

Automotive Service – Body Repair



Photo Credit: Geoff Brosseau

Description

This category includes facilities that conduct auto body repair and painting. Information specific to: auto dismantling, maintenance, and service stations is provided in other guide sheets.

Pollutant Sources

The following are sources of pollutants:

- Wet and dry sanding
- Painting
- Washing cars and other vehicles
- Cleaning floors
- Auto body repair products

Pollutants can include:

- Heavy metals (copper, lead, nickel, and especially zinc)
- Hydrocarbons (oil and grease, PAHs)
- Toxic chemicals (solvents, chlorinated compounds)
- Paints

Approach

Minimize exposure of rain and runoff to auto body repair and painting areas by using cover and containment. In and around these areas, use good housekeeping to minimize the generation of pollutants. Make stormwater pollution prevention BMPs a part of standard operating procedures and the employee training



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program. Provide employee education materials in the first language of employees, as necessary.

Auto body repair products, such as body filler, primers, paints, and sandpaper often contain significant amounts of zinc. The original paint on a customer's car may also contain high concentrations of zinc. The following practices should help reduce or eliminate the amount of zinc and other pollutants in wastewater discharges.

Source Control BMPs

The best management practices are listed by activity or area.

Sanding

Dry Sanding

- Conduct all sanding indoors.
- Sweep, vacuum, or use other dry cleanup methods routinely to pick up dust from dry sanding of primer, metal, or body filler. Make extra efforts to thoroughly sweep or vacuum dust prior to mopping.
- Use vacuum sanding equipment whenever possible in order to reduce the amount of airborne dust.

Wet Sanding

- Conduct all sanding indoors.
- Do not wet sand in a wash rack or in an area with a floor drain.
- If possible, reduce or eliminate need for a sanding bucket:
 - Use dent repair tools whenever practical for small dents.
 - Use vacuum sanding equipment whenever practical (for larger panels) in order to minimize the amount of wastewater.
 - Use spray bottle to squirt water onto the panel being sanded. This eliminates sanding bucket wastewater and also minimizes drips and spills.
- Place a pan under the car panel being sanded to catch drips. Pour the collected water back into the wet sanding bucket.
- Clean up drips with a rag, or let the drips dry and then sweep or vacuum up the dust.

Options for Handling a Wet Sanding Bucket

In addition to the potential for wet sanding to cause stormwater pollution, emptying the wet sanding bucket directly into a sink or other sanitary sewer drain is one of the primary causes of body shop wastewater discharge permit violations. Therefore, shops should seriously consider reducing or eliminating the need for a wet sanding bucket. However, if a sanding bucket must be used, there are three options for disposal of the contents:

Option # 1: Settling

Up to 80 percent of the zinc in the sanding bucket would settle out if the bucket is simply left to stand undisturbed for 24 - 48 hours. This is the simplest and least costly method of achieving significant zinc reductions – assuming the shop has space for the buckets to be put aside during the workday. Sanding bucket wastewater may also be poured into a settling unit (see next section) prior to discharge to a sump or to the sanitary sewer.

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Step 1: Remove sponge and sandpaper from water. Wring out the sponge over the bucket.

Step 2: Settle out zinc particles in one of two ways:

- a) Allow the wet sanding bucket to stand at least overnight – preferably longer – in a place where it will not be disturbed.

or

- b) Pour contents of the wet sanding bucket into a settling unit.

Devise a system to let shop employees know how long the bucket has been settling, and that it is not to be disturbed.

Step 3: Separate water from sludge:

Carefully bail the clear water from the top of the bucket, or remove the clear water from the settling unit after it has been allowed to sit at least overnight. Avoid any agitation of sludge on the bottom. The clear water on top may be discharged to the sanitary sewer through a drain or permitted treatment system (such a sump or oil/water separator).

Step 4: Dispose of sludge:

Dispose of non-hazardous dried sludge in trash. Please note that the California Department of Toxic Substances Control places responsibility on each shop owner for providing that such waste is non-hazardous. If the sludge is hazardous, it must be disposed of appropriately. (Contact the DTSC for more information)

If the settling bucket is uncovered, make sure it's in secondary containment.

Option #2: Discharge to a Permitted Treatment System

A shop may elect to route contents of the wet sanding bucket through a treatment system or recycling unit prior to discharging to the sanitary sewer. An industrial waste discharge permit must be obtained in many jurisdictions for such a sewer discharge. In addition, the wastewater should first be allowed to settle overnight in the bucket or in a settling unit (see Option #1).

Option #3: Offsite Disposal

A shop may choose to collect and dispose of wet sanding wastewater offsite. This alternative may be attractive to those shops interested in reducing their waste streams or eliminating all wastewater discharges and becoming a “zero-discharger.” There are two possible methods for offsite disposal of wet-sanding bucket wastewater:

- a) Disposal with other collected wastes

Depending upon the hauler, it may be possible to dispose of the wet-sanding wastewater with waste paint rinse water or waste antifreeze. Check with the local hauler to see if this is acceptable.

or

- b) Disposal as a hazardous waste

Wet-sanding wastewater may be collected separately and hauled offsite for disposal as a hazardous waste, either by a licensed waste hauler or through a Very Small Quantity Generator (VSQG) hazardous waste collection program for small businesses.

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Simple Settling Units for Wet Sanding and Mop Wastewater

Settling units may be used to remove zinc and other metals from wastewater, generated by activities such as wet sanding and mopping. Even shops with a sump or oil-water separator may find it beneficial to settle out wet sanding and mop wastewater prior to discharge to the separator and /or sanitary sewer. Settling units can range from simple, compact containers to complex treatment systems. Unless the shop has a high volume of wastewater from sanding or mopping, it may want to consider one of the simpler units – since complex treatment systems can be very expensive to purchase, install, and maintain. In fact, the shop may be able to make its own simple settling unit using an empty plastic 30-gallon drum, for example, and a little creativity.

Selecting the Right Unit for the Shop

In choosing or designing a settling unit, several factors should be considered including:

- Potential volume of wastewater and the size of a container that will ensure adequate settling time. In order to determine the appropriate size, the volume of wastewater should be calculated – wet sanding and/or mop water – that is generated each day. The settling unit should be able to contain at least double or triple this daily volume.
- A method for removing the clear wastewater from the unit without disturbing the sludge on the bottom. A valve or spigot should be located no lower than half-way down the side of the unit.
- Strategy (method and frequency) for removing sludge from the bottom of the unit. Sludge should be removed on a regular basis, and never allowed to build up higher than $\frac{1}{4}$ of the container's height. Remove sludge only after draining off the clear wastewater on top. Sludge can either be removed from the bottom of the settling unit or scooped out by hand from the top. Removal may require a large opening with a secure cap (as sludge may clog a valve or spigot). Some shops use a container with a conical bottom to facilitate both settling and sludge removal.

In addition,

- Identify a location in the shop that is convenient but enough out of the way so that the settling unit will not be disturbed accidentally. The unit may be placed on the ground, or elevated.
- To settle wastewater for longer than overnight, consider a system comprised of several containers used in sequence.

Multiple Settling Units, In Series

A sequence of two or more settling containers is one way to increase settling time for the wastewater. For example, some shops construct their own tow-drum units. Wastewater is held in the first drum for 24 hours and allowed to settle; then the clear water on top is drained into the second drum for an additional 24 hours or more of settling prior to discharge to the sanitary sewer. (Be sure to follow sludge-removal precautions detailed in the previous section).

The decision to use a settling unit with a single container versus one with multiple containers may depend partly on the metals concentrations in the wastewater and the time required to allow the metals to settle out to acceptable levels. Also, there must be adequate space in the shop, in a convenient location, where the unit(s) will not be disturbed.

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Testing Settled Wastewater

After installing a settling unit, be sure to have the settled wastewater tested at least twice to make sure the system allows for enough settling time. Overnight settling may be sufficient for some shops' wastewater, but others may require 48 or 72 hours of settling in order to comply with local discharge limits. An analytical lab should test the settled wastewater for zinc, nickel, and lead. The results should confirm whether or not enough settling time to ensure that the wastewater is acceptable for discharge.

Washing Cars

After bodywork is completed, some sanding dust often remains on the vehicle. When the car is washed, the dust is rinsed off and discharged with the wash water. Therefore, vehicle wash water from an auto body shop is typically contaminated with zinc and/or other metals, and it should not be discharged to the storm drain under any circumstances, or to the sanitary sewer without treatment. There are two options for discharge of vehicle wash water:

Option #1:

Wash vehicles and discharge the wastewater to the sanitary sewer through a permitted treatment system or recycling unit. An industrial waste discharge permit must be obtained in many jurisdictions for such a sewer discharge.

Option #2:

Collect the wash water and dispose of it offsite.

- For either option, also:
- Remove dust from the vehicle prior to washing. Be sure to check areas where dust might collect, such as the doorjambs, hood, and trunk. Try to keep the amount of airborne dust to a minimum.
- Make sure wash water does not run into a street, gutter, or storm drain.

Cleaning Floors

Sanding dust and wet-sanding drips often end up on the shop floor. If the shop floor is mopped and the mop water is discharged to the sanitary sewer, the mop water alone can cause a violation of local sanitary sewer discharge limits for zinc.

Instead of mopping, sweep the floors.

- If mopping must be done, follow this three-step procedure:
 1. Clean up all drips and spills with rags or other absorbent materials.
 2. Sweep or vacuum to pick up dust. (This should be a frequent routine.)
 3. Finally mop with a minimal amount of water. Do not let water run outside.
- Dispose of the mop water to the sanitary sewer through a drain or permitted treatment system. As an additional precaution, let the mop water settle overnight or longer (in a bucket or settling unit) prior to discharge.

Primers, Paints, and Painting

Primers in particular may contain significant amounts of zinc. A review of the Material Safety Data Sheets (MSDS) of primers shows that certain primers contain as much as 40 percent zinc phosphate by volume. It doesn't take much of these primers reaching the sanitary sewer for a shop to exceed local sanitary sewer discharge limits for zinc.

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- Conduct all painting indoors, preferably in a paint booth.
- Review the MSDS of the products used and look for the zinc concentrations listed. Use primers and paints with lower zinc content if they work equally well.
- Befriend your vendor. They can be an invaluable source of information about new and versatile (low metal) paints, technologies, and industry trends.
- When cleaning auto body parts before painting, minimize use of hose-off degreasers. Brush off dirt and use rags to wipe down parts. If an acid-based metal cleaner or cleaner/conditioner is used to treat bare metal and rinse water is recommended to stop the chemical reaction, use as little water as possible and wipe down the area with a rag or towel.
- Reduce waste by using low-volume paint mixing equipment and high-efficiency painting tools.
- Minimize waste paint and thinner by carefully calculating paint needs based on surface area and using the proper sprayer cup size.
- Clean spray guns in a self-contained cleaner. The gun-cleaning solution, whether solvent or aqueous-based, should be recycled or disposed of properly when it becomes too dirty to use. Never discharge gun-cleaning solution to the sewer or storm drain.
- Do not use water to control overspray or dust in the paint booth unless it is sure to evaporate in the booth (so the dust can be swept up), or this wastewater is collected. The water should be treated prior to discharge into the sewer system.

Miscellaneous Tips

- When receiving damaged vehicles, inspect for leaks. Use drip pans if necessary.
- Conduct all body repair and painting work indoors.
- When cleaning wheels, avoid the use of acid-based wheel cleaners if soap and elbow grease will do.
- Never use spray-on, acid-based wheel cleaners in areas where rinse water may flow to a street, gutter, or storm drain. If acid-based products are used on a wash pad, the wash water may need additional treatment beyond oil/water separation to meet wastewater discharge limits.

Treatment Control BMPs

For information on inspecting and maintaining treatment controls, see Section 4 of this handbook.

For information on designing treatment controls, see Section 5 of the New Development and Redevelopment Planning Handbook.

More Information

Booklets, checklists, fact sheets, and pamphlets

Regional Water Quality Control Plant—Palo Alto, 1997. Water Pollution Prevention Practices for Auto Body Shops.

Videos

Sacramento County Environmental Management Department / California Department of Toxic Substances Control, 1994. Pollution Prevention for Auto Body Shops.

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References

Bay Area Dischargers Association and Bay Area Storm Water Management Agencies Association, 1995. Your Shop Can Make A Difference!, What vehicle service shops can do to protect water quality in the Bay and Delta.

King County Surface Water Management Division, 1995. Storm Water Pollution Control Manual. Best Management Practices for Businesses.
(<http://dnr.metrokc.gov/wlr/dss/spcm.htm>)

Regional Water Quality Control Plant—Palo Alto, 1997. Water Pollution Prevention Practices for Auto Body Shops.

Automotive Services – Auto Recycling



Photo Credit: Geoff Brosseau

Description

This category includes facilities that impound, dismantle, and store and sell vehicles and vehicle parts. These facilities were required to obtain permit coverage under state and federal Phase I stormwater regulations. This guide sheet is intended to assist these facilities with permit compliance but does not supersede permit requirements. Activities include: draining fluids from vehicles, crushing and scrapping vehicle bodies, and recovering and recycling parts and vehicle fluids. Information specific to: body repair, maintenance, and service stations is provided in other guide sheets.

Pollutant Sources

The following are sources of pollutants:

- Draining fluids from vehicles
- Crushing and scrapping vehicle bodies
- Recovering and recycling parts and vehicle fluids
- Unpaved or non-vegetated areas

Pollutants can include:

- Mercury - switches for convenience lighting, antilock braking systems (ABS), active ride control systems, high intensity discharge (HID) headlamps, and background lighting in automotive displays
- Other heavy metals (aluminum, cadmium, chromium, copper, iron, lead, and zinc) – waste oil, hydraulic fluid, antifreeze, fuels, tires/wheels, body/paint, radiators, carburetors/engines/transmissions, mufflers, catalytic converters, batteries, air bags, and brake pads



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- Oils and greases - waste oil, hydraulic fluid, fuels, and parts cleaners
- PAHs - waste oil, hydraulic fluid, fuels, parts cleaners, carburetors/engines/transmissions, and catalytic converters
- Toxic chemicals - antifreeze
- Sediment
- Trash

Approach

Minimize exposure of rain and runoff to impound, dismantling, crushing, and storage areas by using cover and containment. In and around these areas, use good housekeeping to minimize the generation of pollutants. Make stormwater pollution prevention BMPs a part of standard operating procedures and the employee training program. Provide employee education materials in the first language of employees, as necessary.

Source Control BMPs

The best management practices are listed by activity or area.

Good Housekeeping

General Practices

- An in-coming vehicle inspection inventory program should include a check for fluid leaks and for unwanted material that could have been placed in the vehicles. Re-inspect work and storage areas for signs of leaking vehicles, parts, or equipment.
- Construct fences or other physical barriers to act as visual and noise barriers, help to control dust, help prevent theft, and control the direction of runoff.
- Maintain an organized inventory of materials used at the facility.
- Consider indoor storage of vehicles, parts, and equipment, and the use of berms and/or dikes to control stormwater runoff.

Employee and Customer Education

- Develop a stormwater management policy statement for your employees. Management can provide direction and support for pollution prevention by reviewing this policy with employees and keeping it posted.
- Ensure that employees are trained to follow these pollution prevention practices and to monitor customers to help ensure they prevent pollution as well. Train employees when they are hired, and annually after that. Emphasize that by following these practices they are helping to protect the local waterways.
- Ensure that non-English-speaking employees are also trained in these practices (for example, use a bilingual instructor, post signs, and provide written information in their own language).
- Have customers sign a form that makes them responsible for preventing spills. Provide them with drip pans when needed.
- Label storm drain inlets with a stormwater pollution prevention message.

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Vehicle Dismantling Fluid Management

Site Design

- Confine the dismantling and storage of vehicles, parts, and equipment to designated areas that are paved, covered and bermed. Paving should be concrete or other less porous surface. Consider using an epoxy type of sealant. Berms can rounded like speed bumps, so that vehicles and forklifts can move over them.
- Consider constructing an impound/inventory area with non-porous surface for leaking vehicles prior to dismantling.
- Fluid Removal
- Remove fluids as soon as possible from vehicles brought into the facility for processing or dismantling. Use a funnel adapter to a “quarter barrel” whenever possible. Transfer the contents of drain pans or quarter barrels to the designated waste storage area as soon as possible.
- If fluids must be drained or oily parts removed in an unpaved area, use extra large drip pans.
- To prevent accidental spills do not leave drip pans outside, exposed to rainfall, or left unattended.
- Drain all parts of fluids prior to disposal.
- Drain fluids and remove parts as follows before customers can spill or disperse them:
 - Engine oil - Should be drained and stored in labeled, doubled-walled, above ground tanks. Used oil can either be recycled for onsite use in a waste oil heater, or sent offsite for re-refining or fuel blending.
 - Oil filters - Drain fluids and crush prior to disposal. A bearing press can be used for this purpose by placing a container under the press to collect the oil.
 - Antifreeze - Should be reclaimed and reused or properly disposed of.
 - Window washer fluid - Drain for reuse.
 - Freon – Recover first.
 - Fuel – Recover first.
- Batteries - Remove as soon as possible after vehicle enters the yard. Store good batteries inside for resale. Store dead batteries inside on pallets (if your floor is gravel or dirt, put a layer of absorbent material below the pallet) or in storage containers, or store dead batteries outside in a leak proof, covered container.
- Mercury-containing switches – Protect from shredding or crushing by removing from hood and trunk light assemblies and anti-lock brakes. Store in a covered container kept in a secure, dry area. Dispose of legally by having switches processed at a recycling facility that recovers mercury.
- Mufflers, tailpipes, and catalytic converters – Recover and protect from shredding.
- Gas tanks – Remove and drain.
- Jacks – Remove and prevent customers from using.
- Tires – Remove, store, recycle, and prevent water accumulation. Do not bury or landfill.

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- Air bags – Deploy or recover per manufacturer guidelines.
- Burnt autos – Cover and remove as soon as possible.

Storage

- Store wastes in covered, bermed (contained) areas that have no drains. Waste containers should be constructed of materials that are impermeable to the liquids in the first container.
- Double-contain fluids to prevent accidental spills to the sewer system. Keep double containment clean and dry.
- Parts that might leak fluids, such as engines, transmissions, radiators, and batteries should be stored under cover, and on an impermeable surface.
- Keep vehicle hoods down when not in use. For vehicles without hoods, use covers such as tarps or sheet metal to keep rainfall out.
- Place absorbent in bottom of core bins to absorb fluids leaking from core parts.
- Keep used oil separate from part cleaning solvents, antifreeze, and fuel. Engine oil, transmission fluid, brake fluid, and power steering fluid can be combined and stored together.
- Label storage containers of all fluids and waste materials.
- Use canvas or sheets of plastic to temporarily cover storage areas
- Transmission and engine cores may be stored in plastic storage boxes with leak proof tops; lugger boxes without a solid bottoms and covered by a permanent roof; lugger boxes without a solid bottom stored under a permanent roof on a concrete pad with curbing; or an enclosed trailer with a steel floor to contain fluid runoff and a drain in the floor to properly remove waste fluids.

Parts Cleaning

- Perform all part cleaning operations indoors or cover and berm outside cleaning areas.
- Clean parts by using minimal amounts of solvents or detergents.
- Recycle and reuse cleaning fluids where practical.
- Spent cleaning solutions should be removed by a waste hauler or recycler.
- Use phosphate-free biodegradable detergents. Consider using detergent-based or water-based cleaning systems in place of organic solvent degreasers.

Vehicle Crushing Activities

- Provide a containment system – such as a concrete pad with berms – for vehicle crushers. Fluids and stormwater runoff from such bermed areas could be discharged into a sump, oil/water separator, sanitary sewer, or other appropriate drainage system that prevents stormwater pollution.
- Consider placing crushing and scrapping areas under cover.
- If a gravel/geotextile fabric foundation is provided under a crusher, install a fluid collection system to capture fluids that are released during the crushing operation.
- Capture crusher fluids to prevent spillage. Collect this mixture of fluids in a spill proof covered container, test the fluid, and dispose of it properly. It should not be allowed to

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drain onto the ground. Keep the drain within the crusher clear so that the fluids do not collect and overflow from the crusher onto the ground.

Preventive Maintenance

- Develop a preventive maintenance program that involves timely inspections and/or maintenance of the crusher and facility equipment and vehicles. The program may include:
 - Service checklists and maintenance logs for each piece of equipment;
 - Employee education and instruction material; and
 - Review of manufacturer-recommended parts replacement and maintenance activities and frequencies.
- Keep the crusher and other equipment clean by frequently wiping off accumulated oil and grease that may be exposed to stormwater (except where needed for proper operation of the equipment) or that may hide equipment trouble spots.
- Conduct scheduled maintenance of facility equipment and vehicles in a covered or bermed area, where practicable.
- Schedule periodic inspections of equipment for leaks, spills and malfunctioning, worn, or corroded parts. Regularly inspect tanks, valves, hoses, and containers. Look for signs of wear or weakness.
- On secondary containment structures, regularly inspect the valve, seals around the outlet pipe, the outlet pipe itself, and the dike for cracks, damage, or leaks.
- When secondary containment reservoirs require pumping or release, a sample of collected water should be visually inspected or tested for pollutants. If pollutant levels are significant or there is contamination, pump the accumulated water into barrels or into a tanker truck and haul to a wastewater treatment facility.
- Repair or replace parts before they wear out.
- Repair malfunctioning equipment that is responsible for any leak or spill as soon as possible.
- Secure and lock above ground tank storage areas. Tanks, pumps, fittings, pipes, and containers should be inspected routinely for integrity and leaks.
- Perform maintenance activities indoors.
- Valves on secondary containment structures should be kept in the “off” position at all times, except when collected water is being removed.

Spill Prevention and Response

Prevention

- Install safeguards (such as diking or berming) against accidental releases at dismantling and storage areas.
- Place waste fluid storage containers in a convenient and safe place to avoid having to move waste fluids long distances.
- Containers and tanks should be stored on a concrete or impermeable surface, and if feasible, under cover. All containers should be labeled according to content and hazard

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characteristics. Keep drums containing chemicals away from sumps and drains. Maintain good integrity of all storage containers.

- Provide spill cleanup equipment at locations where spills are most likely to occur.
- Make available MSDS sheets and other safety materials that identify types of fluids that have the potential to spill, indicate whether these fluids are hazardous or toxic, list appropriate safety equipment to be worn, and specify correct materials and procedures to use to clean up the spill.
- Identify cleanup procedures, including the use of dry absorbent materials or other cleanup methods to collect, dispose of, or recycle spilled or leaked fluids. Maintain an adequate supply of dry absorbent material onsite. Properly dispose of used absorbent materials.
- Never pour liquids or dry materials down a storm drain.
- Place drip pans, plastic sheets, or canvas tarps beneath vehicles, parts, and equipment during maintenance and dismantling activities. If any parts are removed, they should be placed in a drip pan. Drip pans should not be left unattended.
- When refueling vehicles and equipment, park as close to the pump as possible. Keep fuel nozzle upright when not in use, and replace nozzle securely in the pump.
- Pave refueling area to prevent contamination of the soil if a spill occurs.
- Equip fuel pumps and tanks with overflow prevention and automatic shut-off devices.

Response

- Contain oil or other fluids spilled during parts removal.
- Control any spills that may occur around fueling areas.
- Observed spills and leaks should be captured and cleaned up as soon as possible using dry absorbents, drip pan, towel, mops, pads, and booms.
- Keep spilled fluids from entering drains by using drain mats or plugs. Seal or remove unused floor drains.
- Remove soils with spilled fluids to prevent rainwater from carrying pollutants to local waterways.

Erosion and Sediment Control

- Implement appropriate vegetative, structural, or stabilization measures to limit soil erosion.
- Regularly sweep and clean paved surfaces to reduce sediment buildup. Sediment should be swept up and placed into a covered, watertight dumpster for proper disposal.
- Install filtering or diversion practices, such as filter fabric fences, sediment filter booms, earthen or gravel berms, curbing or equivalent measures.
- Install sediment traps, vegetative buffer strips, silt fencing or equivalent measures to remove sediment prior to discharge through an inlet or catch basin.
- Do not use vehicle fluids, oils, or fuels for dust control or weed control.
- Establish and maintain a vegetative cover in areas not used for vehicle salvage activities.

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Non-Stormwater Discharges

- Disconnect or seal off all existing floor drains and sinks that are connected to the storm drainage system.
- Wash vehicles and equipment in a contained area.
- Do not steam clean parts outside without proper wastewater containment.
- Do not discharge steam cleaned wastewater to a septic tank system because the oils may not be treated or removed in the system.
- Do not pour liquid waste or parts wash water down storm drain inlets.
- Do not hose down the shop floor if water would be conveyed to a storm drain.
- Clean up debris and trash on a regular basis.
- Keep storm drains in good working condition by clearing debris and sediment buildup at least once a year – best to do just before the start of the rainy season (August – September).

Treatment Control BMPs

- Use vegetated swales and buffer strips, catch basin filters, and/or other similar measures to facilitate settling or filtering of pollutants in runoff.
- Construct grassed swales, berms, and diversions to direct water flow to a central point for better control and management.
- Properly maintain grassed swales by keeping swales free of debris and litter, maintaining vegetation and periodically removing accumulated sediment. Do not place material or waste in swales or in the runoff paths.
- Divert runoff away from material storage areas through such practices as dikes, berms, containment trenches, culverts, elevated concrete pads, and/or surface grading.
- Consider installing a detention pond. Monitor accumulation of sediments in the bottom of detention ponds. Remove accumulated metals and other materials from the bottom of detention ponds as needed.
- Considering installing oil-water separators to reduce the levels of petroleum-based oils in stormwater runoff. Test and clean out sediments and oily deposits that have accumulated in the oil-water separator. Sediments should be tested for metals and other pollutants that may be expected to be present.

For information on inspecting and maintaining treatment controls, see Section 4 of this handbook.

For information on designing treatment controls, see Section 5 of the New Development and Redevelopment Planning Handbook.

More Information

Alliance of Auto Manufacturers, 2000. Getting Mercury Out of Cars (<http://www.cleancarcampaign.org/switchremoval.shtml>)

Automotive Recyclers Association, 1996. Storm Water Guidance Manual: Automotive Recycling Facilities (<http://www.autorecyc.org/docs/bookstore/manuals.htm>).

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Stenstrom, M. 1994. Auto Dismantlers.

Swamikannu, X., 1994. Auto Recycler and Dismantler Facilities: Environmental Analysis of the Industry with a Focus on Storm Water Pollution.

USEPA, Sector M-Automobile Salvage Yards, Multi-Sector General Permit for Industrial Activities (http://cfpub.epa.gov/npdes/stormwater/msgp.cfm?program_id=6).

Automotive Service – Service Stations



Photo Credit: Geoff Brosseau

Description

This category includes facilities that provide vehicle fueling services, including self-serve facilities as well as those that provide a convenience store. Information specific to auto dismantling, body repair, and maintenance is provided in other guide sheets.

Pollutant Sources

The following are sources of pollutants:

- Fueling
- Spills
- Surface cleaning
- Air / water supply areas
- Dumpster and trash can areas

Pollutants can include:

- Heavy metals (copper, lead, nickel, and zinc)
- Hydrocarbons (oil and grease, PAHs)
- Toxic chemicals (benzene, toluene, xylene, MTBE)
- