reusable fuel may be used by the facility to power vehicles.

✓ Handle fuel filters as dangerous waste and dispose of them accordingly. Some landfills will take used fuel filters if they are punctured and drained for 24 hours. Check with your local landfill.

Glass

Automotive windshield glass has a different chemical composition from container glass. It is typically manufactured with two layers of glass and a sheet of polyvinyl chloride (PVC) in between. This layering limits recycling options for automotive windshield glass.

However, automotive glass can be recycled into construction aggregate or other secondary markets if the PVC film can be removed completely. For more information, contact the Clean Washington Center.

Hot Tank Solutions

- ✓ Accumulate spent cleaning solutions and sludge removed from hot tanks in closed, labeled containers. Label container "waste pending analysis" along with the date.
- ✓ Designate spent solution and sludge and dispose of properly.
- ✓ Maintain records of analytical waste designation records and disposal receipts.
- ✓ Notify and get written approval from sanitary sewer system prior to discharging wastewater.
- ✓ Never pour any waste hot tank solution into a septic system, storm drain, or onto the ground.

Lead Parts

Lead is a well-known toxic substance. The amount of lead found in a single BB or shotgun pellet is enough to contaminate an entire truckload of auto fluff, making it dangerous waste and requiring costly disposal.

- ✓ Remove lead tire weights and lead battery cable ends before crushing vehicles. Lead battery cable ends may be left on unusable batteries and recycled along with the batteries.
- ✓ Remove other known sources of lead from vehicles when practical.
- ✓ Rainwater falling on lead will contaminate the stormwater at your facility. Store lead parts in a covered container that is strong enough to hold the weight of the lead.
- ✓ Recycle lead parts with a metal recycler or battery recycler.

Safety Data Sheets

As a business, you are required to keep Safety Data Sheets (SDSs) for all products available to employees on site. An SDS should come with each of the chemical products you purchase from a manufacturer or vendor. They contain important chemical hazard information, such as:

- ✓ The physical and chemical properties of the hazardous substances contained in the product.
- ✓ Spill cleanup instructions.
- ✓ Health hazards and appropriate first aid.
- ✓ Fire and explosion hazards.
- ✓ Proper management and disposal practices.

SDS files should be maintained at the workplace and located so that all employees have easy access. If the SDSs are kept on a computer, a hard copy should also be available in case of a computer failure or loss of electrical power.

You must let your employees know where your SDSs are kept and any access procedures necessary. Assign someone the responsibility to obtain, maintain, and update SDS information.

Mercury Switches

Mercury is a highly toxic metal often found in hood and trunk light switches in vehicles manufactured

prior to 2003. Some automatic braking systems (ABS) sensors also contain mercury in models prior to 2004. Once released into the environment, mercury cannot be eliminated. Additionally, wastes containing mercury can designate as dangerous waste.

- ✓ Participate in Washington's Vehicle Mercury Switch Removal Program (VMSRP) and receive a $3 reimbursement for each mercury light switch assembly you collect and $9 for each ABS G-Force Sensor. Collection container, label, transportation, and disposal are all provided by the program.
- ✓ Remove all mercury switch assemblies from the hood/trunk as soon as possible.
- ✓ Recycle the entire switch assembly. Don't attempt to remove the mercury capsule from the mercury switch. A broken capsule releases mercury, which is very costly to clean up.
- ✓ Store mercury switches in a leak-proof, closed container and clearly label the container "UNIVERSAL WASTE."

For information about how to participate in the reimbursement program, contact Jeffrey Gutschmidt at Ecology, 425-649-7280. A mercury switch removal packet will be sent with a list of vehicles that contain switches and instructions on how to remove them.

Plastics

Recycling of plastics saves 90% of energy over its virgin production energy use. Advances in plastic recycling technology are now allowing for better recycling options for mixed plastics.

According to "*How to Increase Automotive Plastics Recycling*" (pdf) by Jessica Lyons of Environmental Leader "SPI (the plastics industry trade association) members have begun a collaborative research project to explore the viability of collecting and recycling auto plastics from end-of-life vehicles and build a basic recovery model for whole parts before shredding. The review will help determine the feasibility of recovery today compared against material performance and demand for recycled thermoplastic olefins (TPO) and polypropylene (PP)."

Refrigerants (e.g., Freon, R-12, R-134a, R-1234yf)

One of the single largest users of refrigeration units are automobiles. On average, automotive air compressors account for over 28% of all air compressors shipped by manufacturers between 2009 and 2010[4].

Refrigerants refer to Freon, R-12, R-134a, and R-1234yf used in air conditioning units; they compose a family of chemicals that are stable, non-flammable, and noncorrosive.

If released into the air, refrigerants drift into the upper atmosphere and degrade the ozone layer that protects the Earth from harmful ultraviolet radiation. However, the newest family of refrigerants, R-1234yf[5] has a "global warming potential" of just one compared with R-134a which has a global warming potential of 1,430. This means that R-1234yf is 1,430 times less impactful on the ozone layer – no more impactful than carbon dioxide which also has a global warming potential of one.

[4] United States Census Bureau Current Industrial Reports, MA33M – Refrigeration, Air Conditioning, and Warm Air Heating Equipment, 2010 Annual.

[5] Automotive News, December 30, 2013, "Automaker's switch to new refrigerant will accelerate with EPA credits, European mandate."

Still, it is illegal to vent any refrigerant into the environment, including R1234yf. Spent refrigerants not reclaimed or recycled and refrigerants used as solvents are considered dangerous waste.

Process refrigerants using one of two methods:

1. **Recovery**—removing refrigerant from air conditioning units and storing it in a container without testing or processing it.
2. **Reclaiming**—processing refrigerant, usually by distillation, until it meets resale specifications.

- ✓ Remove refrigerants from all vehicles using EPA approved recovery equipment by an EPA certified technician.
- ✓ Verify that all vehicles entering the facility without refrigerant have had the refrigerant removed using the proper methods.
- ✓ Store refrigerant in tanks that meet US Department of Transportation or Underwriters Laboratory (UL) standards.
- ✓ Sell refrigerant only to an EPA certified technician or EPA certified reclaiming facility who will reclaim it to its original purity specifications.
- ✓ Reuse refrigerant only in vehicle air conditioning units owned by your facility.
- ✓ Dispose of filters from CFC refrigerant recovery system as dangerous waste.

Scrap Metal

- ✓ Remove catalytic converters prior to crushing and recycle for their platinum content.
- ✓ Do not attempt to reclaim the platinum by melting. You must first obtain an (air) Operating Permit or Exemption to operate a smelter or reclaiming furnace on site.
- ✓ Do not operate a smelter in a manner that allows wastes or wastewater to impact soil.
- ✓ Designate wastes generated by the smelter (i.e., wastewater, ash, slag, sludge) and manage appropriately.

Shop Towels

- ✓ When possible, use non-chlorinated cleaning compounds or other safer chemicals.
- ✓ Switch from disposable towels to cloth towels that can be cleaned and reused.
- ✓ Do not throw dirty towels into the dumpster.
- ✓ Don't saturate towels. If you do, wring them out and reuse the liquid.
- ✓ Use an industrial laundry service or designate and dispose of the towels as dangerous waste. See Ecology publication #F-SHW-92-116, *Focus on Used Shop Towels*.
- ✓ If choosing to manage shop towels under Ecology guidance be sure to label the collection container "CONTAMINATED SHOP TOWELS."
- ✓ Keep dangerous waste shop towels in a closed, fireproof container labeled "DANGEROUS WASTE" or "MODERATE RISK WASTE" depending on generator status. Also, label the container with a major risk label, such as "FLAMMABLE" or "TOXIC," and an accumulation start date, depending on generator status and management method.
- ✓ Keep records on file to demonstrate proper waste management, disposal, and accumulation amounts.

Solid Wastes

Solid wastes are normal business and food wastes that are not contaminated with any other wastes.

- ✓ Obtain written permission from the local solid waste authority (typically the local Public Works Department or Health Department) prior to disposing of any industrial waste (anything other than ordinary household garbage) in the solid waste.
- ✓ Place solid wastes in closed containers, such as garbage cans with lids or dumpsters.
- ✓ Keep containers covered to avoid rainwater leaching contaminants out of the waste and contaminating your facility's stormwater.
- ✓ Dispose of solid wastes using a local garbage hauler or take the waste to the local solid waste facility for disposal.

