POLLUTION PREVENTION PRACTICES FOR AUTOMOTIVE FACILITIES

Purpose

Auto and heavy equipment shops can generate wastes that can be hazardous and damaging to the environment if not managed appropriately. Proper disposal and management practices can save on significant costs to the business and prevent damaging effects on the environment. Pollution prevention practices, also known as best management practices, focus on the reduction/elimination of pollutants or wastes at the source. All waste represents loss of resources. The most effective way to minimize these losses is to avoid producing the waste in the first place.

By following the described practices, you will minimize the generation of waste, reduce your losses by spending less money on waste storage and disposal fees, and most importantly, create a healthy and clean environment for everyone!

Consider promoting your shop in an "environmentally friendly" manner by becoming a certified *Green Business* (see phone list), which may attract new customers and be a useful marketing tool.

POLLUTION PREVENTION PRACTICES

Sealing Floor Drains

- Seal all floor drains in service and storage areas to prevent contaminated wastewater from discharging to the sanitary sewer. Make sure to check with your landlord and local fire and building departments prior to sealing the drain. If there is a problem meeting this Permit requirement, contact your EBMUD wastewater control representative at (510) 287-1651.
- Ensure that employees ***do not*** pour automotive fluids down sinks, toilets, or floor drains.

Post a Sign

- Post the EBMUD ***Discharge Prohibition*** sign in a high-profile area to remind employees and to inform customers/others of the discharge prohibition.
- Additional copies are available to download and upon request at (510) 287-1651 https://www.ebmud.com/wastewater/commercial-waste/commercial-pollution-prevention

Hand Car Washing (only when applicable)

The discharge of wastewater generated from hand car washing to the sanitary sewer is allowed only if the following conditions are met:

- No material containing petroleum distillates (those with aliphatic or aromatic hydrocarbons) and any vehicle transport coating material is contained in the wastewater.
- Hand car washing is allowed only in a "dedicated" vehicle wash area, where the floor drain is plugged after vehicle washing is complete.

  A "dedicated" vehicle wash area is defined as a physically separate area (i.e., distance, physical barrier) from the service and storage areas, where automotive fluids and auto body repair materials are handled.

ADDITIONAL POLLUTION PREVENTION PRACTICES

A Successful Program Begins at the Top

- Make a commitment to pollution prevention. This commitment must start with the facility manager's support and extend to every employee.
- Provide training in waste reduction techniques and practices. Training records should be kept ensuring employees are periodically reviewing the materials.
- Encourage employees to develop new pollution prevention ideas and practices through participation in workshops, trade association meetings, and seminars. Trade association publications can be valuable sources of information.
- Encourage employees to work with customers on using environmentally friendly products.
- Recommend replacement and recycling of mercury light switches during routine vehicle servicing.

Operate a "Dry Shop"

Prevent Leaks and Spills:

- Keep your shop clean and orderly to prevent accidents and spills.
- Maintain your shop equipment and promptly repair hydraulic leaks.
- Use spigots, pumps and funnels when dispensing and transferring materials to reduce the possibility of spills.
- Drain all fluids from wrecked vehicles upon arrival. Some local agencies require that wrecked vehicles be drained within 24 hours of arrival. Also drain engines, transmissions and other used parts kept for rebuilding. Promptly transfer all collected fluids to the waste storage area.
- Have a drip pan in place prior to pulling drain plugs. Keep a drip pan under vehicles when detaching hoses, unscrewing filters, or removing parts that may leak materials. Always use a drip pan to catch leaks while working on a vehicle. Dissimilar fluids may be recycled. Please contact your local recycler for specific requirements.
- Promptly transfer used fluids to a container for recycling. Don't leave drip pans or open containers in areas where they are susceptible to being bumped and spilled.

Good Housekeeping Practices:

- Store liquid containers that are outdoors on a covered, paved, impermeable surface, within a secondary containment. Cover the area to prevent discharging hazardous waste to the storm drain during storm water runoff.
- Make sure container lids are tight fitting and in place whenever you are not using the product to prevent loss of chemicals through evaporation or spillage. Keeping lids on containers also prevents contamination with water, dirt, or other materials.
- Store products in locations that will preserve their shelf life. For example, store solvents in locations protected from temperature extremes.

- Never mix different types of waste together. Mixing wastes may make recycling impossible or make waste disposal much more expensive.
- Accumulate wastes indoors or in a covered area to prevent moisture from seeping in.
- Keep waste streams separated. Waste stream separation is one of the simplest techniques to minimize wastes, reduce disposal costs, and allow for easier recycling. For example:
  - Separate used solvents from used oil. Used oil can be recycled and therefore will not require costly disposal if there are no added solvents.
  - Separate used chlorinated solvents such as 1, 1, 1-trichloroethane and methylene chloride from non-chlorinated solvents.
  - Use different funnels for used oil and solvents to reduce potential for contamination.

Spills

- Have a written spill procedure posted in areas where spills may occur. Train your employees on how to respond to a spill.
- Small spills may be cleaned up with rags. Absorbent may be used; however, used absorbent may be considered a hazardous waste (check with your local hazardous materials management agency).
- Consider using a wet/dry shop vacuum cleaner to collect spills. Do not use vacuums for gasoline, solvents, or other volatile fluids due to the explosive and hazardous nature of the material.
- Use a special hydrophobic mop or a squeegee to clean up the spill. Dispose of the "absorbed" waste in the appropriate waste container.
- For spills that leave your facility, refer to your hazardous materials response plan, filed with your fire department or other hazardous materials ("Haz-Mat") authority that describes how to prepare for and respond to larger spills.

Cleaning the Floor in the Service Area

- A "sealed" concrete floor or a floor with an oil-resistant coating is easier to clean and maintain.
- Use dry cleanup practices such as rags or other absorbent materials whenever possible for routine clean up. (Contaminated rags or absorbent must be handled appropriately. See ***Spills*** and ***Handling Contaminated Rags*** sections).
- When the floor requires a thorough cleaning, preclean heavily soiled areas prior to maintenance mopping.

Handling Contaminated Rags

- Do not launder rags used for cleanup and/or spills of contaminated waste. Store soiled rags in a closed container in accordance with local fire codes.
- Use a laundry service permitted to handle the contaminated rags. Make sure to inform the launderer of the rags' usage.

Removing and Storing Batteries

- Store batteries, new and used, either on an open rack (so that you can tell immediately if any are cracked and leaking) or within a secondary containment (as required by your local codes).

Special Concerns for Auto Body Repair Shops, Refinishers, and Detailers

- Mix only the amount of paint needed for the job to minimize waste. In addition, reduce waste by using low-volume paint-mixing equipment and high-efficiency painting tools.
- Clean spray guns in a self-contained cleaner. Recycle the cleaning solution when it becomes too dirty to use. Do not discharge spent cleaning solutions to the sanitary sewer.
- If you spray down your paint booth to control dust, the wastewater generated ***cannot be*** discharged to the sanitary sewer. Only use the amount of water that can be evaporated and not cause a disposal problem.
- Do not use water to hose-off degreasers. Brush off loose debris and use rags to wipe down parts.

Planning Upgrades or Building a New Auto Body Shop

- Install permanent shop vacuum lines and invest in sanding equipment that vacuums dust at the same time.
- Invest in low-volume paint mixing and high efficiency painting equipment to reduce waste.
- Consider switching to water-based brakes cleaning and water-based parts cleaning technology (see ***Water-Based Cleaning Products, Water-Based Brake Cleaning Equipmen****t, and* ***Water-Based Parts Cleaning Equipment*** sections below*).*

Parts Cleaning

Auto repair shops typically use solvents in a variety of operations, including parts cleaning, degreasing, and painting. Many of the spent solvents are classified as hazardous waste and may require expensive treatment and/or disposal. Several pollution prevention strategies can be used to reduce the toxicity and the quantity of spent solvents requiring disposal:

- Minimize the use of liquid cleaners for automotive parts whenever possible. Preclean parts with a scraper or wire brush prior to liquid cleaning to prolong the life of the cleaning solutions.
- Minimize drips and spills by placing parts to be cleaned in a drip pan during their transfer to the parts-cleaning equipment.
- Perform all parts cleaning at a centralized station, so the solvents and residues stay in one area. Place parts-cleaning equipment in a convenient location near the service bays to reduce drips and spills while moving parts. Always Minimize/eliminate spills and drips of solvents and cleaners onto the shop floor.
- Install drip trays or racks near solvent sinks, hot tanks, and spray washers, to drain cleaned parts. Collect drainage and return it to the parts-cleaning equipment.

- Increase freeboard to prevent evaporation of solvent from parts washers. By placing hoods on all parts and carburetor cleaning processes, solvent evaporation can be controlled and mitigated.
- Use self-contained solvent sinks to cycle the liquid directly back into a storage drum.
- Use "closed-loop" services to pick up spent solvent and supply fresh solvent.
- Consider using "enclosed" parts washers that use filters to remove contaminants, which will allow the washing fluid to be reused. Periodic removal of a small amount of oily residue or sludge from the machine may be needed (this residue may be a hazardous waste). ***Do not*** discharge spent solutions or rinses to the sanitary sewer.

Please also review the California Department of Toxic Substances Control vehicle service and repair fact sheets at https://dtsc.ca.gov/dtsc-website-archive/vehicle-service-and-repair-vsr/

WATER-BASED CLEANING PRODUCTS

Consider substituting water-based parts cleaners or water-soluble cutting fluids for solvent cleaners. Water-based parts cleaners come in liquid or powder form and if used properly, are safer for workers, the community, and the environment. Some water-based parts cleaners may be hazardous for workers due to high or low pH, or because they contain solvent additives. Effective water-based cleaners are available without solvent additives and should be chosen over the solvent-based counterpart. Choose cleaners with surfactants that cause oil to float to the top of the cleaning bath. The oil can then be physically removed with absorbents, rags, filters, or skimmers. Spent water-based parts cleaners can still be hazardous and ***cannot*** be poured into the sanitary sewer or the storm drain.

Note: Be aware that the rinse water from these cleaners may have to be handled as a hazardous waste. Please read the MSDS that came with your cleaners carefully for proper disposal. Safety equipment including gloves and eye protection should be used with all parts cleaning operations. Below are four general characteristics of water-based cleaning products:

- Acid, Alkaline or Neutral: Solutions that are acidic (pH significantly below 7) or alkaline (pH significantly above 7) can damage workers' skin and should only be used in equipment that does not require skin contact. Always try to use neutral solutions wherever there is a chance of skin contact with the solution.
- Solvent Additives: Some cleaners contain solvents such as glycol ethers, alcohols, or terpenes. Choose water-based cleaners without solvent additives whenever possible. Depending on concentration and exposure, solvent additives can be hazardous for workers through inhalation and/or skin contact.
- Emulsifying vs. Rejecting: Oil rejecting cleaners contain surfactants that cause oil to float to the top of the cleaning bath when the bath sits for a period of time. Absorbents, rags, filters, or skimmers can then be used to physically remove the oil, lengthening the time the cleaners can be used. Depending on the oil loading, oil-rejecting cleaners may have a bath life of several months. Emulsifiers, on the other hand, help to mix oil and water. Cleaners that emulsify oil become spent much more quickly and should be avoided, except when using an enzyme parts cleaning system.

- Enzyme Cleaning Formulations: Enzyme cleaning systems depend on microbes to break down oil. The design of these cleaning systems along with the neutral solutions must support the growth of the microbes. The formulations emulsify to keep the oil in the water as food for the microbes.

Workers should never use aerosol brake cleaners, engine degreasers or other solvent based products near or in a water-based brake cleaning unit because the mixed contents may have to be shipped off-site as a federal hazardous waste.

WATER-BASED PARTS CLEANING EQUIPMENT

Many types of cleaning equipment are available for use with water-based parts cleaners. All use energy to heat the solution and the five major equipment types are described below:

- Sink-On-A-Drum: This is a sink mounted on a drum of water-based cleaner equipped with a faucet, a drain, and a flow brush for cleaning parts. Many units have filters for removing particulates and oil; some include oil skimmers. To protect workers' hands, use product formulations with neutral pH (see the previous section on Water-Based Parts Cleaning Products).
- Enzyme Cleaning System: These units are generally sink-on-a-drum systems that use a neutral, emulsifying cleaning formulation. The introduction of microbes into the solution/filter in these units will biodegrade oil. Because the bath cleans itself, these systems can last for months/years without requiring change out.
- Immersion Parts Washer: This type of washer consists of a sink with a bottom that can be removed or opened to soak parts in a reservoir below. As with a sink-on-a-drum, there can be faucet and a flow brush for hand-detailing the parts.
- Spray Cabinet: Parts are placed inside the unit behind latched doors. High-pressure spray from nozzles flushes the parts and cleans them like a dishwasher. Since they are automated, spray cabinets reduce labor costs.
- Ultrasonic System: Relying on sound energy to accomplish cleaning, these systems use energy to create bubbles that explode in crevices and holes to clean the parts (most appropriate for cleaning complex parts like carburetors and transmissions). Higher pH cleaners can be used since workers' hands do not contact the cleaner. Like spray cabinets, these automated systems reduce labor costs.

Guidelines for Selecting Water-Based Cleaning Equipment:

Equipment Type	Product Formulation Options	Hand Scrub or Automated	Considerations	Applications	Equipment Cost
Sink-on-a-Drum	Neutral	Hand scrub	Low equipment cost	Replaces single solvent sink	$500-$1,500
Enzyme System	Neutral	Hand scrub	Extends bath life. Minimizes waste generation	Replaces single solvent sink.	$1,000-$1,500
Immersion Parts Washer	Neutral	Hand scrub	Parts can be soaked	For parts that need soaking	$800-$1,700
Spray Cabinet	Neutral or alkaline	Automated	Low labor cost 220 volts required	One unit can replace several solvent sinks. Aggressive cleaning.	$2000-$6000
Ultrasonic System	Neutral or alkaline	Automated	Low labor cost	Aggressive cleaning for intricate parts, e.g., fuel injectors, transmissions, carburetors	$3000-$12,000

Source: "Switching to Water-Based Solutions for Parts Cleaning." Bay Area Pollution Prevention Group.

Please also visit http://www.epa.gov/region09/cross_pr/p2/autofleet/fleetclean.pdf for additional details on how to choose the best equipment for your facility.

WATER-BASED BRAKE CLEANING EQUIPMENT

Since 1998, the California Air Resources Board (CARB) has regulated aerosol brake cleaners based on perchloroethylene (PERC). PERC is a suspect carcinogen and classified as a toxic air contaminant in California. Many aerosol brake cleaners are based on PERC and expose workers to this suspect carcinogen and toxic air contaminant. Water-based brake cleaners are the preferred alternative to all aerosol brake cleaners. Many different brake-cleaning units are available, and the five major types are described below:

- Sink-On-A-Drum: Like the sink-on-a-drum unit for parts cleaning, this sink mounted on a drum unit also contains a faucet and flow brush for cleaning brakes. Formulations fused with this unit must be neutral pH cleaners because of worker contact with the solution. Some of the sink-on-a-drum units are small with a drum liquid capacity of 30 gallons or less and some

are mounted on wheels. The smaller mobile units can be used for brake cleaning as well as parts cleaning.

- Heated Brake Cleaning Unit: This unit is very similar to a sink-on-a drum parts cleaner but is smaller in size. The sink is mounted on a drum and includes a drain, a faucet, and a brush. The liquid capacity of the drum is smaller than that of a parts cleaner, at about 15 gallons. The heated brake cleaner is mounted on wheels for ease of maneuvering under cars during brake servicing.
- Unheated Cleaning Unit: Although water-based cleaners are more effective if they are heated, the brake cleaning application is not demanding, and a heater is not necessary. This unit is very similar to the heated brake-cleaning unit described above.
- Birdbath Brake Cleaning Unit: This unit is made of metal without a heater. It contains a reservoir on the bottom that holds about eight gallons of liquid and is commonly filled with about five gallons of water-based brake cleaner. A metal sink is mounted on a thin metal tube, which can be adjusted in height. The sink can be raised several feet to lie directly under a car elevated for brake service.
- Stand Mounted Unit: these units are batch loaded cold cleaners, which contain a brush and do not have a heater. The liquid capacity of the unit is about five gallons and is commonly filled with about two gallons of water-based brake cleaner. These units can be placed on a wheeled stand to move around the shop as required.

The key to Pollution Prevention is for everyone at your shop to know what causes water pollution. Make the "Pollution Prevention Practices" part of your daily operating procedures!

COMMON AUTO FACILITY WASTES

		Recommended Storage	Preferred Disposal	Hazardous Waste?
Liquids	Waste Oil	Drum (segregate)	Oil Recycler	Special *
	Transmission Fluid	Drum (segregate)	Oil Recycler	Special *
	Gear Oil	Drum (segregate)	Oil Recycler	Special *
	Solvents (solvent sink)	Solvent Sink	Solvent recycler	Special *
	Solvents, Thinners, & Misc. Fluids	Tank (segregate)	Fluids recycler (where possible) or waste hauler	Possibly
	Brake Fluid	Drum or Tank	Hazardous waste hauler	Yes
	Antifreeze	Drum or Tank (segregate)	Recycler	Special *
	Paints	Original container, w/lid	Hazardous waste hauler	Yes
Solids	Used parts; clean metal scrap	Bin (covered or indoors)	Scrap collector	No
	Used oil parts, fuel filters, etc.	Drum	Hazardous waste hauler	Yes
	Metal Shavings	Bin (covered or indoors)	Scrap Collector	No
	Tires	Covered or indoors	Tire hauler	No
	Batteries	Open rack	Battery supplier	Special *
	Oil Filters	Drum (drain first)	Oil recycler	Special *
	Used Rags	Rag bin with lid	Rag laundry	Possibly
	Empty cans, bottles, aerosol cans, etc.	Drum	Mun. trash/haz. Waste hauler	Possibly
	Soiled cleanup absorbent	Drum	Mun. trash/haz. Waste hauler	Possibly

* Recyclable under special hazardous waste restrictions.

* Numbers last verified 2019

	*EMERGENCY PHONE #	*FAX #
HAZARDOUS MATERIALS		
Alameda Co. Env. Health Services, Haz Waste	510-670-6460	
Berkeley	510-981-7460	
Contra Costa County	925-646-2286	925-646-2073
URBAN RUNOFF CLEAN WATER PROGRAMS		
Alameda County Countywide CWP	510-670-5543	
Contra Costa County CWP	925-313-2360	(925) 313-2333
Alameda	510-749-5857	510-748-4697
Albany	510-528-5771	510-528-5774
Berkeley	510-981-7466	510-981-7470
Emeryville	510-596-3728	510-596-4389
Oakland	510-238-6600	510-238-7286
Piedmont	510-420-3050	510-658-3167
CITY PUBLIC WORKS		
Alameda	510-749-5840	510-749-9170
Albany	510-524-9543	510-524-9722
Berkeley	510-981-6300	510-981-6320
Emeryville	510-596-4330	510-658-8095
Oakland	510-238-3961	510-238-2233
Richmond	510-620-6538	
CITY FIRE/POLICE DEPARTMENTS		
Alameda Fire/Police	337-2100/337-8340	510-523-5322
Albany Fire/Police	528-5771/525-7300	528-5774/525-1360
Berkeley Fire/Police	981-3473/981-5900	981-5579/981-5704
El Cerrito Fire/Police	215-4400/237-3233	
Emeryville Fire/Police	596-3750/596-3700	
Oakland Police/Fire	238-4000/777-3333	
Piedmont Fire/Police	420-3030/420-3000	
Richmond	510-233-1214	
Regional Water Quality Control Board		
Emergency Response	(800) 852-7550	
LAW ENFORCEMENT AGENCIES		
Oakland Police – non-emergency	510-777-333	
Alameda County District Attorney	510-272-6222	510-271-5157
EPA Office of Criminal Investigations	415-947-8713	415-947-3553
OTHER		
East Bay Municipal Utility District	**510-287-1651**	**510-287-0621**
Bay Area Air Quality Management District	415-771-6000	415-928-8560
Department of Toxic Substance Control	510-540-2122	510-540-3738
Department of Fish and Game	916-445-9338	916-324-8829
East Bay Regional Park District	510-635-0135	510-569-4319
Bay Area Storm Water Information	1-888-BAY-WISE	
City of Oakland Environmental Hotline	510-238-7630	
Alameda County Hazardous Waste Disposal	1(800) 606-6606	
Contra Costa County Hazardous Waste Disposal	1(800) 646-1431	
Alameda County Green Business Program	510-567-6770	
Contra Costa County Green Business Program	925-646-2286	