Solvents for Cleaning Parts

Here are some ideas for reducing solvent-based parts washing waste:

Equipment Management

- ✓ Switch to a re-circulating spray cabinet for cleaning parts instead of using solvent.
- ✓ Negotiate your service contracts so that solvent change-outs fit your use schedule, especially if you have seasonal fluctuations.
- ✓ Segregate cleaning into two stages, each having a dedicated washing unit. Two units extend the usefulness of the solvent.
- ✓ Use parts washers equipped with filters and other separation and treatment options that will keep the solvent cleaner longer. Add-on accessories are available.
- ✓ Consider using a UL approved on-site distillation unit to recycle spent solvent. Check with your local fire department before purchasing or using this equipment.

Equipment Operation

- ✓ Think about when parts need cleaning and when they do not. Each use of a parts washing unit increases contamination of the cleaner and shortens the cleaner's useful life. If only interior surfaces need to be cleaned, avoid cleaning the exterior. Remove caked-on grease and oil from parts with a scraper or knife before washing to reduce cleaning time and water use.
- ✓ Clean carefully (no splashing or dragging) and use drain racks to save solvent and cleanup labor.
- ✓ Cover and turn off circulating sinks to prevent evaporation.
- ✓ Appearance is not always a good indicator of the solvent's ability to clean. Monitoring change-out schedules and filtering helps to extend the useful life of the cleaner.

Inventory Management

- ✓ Limit access to supplies to prevent waste. Use a computer to track parts and wastes.
- ✓ Do not over-order supplies. Use only what you need.
- ✓ Consider using a central cleaning station. Weigh individual stations against their potential for accidents and exposure, and waste generation versus convenience and efficiency.

Apply these low-tech, low-cost ideas to other vehicle recycling processes as well.

Spray Cans (Aerosols)

If you throw out partially empty spray cans of products like brake cleaner or carb cleaner, they are typically regulated as dangerous waste because they contain ignitable, chlorinated solvents.

- ✓ Use the entire spray can before starting another.
- ✓ If a spray can malfunctions, return it to your supplier if possible, or manage it as a dangerous waste.
- ✓ Use refillable spray cans that do not mist the spray. Consider phasing out spray cans.
- ✓ See Ecology's publication #07-04-005, *Focus on Aerosol Can Management* for more about managing this waste stream.

Storage Tanks (above and underground)

- ✓ Contact Ecology or your local county health department to make certain all regulatory requirements have been met for either aboveground (ASTs) or underground (USTs) storage tanks.
- ✓ Label tanks and fill pipes clearly to identify contents.
- ✓ Make certain tanks meet appropriate secondary containment requirements.

Stormwater

Today, more than ever, there is greater emphasis on stopping the contamination of stormwater. It is easier and less costly to avoid stormwater contamination in the first place, than to remove the contaminants later.

- ✓ Avoid zinc or galvanized roofs and fences. Zinc is a major stormwater contaminant for vehicle recyclers. See Ecology publication 08-10-025, Suggested Practices to Reduce Zinc Concentration in Industrial Stormwater Discharges for more information,
- ✓ Keep all storage piles, waste storage containers, lead, batteries, contaminated soils, and other sources of contamination covered and protected from rain.
- ✓ Keep hoods over all vehicle engine compartments and keep dumpster and garbage cans covered.
- ✓ Apply for coverage under Ecology's General Industrial Stormwater Permit if your business discharges stormwater to any ditch, culvert, creek, stream, or other surface water or into a storm drainage system that discharges off your property; otherwise apply for a "Conditional no Exposure" exemption. See Ecology publication #13-10-021, *Focus on Conditional "No Exposure"* for details.
- ✓ If you use a drain field or French drain (underground injection control or UIC) to dispose of stormwater into the ground, you must register it with Ecology. Call your nearest Ecology regional office for details and a registration form.
- ✓ The stormwater permit or UIC registration requires the development and implementation of a stormwater pollution prevention plan, which includes best management practices (BMPs) that are discussed in this manual.
- ✓ The stormwater permit also requires you to sample your stormwater discharge. Send the sample(s) to a laboratory for analysis and send the test results to Ecology. See Ecology publication #94-146, *Vehicle Recyclers: A Guide for Implementing the Industrial Stormwater General National Pollutant*

Discharge Elimination System Permit Requirements for information on stormwater pollution prevention planning, monitoring, and sampling.

- ✓ Contact an Ecology Industrial Stormwater specialist in Ecology's Water Quality Program for information about the permitting process.

Sump Sludge

Sludges from your sump or oil/water separator may be dangerous waste. You will need to test sludge at a professional laboratory to determine if it is dangerous, or save testing costs and assume the waste is dangerous and manage it accordingly.

- ✓ If the sludge designates as dangerous waste, ensure shipment to a permitted treatment storage and disposal facility or a permitted dangerous waste landfill.
- ✓ Make sure you know how much waste you generate each month prior to shipping wastes. Shipments of dangerous waste must be accompanied by a Uniform Hazardous Waste Manifest for generators who produce more than 220 pounds per month of dangerous waste (or 2.2 pounds per month of extremely (WT01) or acutely (P-listed) dangerous waste).
- ✓ Do not put dangerous waste sludge in the dumpster or on the ground.
- ✓ Do not use a septic tank pumping service to remove this sludge. There is no legal, environmentally safe way for these services to dispose of the waste if it is dangerous. Further, if it is dangerous, and they dispose of the waste improperly, you can be required to pay for cleanup.

Testing

Sometimes sending a sample of waste to a laboratory for analysis is the only way to determine if a waste is dangerous. Important tests for vehicle recyclers may include pH, volatile organics, total petroleum hydrocarbons, and heavy metals.

If you test a waste once, and continue to use the same process, you may apply those test results when designating future batches of the same waste.

For more information on how to designate dangerous waste see Ecology publication #96-436 *Designating Dangerous Waste and Ecology publication 16-04-028, Designation Checklist*. For information about finding a laboratory, see Ecology publication #00-04-022, *Focus on Dangerous Waste: Choosing an Analytical Laboratory*.

Tires

Over half of the nation's rubber supply is used to make tires. About 242 million tires are scrapped in the United States each year. **It is illegal to dispose of waste tires in landfills or in tire piles.** You can be required to pay for the cleanup of illegally disposed tires.

- ✓ Do not accumulate more than 800 tires at any time or you are required to get a waste tire storage permit from Ecology. See Ecology form #ECY 040-145, *Waste Tire Storage Site: Checklist for Review of Solid Waste Permit Application*, for information on what to do prior to submitting a permit application.
- ✓ Determine tire storage requirements in your area. They may be less than 800 tires.

- ✓ Store waste tires in a sunny area to allow evaporation of standing water and to kill mosquito larvae.
- ✓ Using a registered tire transporter service to transport stored waste tires regularly will help prevent large accumulations and minimize your liability.
- ✓ Find authorized and registered recycling opportunities in your area.

Transmission Filters

Transmission filters should be handled like used oil filters. The filters must be designated for state dangerous waste requirements prior to disposal. If they designate they must be managed as dangerous waste. If they do not designate they must be fully drained prior to recycling or solid waste disposal.

- ✓ Remove fluid by draining for 24 hours.
- ✓ Keep drained filters in a container marked "USED TRANSMISSION FILTERS ONLY."
- ✓ Put oil drained from filters in your "USED OIL ONLY" container.
- ✓ Do not put undrained filters in the dumpster.

Transmission Fluid

Unless it is contaminated, manage transmission fluid as used oil and add it to your used oil collection. Contaminated transmission fluids need to be designated and possibly managed as dangerous waste.

- ✓ Do not dispose of transmission fluid in a storm drain, septic tank, dry well, sewer system, or dumpster.

Used Oil

Used oil is defined as any oil, refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities. See section 520 of Chapter 173-303, Washington Administrative Code for more information on used oil.

Used oils include but are not limited to:

- Motor oil
- Brake fluid
- Transmission fluid
- Gear oil
- Cutting oil
- Hydraulic oil
- Differential oil
- Power-steering fluid
- Transaxle fluid

- ✓ Store used oil in a closed, leak-proof container.
- ✓ Never contaminate used oil with brake cleaner, carb cleaner, or solvents. Small amounts of chlorinated solvents turn recyclable used oil into dangerous waste.
- ✓ Purchase and use non-chlorinated aerosol solvents. Avoid products with the words "chloro," "fluoro" or "bromo" in their ingredients.
- ✓ Drain and collect all oils on a covered and curbed, impermeable concrete area away from any drains.

Most used oils can be mixed together and stored in the same container. However, check with your oil recycling company or Ecology before mixing any wastes together in the same drum. In addition, burning mixed used oils of different viscosities has been reported to cause oil heater feed lines to clog.

- ✓ Properly label every used oil container as "USED OIL."
- ✓ Regularly check all used oil storage containers.
- ✓ Keep used oil containers closed.
- ✓ Used oil may be recycled for recovery and re-refining by an oil hauler or fuel marketer, burning in an approved on-site heating unit, or sent off site to be burned for energy recovery.
- ✓ See Ecology publication #06-04-034 *Best Management Practices for Used Oil Generators* and Ecology's website for more information.
- ✓ Do not mix antifreeze, solvents, gasoline, degreasers, paint, or anything else with used oil. Collect and dispose of separately.

Used Oil Burned in Space Heaters

Burn oil for heating only. You need to use a UL listed used oil heater to burn used oil legally and safely. Do not burn oil simply to dispose of it – it is illegal to do so.

The types of used oils that may be burned in space heaters include:

- ✓ Any used oil from do-it-yourself oil changers who generate used oil as a household waste.
- ✓ On-specification oil from any source, (see criteria below).
- ✓ Off-specification used oil generated on site, provided the heater burns only used oil that the owner or operator generates, the heater is designed for a maximum capacity of not more than ½ million BTU[6] per hour, and the combustion gases from the heater are vented to the outside.

If your business burns used oil, check with your Ecology regional office or your local air quality agency to inquire about air quality requirements. In addition, check with local building code and fire code personnel to inquire about the installation and use of the oil burner.

On-specification oil meets the following specifications:

- ✓ Flashpoint 100 degrees Fahrenheit minimum
- ✓ Arsenic 5 parts per million (ppm) maximum
- ✓ Cadmium 2 ppm maximum
- ✓ Chromium 10 ppm maximum
- ✓ Lead 100 ppm maximum
- ✓ Total halogens 4,000 ppm maximum

Off-specification oil is any oil that exceeds one of the maximum concentrations listed above.

Used Oil Filters

Used oil filters are conditionally regulated under state and federal dangerous waste requirements. Used oil filters should be punctured, drained for 24 hours, and then crushed.

- ✓ Keep drained filters in a separate container marked "USED OIL FILTERS ONLY."
- ✓ Recycle used oil filters that have been drained and crushed.
- ✓ Put oil drained from filters into your "USED OIL" container.

Waste Handling, Storage, and Disposal Practices

Keep each waste separate and never mix waste streams. Mixing often means fewer or no recycling

[6] British Thermal Units

opportunities or reuse options, which means more expensive disposal or recycling costs. Mixing wastes might even cause a chemical reaction that could produce an explosion or toxic gases.

Focus on recycling your wastes. Recycling your waste not only lowers your liability, but the more waste you recycle the fewer regulations you are required to follow.

Proper storage of waste is extremely important. Some key things to remember:

- ✓ Store each waste in a proper container so the waste does not react with or corrode the container.
- ✓ Label containers holding dangerous waste with a label or marking indicating the container holds dangerous waste or hazardous waste and the major risk(s) label(s). Labels should be visible from a minimum distance of 50 feet. Major risks include: "FLAMMABLE," "CORROSIVE," "REACTIVE," or "TOXIC." Any nationally accepted hazard risks labeling system is acceptable for indicating major risk including US DOT hazard class warning labels (with the exception of Class 9 risk labels which require the additional designation of "TOXIC") and GHS labeling system provided a risk work is added.

- ✓ If the waste is a liquid:
  - Always use funnels to avoid spills when transferring the waste into the storage container.
  - Keep the waste covered, meaning lids on containers or bungs in barrels.
  - Never store liquid waste without cover from rain to avoid contaminating stormwater.
  - You must have secondary containment for the storage container to capture any leaks. Keep the secondary containment clean, don't allow rainwater to collect, and check for leaks regularly.

- ✓ Recycle or dispose of the waste when the container is full or within 90 or 180 days (depending on your generator status) of first placing waste in the container.
- ✓ Always use an EPA registered recycler or waste hauler to pick up and recycle or dispose of your waste. Always ask them for their EPA registration number.
- ✓ Always get a receipt for the waste your recycler or waste hauler picks up. Indicate the type and amount of waste collected.
- ✓ Keep receipts to provide proof where your waste has gone for a minimum of five years

Wastewater Management

Wastewater is water that has been used for a purpose such as engine cleaning and must be disposed of properly and legally. Process wastewater can only go to a sanitary sewer if authorized in advance by the sewer utility, and never to any other type of drain. Check with your local sewage plant for information on discharge limits, obtain a discharge permit if required, and verify which drain is okay to use.

If your facility is not on a sanitary sewer, wastewater must be tested to see if it is dangerous waste (which it usually is). If it is, it must be disposed of as dangerous waste. NEVER dispose of wastewater in a storm drain, drain field, or septic, other ground disposal system.

For more, see these Ecology publications:

- Publication #94-117, *Focus on Floor Drains and Generator Liability*.
- Publication #WQ-R-019, *Wastewater Discharge Permits in Washington State*.
- Publication #WQ-R-95-056, *Vehicle and Equipment Washwater Discharges*.

✓ Use an on-site capture and reuse system for wastewater or have a connection to a city sewer and wastewater treatment facility with the proper permitting.

✓ Floor-cleaning wastewater may be contaminated with heavy metals and grease that needs to be treated before discharging to the sewer. If not contaminated, the water may go to an oil/water separator (or other type of appropriate system) and then the sanitary sewer.

✓ Recycle floor mop water into cabinet washers.

✓ Steam cleaning, pressure-washing, and spray cabinet wastewater should go to an oil/water separator (or other type of appropriate system) and then the sanitary sewer.

✓ Recirculate and reuse water until unusable.

✓ Evaporate cabinet washer water to reduce its volume.

✓ Keep floors clean. Catch leaks before they hit the floor.

Windshield Washing Fluid

✓ Although window-washing fluid is mainly alcohol, water, and detergent, it may also contain small amounts of antifreeze.

✓ Either reuse window-washing fluid at your facility or give to employees for their personal vehicles.

✓ Drain all wiper fluid during dismantling and before vehicle is stored in yard.

✓ Sell or give away recovered window-washing fluid to customers.

✓ Store window-washing fluid in covered containers on a curbed, impermeable, concrete surface with spill controls.

✓ Label containers properly.

✓ Do not pour window-washing fluid down septic or storm drains.

A Quick Look at the Waste Streams

Waste	Best Handling Method
Air bags	Sell or dispose of properly. See page 5.
Antifreeze	Sell, reuse, or recycle on site or off site. See page 6.
Batteries	Remove, store in proper containers, and recycle. See page 7.
Brake fluid	Manage uncontaminated brake fluid as used oil. See page 8.
Empty containers	Reuse on site or recycle off site. See page 9.
Fuel and fuel filters	Dispose of through a dangerous waste company. See page 9.
Mercury switches	Remove mercury switch assembly for convenience lights in vehicle hood and/or trunk and anti-lock braking (ABS) system sensors. Dispose of properly through the Automotive Mercury Switch Removal Program. See page 10.
Plastics	Look for ways to recycle. New technologies are coming online every day. See page 11.
Refrigerants	Remove refrigerant using EPA certified equipment and technician. Reuse on site or send off site to EPA certified recycling firm. See page 11.
Shop towels	Use a commercial service that provides laundered cloth towels. See page 12.
Solid wastes	Place in a closed container (garbage can or dumpster). Do not contaminate with any other waste on this list and dispose of as normal solid waste. See page 13.
Solvent for Cleaning Parts	Recycle through service provider or dispose of as dangerous waste. Extend change-out time until solvent is unusable. See page 13.
Stormwater	Avoid contamination. Get covered by stormwater permit if discharging off site, or register if using UIC. See page 14.
Sump sludge	Test sump sludge to determine if it is a dangerous waste. If test shows it is hazardous, send it to an EPA registered dangerous waste management facility. See page 15.
Tires	Recycle when possible, sell, or transport and dispose of properly. See page 15.
Transmission filters	Drain fluid, recycle through scrap metal dealer. See page 16.
Transmission fluid	Recycle. See page 16.
Used oil	Recycle. See page 16.
Used oil filters	Drain oil, recycle filter through scrap metal dealer. See page 17.
Waste Handling, storage, and disposal	Do not mix wastes. Store all wastes properly, in proper containers with labels. Recycle, or dispose of with an EPA registered firm. See page 17.
Windshield washer fluid	Reuse or sell. See page 19

Best Management Practices for Vehicle Recyclers

If you…	Please consider that…	Best Management Practices
Wash engines or parts	The resulting wastewater is likely to be hazardous from greases, oils, and solvents.	• Only wash engine and parts if absolutely necessary. • Keep wastewater separate and evaluate it.
Use aerosol solvents or other degreasers	These chemicals can contaminate washwater, sludge, or the ground with hazardous materials.	• Put parts to be cleaned on a drip pan – not on the floor. • Use a filtered parts washer to clean engine parts and manage the solvent as a dangerous waste. • Don't use aerosols that designate as dangerous waste.
Drain vehicle fluids (oil, brake fluid, antifreeze, refrigerant, etc.)	These chemicals can contaminate washwater, sludge, or the ground with hazardous materials.	• Use drip pans under vehicles to collect fluids. • Recycle used oils and other fluids. • Drain radiators before flushing and recycle waste antifreeze. • Remove air conditioning CFC before removing parts from the vehicle or putting the vehicle in the yard storage.
Clean shop floors	Hosing the floors with water or solvent can flush contaminants into the floor drains, contaminating sludges in the system or possibly causing runoff to the ground outside.	• Keep floors clean to avoid the need to wash. • Use dry sweeping compounds. • Reuse sweeping compounds as long as they remain absorbent. • Use dead-end sump to catch and temporarily hold washwater if necessary. • Dispose of washwater as dangerous waste.
Store solvents	Spilled or leaking solvents and their vapors are dangerous and can contaminate bare ground or wastes in the plumbing system.	• Keep containers closed when not in use. • Store solvents in a cabinet just for flammables. • Do not use solvents near drains.
Store waste vehicle fluids in a room with no floor drain	Many materials used in vehicles can be dangerous and can contaminate the ground or wastes in the plumbing system.	• Keep waste containers in a separate, covered storage area with no floor drain. • Use a good secondary containment system or install an adequate curb or berm to contain leaks.
Accidentally spilled material	Many materials used in vehicles can be dangerous and contaminate the ground or wastes in the plumbing system.	• Clean up spills immediately. • Notify the State Emergency Management Division at (800) 258-5990 or nearest Ecology Regional Office if appropriate. • Have the materials needed for spill cleanup on hand and train all employees how to use them properly.

Identifying Wastes

A dangerous waste is a solid, liquid, or gaseous material with certain properties that could cause injury or death to a person, or could damage and pollute land, air, surface water, or groundwater. Some wastes are specifically listed in the dangerous waste regulations as hazardous. Other wastes may be regulated because they exhibit certain characteristics (ignitability, corrosivity, reactivity, toxicity) or because they are waste mixtures, which meet the criteria of toxicity or persistence.

Major Category	Dangerous waste Type	Vehicle Recycler Examples
Listed wastes	Discarded Chemical Products Unused, discarded, pure substances that have only one active ingredient.	• Pesticides • Unrinsed containers • Discarded chemicals may not be generated by vehicle recyclers
	Dangerous Waste Sources Dangerous wastes from specific industry sources (plating), and generic activities (degreasing) and listed in the Dangerous Waste Sources List.	• Chlorinated solvents • Contaminated oil
Characteristic wastes	Ignitable Material capable of causing a fire and has a flashpoint of less than 140 degrees Fahrenheit.	• Spent solvents • Aerosols • Solvent still bottoms
	Corrosive Material is so strong it can dissolve metals and burn skin and eyes. It has a pH of 2 or less or 12.5 or greater.	• Acid from lead-acid batteries • Acids/bases
	Reactive Material will become unstable (burn, explode, give off vapors) if mixed with air, water, heat, or other materials.	• Not typically generated by vehicle recyclers
	Toxic Material is toxic if the waste is tested by a qualified lab using the Toxicity Characteristic Leaching Procedure and generates a positive result.	• Spray cabinet wash water (possible) • Sludges • Heavy metals
State-only criteria wastes	Toxic wastes Contains chemical constituents that are toxic to fish and other animals.	• Waste antifreeze • Oil and transmission fluid • Brake fluid (possible)
	Persistent wastes Chemicals that start with or contain chloro, fluoro, or bromo. Please refer to the list in the *Dangerous Waste Regulations*.	• Solvents with the word "chloro" as part of the main ingredients • Used oil • Metal cutting oil. • Methylene chloride

Determining Generator Status

Most auto recyclers should be small quantity generators if hazardous materials are managed properly.

If you generate…	Then your size is…
220 pounds or less per month (less than ½ of a 55 gallon drum) of dangerous waste or less than 2.2 pounds of acutely or extremely hazardous waste.*	SQG (Small Quantity Generator)
More than 220 pounds but less than 2,200 pounds per month (about ½ to 4 drums) of dangerous waste.	MQG (Medium Quantity Generator)
2200 pounds or more per month (about 4 drums or more) of dangerous waste or 2.2 pounds of acutely or WT01 extremely hazardous waste.	LQG (Large Quantity Generator)

**Extremely hazardous waste and acutely hazardous waste pose a greater threat to the environment and human health than Dangerous waste. Extremely hazardous waste is restricted from land disposal and may (WT01 only) have a Quantity Exclusion Limit (QEL) of 2.2 pounds instead of 220 pounds. Acutely hazardous waste also has a 2.2 pound QEL. Most businesses generate dangerous waste and not extremely hazardous waste, but pesticide applicators and generators discarding products with poison labels should pay special attention to this category.*

Requirements for Small, Medium, and Large Quantity Generators

For All Waste Generators:

- ✓ Clearly label all waste storage containers with the contents of the container, the date the container was first used to store waste, and a label that describes the major risk of the waste. Risk labels should be legible from a distance of 50 feet.
- ✓ Keep lids or bungs in place on all waste storage containers.
- ✓ Use funnels or other device to avoid spills when transferring liquid waste into a waste storage container.
- ✓ Provide adequate secondary containment for all liquid waste storage containers. Adequate secondary containment is either the volume of the largest container or ten percent of all the containers where multiple storage containers are located – *whichever is larger*.
  - Keep the secondary containment clean of debris.
  - Regularly check to see if any of the storage containers are leaking and take immediate action to transfer the contents of any leaking container.
- ✓ Keep all waste storage containers covered from rainfall to prevent contamination of stormwater and to avoid collecting rainwater in the secondary containment system.

Small Quantity Generators (SQG):

- ✓ Identify dangerous wastes and track how much you generate or accumulate each month.
- ✓ Manage your waste in a way that does not pose a threat to human health or the environment.

- ✓ Ensure your wastes are treated, recycled, reused, or disposed of properly.
- ✓ If you have a generator RCRA Site Identification Number, remember to file a Dangerous Waste Annual Report with Ecology by March 1 of each year.
- ✓ Contact your county public health or public works department (depending on area) for dangerous waste assistance.

Regulated generators (MQG or LQG):

- ✓ Identify your dangerous wastes.
- ✓ Obtain a RCRA Site Identification Number.
- ✓ File your annual Dangerous Waste Annual Report with Ecology by March 1 of each year.
- ✓ Properly accumulate dangerous waste and ensure your secondary containment is capable of holding all leaks.
- ✓ Use proper containers and manage them correctly: store ignitable waste using approved containers, keep incompatible wastes separated, use leak-proof and covered containers, inspect containers weekly, maintain 30" of aisle space between container rows, and label clearly.
- ✓ Arrange for proper transportation and disposal:
  - LQGs must ship and dispose of dangerous wastes within 90 days of the start date.
  - MQGs must transport and dispose of dangerous wastes within 180 days of the start date.
  - SQGs have no time limit but may not exceed 2,200 pounds.
- ✓ Manifest shipments of dangerous waste.
- ✓ Keep records of dangerous waste activities: results of laboratory tests, copies of annual reports, manifests, and all records for at least five years.
- ✓ Perform preventive maintenance: maintain an alarm system for emergencies, have a spill cleanup plan, have fire control equipment and cleanup equipment on hand, maintain all emergency equipment, inspect and maintain containers, have a fire inspection once per year.
- ✓ Plan for emergencies: have an emergency coordinator, post emergency information, report spills, and train employees. LQGs must have a written training plan and a written contingency plan.

Plan for Emergencies

- ❑ Designate an emergency coordinator.
  - ✓ At all times there should be at least one employee on the premises or on call, who is responsible for coordinating all emergency response measures. It is also a good idea to have at least one back-up emergency coordinator.

- ❑ Make sure the emergency coordinator is familiar with:
  - ✓ Operations and activities at your site.
  - ✓ Location and hazardous properties of all the wastes that you handle.
  - ✓ Location of all records.
  - ✓ Layout of your facility (inside and outside).
  - ✓ Agreements you have made with state or local authorities and outside emergency response contractors for their assistance.
- ❑ Prepare and post an emergency directory near all phones and intercoms that contains:
  - ✓ The name and telephone number of the emergency coordinator and his or her backups.
  - ✓ A description and the location of emergency equipment, such as fire extinguishers, spill control materials, and alarm system.
  - ✓ The telephone number of the fire department, unless you have a direct alarm.
- ❑ Educate your employees on waste handling and emergency procedures that are relevant to their job responsibilities.
- ❑ If you generate, or accumulate at any time, more than 2,200 pounds of dangerous waste, or 2.2 pounds of certain pesticides or poisons, you must also comply with the following training requirements, prepare a written contingency plan, and develop emergency procedures as outlined below.

Additional Training Requirements for Generators of 2,200 Pounds or More

Include the following in your training program:

- ✓ The capabilities required for, and proper use of, emergency equipment including communication and alarm systems.
- ✓ How to respond to fires, explosions, spills, releases to air, and groundwater contamination incidents.
- ✓ Procedures for using, inspecting, repairing, and replacing your emergency and monitoring equipment.
- ✓ The details of any automatic waste feed cut-off systems.
- ✓ Steps for the shut-down of operations.

Provide annual refresher training for employees. Prepare and follow a written training plan that includes:

- ✓ A listing of the job title, job description, and name of the employee in each position that handles or relates to dangerous waste management in your business.
- ✓ A written description of the type and amount of both introductory and annual refresher training you require for each position.
- ✓ Records documenting that your employees have received and completed required training.

Written Contingency Plan

Your written contingency plan should include:

- ✓ A description of actions employees will take in an emergency.
- ✓ A description of arrangements you have made with local police, fire departments, hospitals, contractors, and state or local emergency response teams and the appropriate telephone numbers.
- ✓ Your emergency directory, with the emergency coordinator and backups clearly identified.
- ✓ A current list and location of emergency equipment on the premises, such as fire extinguishers, spill-control materials, and alarm system.
- ✓ An evacuation plan for your employees that describes evacuation routes, alternate routes, and the signal you will use to begin evacuation.

Required Emergency Procedures

Don't generate more dangerous waste than is absolutely necessary. Businesses that generate less than 220 pounds per month do not have to comply with the emergency planning requirements listed here (although it is a very good idea to use these safety practices anyway).

For generators of less than 2,200 pounds per month

During an emergency, the Emergency Coordinator must:

- ❑ In the event of a fire, call the fire department or attempt to extinguish the fire.
- ❑ In the event of a spill, contain the flow of the spill as much as possible, clean up the waste and any contaminated material, and call the nearest Ecology regional office.
- ❑ If a fire, explosion, or other release could threaten human health or the environment, call your Ecology regional office and the National Response Center 800-424-8802 with the following information:
  - ✓ Your business name, address, and RCRA Site Identification Number.
  - ✓ Date, time, and type of incident.
  - ✓ Amount and type of dangerous waste involved in the incident.
  - ✓ Extent of any injuries.
  - ✓ Estimate the amount of recovered materials and how you have managed these wastes.

For generators of 2,200 pounds or more per month

During an emergency, the Emergency Coordinator must:

- ❑ Activate internal alarms to notify employees.
- ❑ Assess the possible hazards to human health and the environment.

- ❑ Identify the released material's character (example: flammable), exact source, amount released, and the area covered.
- ❑ Call state or local agencies if help is needed.
- ❑ Call local authorities if evacuation of local areas may be advisable.
- ❑ Call the nearest Ecology regional office and the National Response Center 800-424-8802 and give them the following information:
  - ✓ Name and telephone number of the caller.
  - ✓ Name and address of the business or organization.
  - ✓ Time and type of dangerous waste incident.
  - ✓ Name and amount of the material involved.
  - ✓ Extent of any injuries.
  - ✓ Possible hazards to human health or the environment beyond your property.
- ❑ Take steps to control the incident such as stopping equipment, removing or isolating containers, and collecting any released material.
- ❑ If appropriate, monitor leaks, pressure buildup, gas generation, or ruptures while handling the incident.
- ❑ Immediately after the emergency:
  - ✓ Properly manage the recovered waste and contaminated materials (soil, water, rags, clothing).
  - ✓ Make sure that emergency equipment is cleaned and fit for the next use.
  - ✓ Call the nearest Ecology regional office and appropriate local authorities before resuming operations in the affected area of your business.

Spills – Be Prepared

Spill Control Equipment and Preparation

- ✓ Post emergency information near phones with contact numbers and the company address.
- ✓ Train all employees to quickly respond to different kinds of spills.
- ✓ Fire extinguishers are required in all vehicle recycling buildings. They should also be kept where cutting torches are used, yard vehicles, and where you have stored any flammable solvents.
- ✓ Safety equipment for employees should include rubber or latex gloves, safety glasses, and protective footwear.
- ✓ Keep these cleanup items on hand:
  - Industrial spill cleanup products or absorbent material for soaking up oils and solvents such as rags, towels, pads, booms, and organic absorbents (peat, corn cobs, cellulose fiber, sawdust, wood chips, rice and cotton seed hulls, granular clay, and lime for battery acid).
  - Brooms, shovels, and dust pans to pick up cleanup materials.
  - Containers to hold spill waste: drip pans, pails, drums.

Spill Prevention

- ✓ Confine inspection, draining, and dismantling of vehicles to one covered area with secondary containment to avoid stormwater contamination.
- ✓ Check vehicles for leaks immediately upon arrival. Use drip pans for temporary leak collection and remove fluids from vehicles as soon as possible.
- ✓ Dismantle vehicles, parts, and cores on a curbed, impermeable, covered, concrete surface with drip pans and absorbent materials.
- ✓ Plug all hoses after draining.
- ✓ Place all fluids in proper storage containers immediately after draining.
- ✓ Store vehicles, parts, and cores with proper covers and spill containment, and keep hoods over all engine compartments to avoid stormwater contamination.
- ✓ Secondary spill containment must be large enough to contain the maximum volume of fluid that could spill from the largest container in the area or ten percent of all the containers, whichever is greater.
- ✓ Store all waste fluids in closed containers to prevent spills and under cover to prevent stormwater contamination. Close tightly to prevent evaporation, and check levels daily.
- ✓ Inspect containers at least weekly for leaks and immediately transfer the contents of the container if a leak is detected.
- ✓ Develop a maintenance plan for all facility equipment, such as crushers, forklifts, and hydraulic lifts. Keep them well-maintained, free of leaks and problems.
- ✓ Keep the crusher under cover and clean it regularly by wiping off accumulated grease and oil to prevent runoff and avoid contaminating stormwater.
- ✓ Do not crush vehicles on unprotected ground. Crushing on a paved area is best or on an area covered with tarps to collect leaks or spills. Clean up all spills immediately after crushing operation is complete.

Spill Cleanup

- ✓ Clean up spills right away. Use the smallest amount of absorbent possible or drain into a sump.
- ✓ Report petroleum, fuel spills, and any other chemical spill (including lead-acid batteries) to your Ecology Regional Office if they threaten human health or the environment.
- ✓ Dispose of used absorbents properly: launder, or test and properly manage either as solid or dangerous waste (according to test results). Store all used absorbents in closed, covered, and leak-proof containers. Organic absorbents that contain dangerous wastes cannot be recycled or burned on site.
- ✓ Keep spill control equipment and absorbent materials in a central location, accessible to all employees.

Spills and Leaks Reporting

To report a spill or leak call: 1-800-258-5990

Washington Emergency Management Division 24-Hour Spill Number

Report: If	When
Uncontained spills of toxic, flammable, corrosive, and otherwise dangerous chemicals or spills or discharges of environmentally damaging materials to water.	Determine whether human health or the environment is threatened. Clean up the spill if you are equipped to handle it safely. If uncertain, evacuate the area, call 9-1-1, and then request assistance from your nearest Ecology regional office.

If a spill occurs, follow these steps:

1. Observe the safety precautions associated with the material spilled.
2. Stop the source of the spill if possible and safe to do so.
3. Contain the spilled material if safe to do so. Use dirt, sand, or other semi-impermeable material to create a containment structure to prevent material from moving.
4. Call local fire and police departments if there is fire or if human health or the environment are threatened.

Report the spill

Washington Emergency Management Division 24-Hour Spill Number is 1-800-258-5990. Recover the spilled substance while observing safety precautions. You may need to hire professional contractors if large quantities or dangerous substances are involved, or if long-term cleanup and investigation is required.

Ecology 24-Hour Regional Spill Reporting Numbers:

Central Regional Office 509-575-2490 *For Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties*	**Eastern Regional Office 509-329-3400** *For Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties*
Northwest Regional Office 425-649-7000 *For Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties*	**Southwest Regional Office 360-407-6300** *For Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties*

If you are a person with a speech or hearing impairment, call 711, or (800) 833-6388 for TTY.

A detachable emergency contact poster is available in Appendix A that you can fill in with your local information and post near the phone in your shop. Make copies if you have more than one phone. Download and print or request copies of the 8.5x11 poster at #08-04-022 *Dangerous Waste Emergency Information*.

Know Your Facility

Materials stored

Understand the characteristics, behaviors, and safety precautions associated with the material. The Safety Data Sheets (SDS) provided by the manufacturer or supplier should have this information.

Material management

Review how your business stores and handles its chemicals. Inspect the dispensing equipment and containment construction to prevent accidents from happening.

Planning

Does your business have a written Contingency Plan or similar document? If not, perhaps you should draft one to assist employees in planning for a spill.

Exercises

Conduct table-top exercises to see if your business response plan works as planned. Improve and review the response plan with your personnel. Check telephone numbers and ensure the plan contains useful and accurate information.

Spill Prevention: Reporting Requirements

EVERY PERSON who has any hazardous substance or material under their control is required to report spills and discharges. This includes:

- ✓ Individuals, partnerships, companies, corporations.
- ✓ Government subdivisions, including officers of these entities.
- ✓ Owners of substances being stored or transported by another company.
- ✓ Property owners who discover contamination.
- ✓ Contractors that are in physical control of a discharged substance.

See Spill Reporting section above, for more information.

County Contacts for Solid and Dangerous Waste Management

ADAMS	**ASOTIN**
Anthony Dailey Solid Waste Operations Supervisor 210 W Alder Ritzville, WA 99169 Phone: 509-659-3276 Fax: 509-659-3295	Asotin County Public Works PO Box 160 135 2nd Street Asotin WA 99402 Phone: 509-243-2074 Fax: 509-243 2003
BENTON	**CHELAN**
Grant DeJongh, Program Coordinator Benton County Public Works – Solid Waste PO Box 1001 620 Market Street Prosser WA 99350 509-786-5611 (Prosser) 509-736-3084 (Tri-Cities)	316 Washington Street #402 Wenatchee WA 98801 509-667-6415 509-667-6250 lauren.loebsack@co.chelan.wa.us
CLALLAM	**CLARK**
Clallam County Public Works 223 East 4th Street #6 Port Angeles WA 98362 Phone: 360-417-2319 web_road@co.clallam.wa.us	Clark County Public Works PO Box 9810 Vancouver WA 98666 Phone: 360-397-6118 ext. 4944 Email: pubwks.cservice@clark.wa.gov
COLUMBIA	**COWLITZ**
Andrew Woods, PW Director/County Engineer Columbia County Public Works 415 Guernsey (PO Box 5) Dayton WA 99238 Phone: 509-382-2534 andrew_woods@co.columbia.wa.us	Don Olson Cowlitz County Public Works 1600 13th Avenue South Kelso WA 98626 Phone: 360-577-6492 Fax: 360-636-0845 olsond@co.cowlitz.wa.us
DOUGLAS	**FERRY**
Becci Piepel Solid waste 140 19th Street NW #B East Wenatchee WA 98802 Phone: 509-886-0899 Fax: 509-884-5350 bpiepel@co.douglas.wa.us	Kristy Cromwell Ferry County Public Works 350 E Delaware #8 Republic WA 99166 Phone: 509-775-5225 x 2507ll; swcoord@co.ferry.wa.us
FRANKLIN	**GARFIELD**
Sally McKenzie Franklin County Public Works 3416 Stearman Avenue Pasco WA 99301-3776 Phone: 509-545-3551 smckenzie@co.franklin.wa.us	Walter Morgan, Director/County Engineer Garfield County Public Works PO Box160 Pomeroy WA 99347 Phone: 509-843-1301 garfeng@co.garfield.wa.us

GRANT	GRAYS HARBOR
Janice Goeden, Solid Waste Supervisor Grant County Public Works 124 Enterprise Street SE Ephrata WA 98823 Phone: 509-754-6082	Russell Esses, County Engineer 100 West Broadway #31 Montesano WA 98563 Phone: 360-249-4222 Fax: 360-249-2153 Email: pwd@co.grays-harbor.wa
ISLAND	**JEFFERSON**
Joantha Guthrie Solid Waste Manager JoanthaG@co.island.wa.us 360-679-7338 629-4522 x 7338 321-5111 x 7338	Monte Reinders, PW Director/County Engineer Jefferson County Public Works 623 Sheridan Street Port Townsend WA 98368 Phone: 360-385-0404 or 360-385-9160 Fax: 360-379-2752 dbates@co.jefferson.wa.us
KING	**KITSAP**
Hazardous Waste Program King County Water and Land Resources Division 130 Nickerson St #100 Seattle WA 98109-1658 Telephone: 206-263-1650 Fax: 206-282-7281	Kitsap County Public Works 614 Division Street MS-27 Port Orchard WA 98366-4614 Phone: 360-337-5777 Fax: 360-337-4867 Kitsap1@co.kitsap.wa.us
KITTITAS	**KLICKITAT**
Kittitas County Public Works 411 N Ruby St #1 Ellensburg WA 98926 Phone: 509-962-7523 Fax: 509-962-7663 publicworks@co.kittitas.wa.us	Gordon Kelsey, Public Works Director Office: 115 S. Golden St. Mail: 228 W. Main St., MSCH 19 Goldendale, WA 98620 Phone: 509-773-4616 Fax: 509-773-5713
LEWIS	**LINCOLN**
Public Works 2025 NE Kresky Ave Chehalis WA 98532 Phone: 360-740-1123 Fax: 360-740-1479	Rick Becker, Public Works Director Lincoln County Public Works 27234 State Route 25N Davenport WA 99122 Phone: 509-725-7041 Fax: 509-725-4467 rwintersteen@co.lincoln.wa.us
MASON	**PACIFIC**
Public Works 100 W Public Works DR Shelton WA 98584 Shelton: 360-427-9670 x 450 Belfair: 360-275-4467 x 450 Elma: 360-482-5269 x 450	211 North Commercial St Raymond, WA 98577 Phone: 360-875-9368 pw@co.pacific.wa.us

OKANOGAN	**PEND OREILLE**
Okanogan County Public Works 1234A Second Avenue S Okanogan WA 98840 Phone: 509-422-7300 lutt@co.okanogan.wa.us	Pend Oreille County Public Works PO Box 5040/625 W 4th Street Newport WA 99156-5040 Phone: 509-447-4513 scastro@pendoreille.org
PIERCE	**SKAGIT**
Environmental Health Division Tacoma-Pierce County Health Department 3629 S D Street Tacoma WA 98418 Phone: 253-798-7663 HazardousWaste@tpchd.org	Skagit County Public Works 1800 Continental Place Mount Vernon WA 98273 Phone: 360-416-1400 Fax: 360-336-9478 pw@co.skagit.wa.us
SAN JUAN	**SNOHOMISH**
San Juan County Public Works 915 Spring Street (PO Box 729) Friday Harbor WA 98250 Phone: 360-370-0500 Fax: 360-378-6405 pubwks@sanjuanco.com	Snohomish County Solid Waste 3000 Rockefeller Avenue M/S 607 Everett WA 98201 Phone: 425-388-3425 pw.solid.waste@co.snohomish.wa.us
SKAMANIA	**STEVENS**
Skamania County Public Works PO Box 1009 170 NW Vancouver Avenue Stevenson WA 98648 Phone: 509-427-3910	Stevens County Public Works 185 E Hawthorne Avenue Colville WA 99114 Phone: 509-684-4548 Fax: 509-684-7557 publicworks@co.stevens.wa.us
SPOKANE	**WAHKIAKUM**
Spokane County Public Works 1026 W Broadway Avenue Spokane WA 992260 Phone: 509-447-3600	Pete Ringen Wahkiakum County Public Works PO Box 97/ 64 Main Street Cathlamet WA 98612 Phone: 360-795-3301 Fax: 360-795-0342 pedersenp@co.wahkiakum.wa.us
THURSTON	**WHATCOM**
Environmental Health Division 412 Lilly Road NE Olympia WA 98506 Phone: 360-867-2500 Fax: 360-867-2601 allend@co.thurston.wa.us	Whatcom Disposal of Toxics 3505 Airport Drive Bellingham WA 98226 Phone: 360-380-4640 Fax: 360-676-7799 chris.teske@stericycle.com

WALLA WALLA

Walla Walla Waste Management
315 West Main Street
Walla Walla WA 99362
Phone: 509-524-4549
mwarner@wallawallawa.gov

YAKIMA

Yakima County Public Works
2301 Fruitvale Blvd
Yakima WA 98901
Phone: 509-575-6005

WHITMAN

Whitman County Public Works
310 N Main St.
Colfax WA 99111
Phone: 509-397-6206

Other Resources

Automotive Recyclers of Washington Association

Automotive Recyclers of Washington
Gary Smith, Executive Director
16541 Redmond Way #324C
Redmond, WA 98052
Phone: 425-485-3336

ECOSS

Executive Director
Environmental Coalition of South Seattle
605 South Riverside Drive
Seattle WA 98108
Phone: 206-767-0432
www.ecoss.org

ENVIROSTARS Business Recognition Program

Laurel Tomchick or Donna Galstad
King County DNR
130 Nickerson Street #100
Seattle WA 98109
Phone: 206-263-1663/1653
Laurel.tomchick@kingcounty.gov;
Donna.Galstad@kingcounty.gov
www.envirostars.org

You Auto Recycle Project

Jeffrey Gutschmidt
Department of Ecology
Hazardous Waste & Toxics Reduction Program
Northwest Regional Office
3190 160th Ave SE
Bellevue WA 98008
Phone: 425-649-7280
Cell: (425) 691-8298
jgut461@ecy.wa.gov

Subscribe to *Shoptalk*

Free Newsletter (3 issues per year)
Shoptalk is Ecology's free newsletter for dangerous waste managers. To subscribe to this electronic newsletter, go to www.ecy.wa.gov/programs/hwtr/shoptalkonline.

Related Publications

Number	Name	URL
91-12	*Step by Step Fact Sheet for Hazardous Waste Generators (SBS) – Subject Index*	https://fortress.wa.gov/ecy/publications/summarypages/9112.html
91-12a	*SBS – Hazardous Waste: More Common than you Think*	https://fortress.wa.gov/ecy/publications/summarypages/9112a.html
91-12b	*SBS – Hazardous Waste Generator Checklist*	https://fortress.wa.gov/ecy/publications/summarypages/9112b.html
91-12i	*SBS – Step 1: Identify your Waste and Generator Requirements*	https://fortress.wa.gov/ecy/publications/summarypages/9112i.html
91-12j	*SBS – Step 2: Obtain a RCRA Site Identification Number*	https://fortress.wa.gov/ecy/publications/summarypages/9112j.html
91-12k	*SBS – Step 3: Report Annually*	https://fortress.wa.gov/ecy/publications/summarypages/9112k.html
91-12l	*SBS – Step 4: Perform Preventive Maintenance*	https://fortress.wa.gov/ecy/publications/summarypages/9112l.html
91-12m	*SBS – Step 5: Properly Accumulate Hazardous Waste*	https://fortress.wa.gov/ecy/publications/summarypages/9112m.html
91-12n	*SBS – Step 6: Plan for Emergencies*	https://fortress.wa.gov/ecy/publications/summarypages/9112n.html
91-12o	*SBS – Step 7: Use Proper Containers and Manage them Correctly*	https://fortress.wa.gov/ecy/publications/summarypages/9112o.html
91-12p	*SBS – Step 8: Arrange for Proper Transportation and Disposal*	https://fortress.wa.gov/ecy/publications/summarypages/9112p.html
91-12q	*SBS – Step 9: Manifest Shipments of Hazardous Waste*	https://fortress.wa.gov/ecy/publications/summarypages/9112q.html
91-12r	*SBS – Step 10: Keep Records of Hazardous Waste Activity*	https://fortress.wa.gov/ecy/publications/summarypages/9112r.html
92-BR-16	*A Guide for Auto Body Shops*	https://fortress.wa.gov/ecy/publications/summarypages/92br16.html
92-91	*Dangerous Waste Regulations Chapter 173-303 WAC*	https://fortress.wa.gov/ecy/publications/summarypages/9291.html
94-117	*Focus on Floor Drains and Generator Liability*	https://fortress.wa.gov/ecy/publications/summarypages/94117.html
94-146	*Vehicle Recyclers: A Guide for Implementing NPDES Permit Requirements.*	https://fortress.wa.gov/ecy/publications/summarypages/94146.html
96-416	*Usted Debe Reciclar (Manual De Reciclar Automoviles)*	https://fortress.wa.gov/ecy/publications/SummaryPages/98416ES.html
96-431	*Safe Handling of Empty Containers*	https://fortress.wa.gov/ecy/publications/SummaryPages/96431.html
96-433	*Dust Control Methods*	https://fortress.wa.gov/ecy/publications/SummaryPages/96433.html
94-436	*Designating Dangerous Waste*	https://fortress.wa.gov/ecy/publications/SummaryPages/96436.html

Number	Name	URL
97-1165 CP	*Emergency Spill Response in Washington State*	https://fortress.wa.gov/ecy/publications/SummaryPages/971165cp.html
98-1252	*A Guide for Dangerous Waste Generators*	https://fortress.wa.gov/ecy/publications/SummaryPages/981252hwtr.html
00-04-022	*Choosing An Analytical Laboratory for Dangerous Waste Testing*	https://fortress.wa.gov/ecy/publications/SummaryPages/0004022.html
02-04-006	*Used Oil Facts*	https://fortress.wa.gov/ecy/publications/summarypages/0204006.html
03-04-017	*Focus on Spent Antifreeze*	https://fortress.wa.gov/ecy/publications/SummaryPages/0304017.html
06-04-034	*Best Management Practices for Used Oil, Generators #2*	https://fortress.wa.gov/ecy/publications/SummaryPages/0604034.html
07-04-005	*Focus on Aerosol Can Management*	https://fortress.wa.gov/ecy/publications/SummaryPages/0704005.html
08-04-022	*Dangerous Waste Emergency Information*	https://fortress.wa.gov/ecy/publications/SummaryPages/0804022.html
08-10-025	*Suggested Practices to Reduce Zinc Concentrations in Industrial Stormwater Discharges*	https://fortress.wa.gov/ecy/publications/summarypages/0810025.html
09-04-015	*Shop Guide for Dangerous Waste Management*	https://fortress.wa.gov/ecy/publications/SummaryPages/0904015.html
09-04-015ES	*Guía para Talleres Manejo de Desechos Peligrosos*	https://fortress.wa.gov/ecy/publications/SummaryPages/0904015ES.html
16-04-013	*Mercury in non-Automotive Switches*	https://fortress.wa.gov/ecy/publications/SummaryPages/1604013.html
16-04-028	*Designation Checklist*	https://fortress.wa.gov/ecy/publications/SummaryPages/1604028.html
13-10-021	*Focus on Conditional "No Exposure"*	https://fortress.wa.gov/ecy/publications/SummaryPages/1310021.html
F-SHW-92-116	*Focus on Used Shop Towels*	https://fortress.wa.gov/ecy/publications/SummaryPages/fshw92116.html
WQ-R-019	*Wastewater Discharge Permits in Washington State*	https://fortress.wa.gov/ecy/publications/SummaryPages/wqr019.html
95-056	*Vehicle and Equipment Washwater Discharges - Best Management Practices Manual*	https://fortress.wa.gov/ecy/publications/SummaryPages/95056.html
ECY 040-145	*Waste Tire Storage Site Checklist for Review of Solid Waste Permit Application*	https://fortress.wa.gov/ecy/publications/summarypages/ecy040145.html
040-152	*Solid Waste Permit Application*	https://fortress.wa.gov/ecy/publications/SummaryPages/ecy040152.html

Call the program publication coordinator at 360-407-6745 for assistance or visit Ecology's website at www.ecy.wa.gov/pubs.shtmhttps://fortress.wa.gov/ecy/publications/UIPages/Home.aspx for downloadable versions of these and other publications.

Document Hyperlinks

Title	URL
EPA's Report on the Environment	https://cfpub.epa.gov/roe/indicator.cfm?i=54
Automotive Mercury Switch Removal Program	http://www.ecy.wa.gov/programs/hwtr/business_type/mercury_auto_switch_program.html
Automotive Recycling Industry	http://www.autoalliance.org
Clean Washington Center – Glass Recycling	http://www.cwc.org/glass.htm
Focus on: Conditional No Exposure	https://fortress.wa.gov/ecy/publications/SummaryPages/1310021.html
Dangerous Waste Annual Report	http://www.ecy.wa.gov/programs/hwtr/waste-report/index.html
Dangerous Waste Regulations, Chapter 173-303 WAC	http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303
Dangerous Waste Sources List	http://apps.leg.wa.gov/wac/default.aspx?cite=173-303-9904
Ecology Regional Offices	http://www.ecy.wa.gov/programs/hwtr/contacts.html
Environmental Leader: How to Increase Automotive Plastics Recycling	http://www.environmentalleader.com/2016/04/28/how-to-increase-automotive-plastics-recycling/
Find Safer Alternatives	http://www.ecy.wa.gov/programs/hwtr/P2/SaferAlts.html
Conditional No Exposure Certificate	http://www.ecy.wa.gov/programs/wq/stormwater/industrial/permitteehelp.html
General Industrial Stormwater Permit	http://www.ecy.wa.gov/programs/wq/stormwater/industrial/permitteehelp.html
Jeffrey Gutschmidt at Ecology	mailto:jgut461@ecy.wa.gov
RCRA Identification Number Notification of Dangerous Waste Activities	http://www.ecy.wa.gov/programs/hwtr/waste-report/notification.html
Rules for Used Oil Generators	http://www.ecy.wa.gov/programs/hwtr/dangermat/oil_generator_rules.html
Current Industrial Reports from the U.S. Census Bureau	http://www.census.gov/manufacturing/cir/historical_data/ma333m/index.html

Appendix A

Auto Wrecking Checklist[7]

☑	Best Management Practice	Notes
Initial Fluid Removal		
	Inspect vehicles for fluid leaks and cracked batteries as they arrive.	
	Remove all fluids from vehicles before storage in the main yard, on a concrete pad, and under cover.	
	Drain fuel and store safely in appropriate containers labeled "fuel for reuse."	
	Drain engine oil, transmission fluid, crankcase/engine oil, and oil filters into tanks or containers and label as "used oil."	
	Drain brake fluid into a container or tank and label as "spent brake fluid." Assess if contaminated and if so, manage as hazardous waste. If uncontaminated, recycle with used oil.	
	Drain antifreeze into a tank or container and label as "spent antifreeze." Recycle.	
	Drain windshield washer fluid for reuse or disposal.	
	Use EPA-certified technician to remove Freon or other refrigerants for processing by a certified recycler.	
Operations and Maintenance		
	Launder and reuse shop rags. Dispose of as hazardous waste, or as a solid waste if not washed and reused.	
	Remove batteries. Store inside on a pallet or outside in a leak proof covered container pending offsite recycling.	
	Puncture and drain oil filters. Recycle used oil and metal casings.	
	Recycle or reuse fluids used to wash/clean parts where practical. Dispose as hazardous waste parts cleaners, brake cleaners and other solvents that contain chlorinated compounds.	
	Regularly inspect and maintain all facility equipment. Repair or replace all corroded or malfunctioning equipment.	

[7] Adapted from the "Checklist of Best Management Practices: Auto Wreckers," Oregon Department of Environmental Quality, 3/2015.

☑	Best Management Practice	Notes
	Recycle batteries, battery cables, tire weights, radiator cores, and other parts that might contain lead, or manage/dispose of them as hazardous waste.	
Best Management Practice		
	Recycle mercury switches, thermostats, and fluorescent bulbs or tubes.	
	Air bags: Sell or dispose of as hazardous waste.	
	Reuse or recycle used tires or dispose of them through an authorized waste tire carrier. If more than 1500 waste tires are stored on site, obtain a DEQ storage permit.	
	Puncture and recycle empty aerosol cans as scrap metal. Capture and manage residues.	
	Determine whether fluids and solids from containers are hazardous or solid waste and dispose properly. Recycle empty metal containers, cylinders, and tanks as metal scrap.	
	Label all fluid, waste, and parts containers. Keep closed and store away from traffic areas, preferably under cover.	
	Store used fluorescent tubes or bulbs in closed containers labeled as "universal waste," before recycling. If not recycled, then dispose of as hazardous waste.	
	Regularly inspect tanks, drums, and containers for leaks, spills, deterioration, or structural damage. Repair or replace if damaged.	
General Sitewide Recommendations		
	Write a plan for emergencies. Develop clean-up procedures for any spills or leaks. Post emergency contacts with phone numbers.	
	Have spill cleanup equipment at locations where spills may occur. Clean up spills immediately, and dispose of wastes properly.	
	Provide annual training on pollution prevention to all employees.	
	Review site stormwater pollution control plan annually, and modify as needed.	

Appendix B

DANGEROUS WASTE EMERGENCY INFORMATION

Emergency Coordinator	Name: _____ Phone: _____	Map of facility with emergency equipment, exit routes, and alarm locations:
Alternate:	Name: _____ Phone: _____	
Fire Department:	Phone: _____	
Hospital:	Phone: _____	
Police:	Phone: _____	

Fire alarm is located: _____

Spill-control equipment is located: _____

_____

Fire extinguishers are located: _____

_____

_____

N

IN CASE OF A SPILL OR OTHER CHEMICAL EMERGENCY, ALSO CALL:

- **NATIONAL RESPONSE CENTER: 1-800-424-8802**
- **WASHINGTON EMERGENCY MANAGEMENT DIVISION: 1-800-258-5990 OR 1-800-OILS-911**
- **DEPARTMENT OF ECOLOGY REGIONAL OFFICE** _____

For Technical Assistance, call your Ecology Regional Office or go to www.ecy.wa.gov/programs/hwtr .

DEPARTMENT OF ECOLOGY State of Washington

Ecology Publication Number 08-04-022

If you have special accomodation needs that require this in an alternative format, please call 360-407-6700 or 360-407-6006 (TDD).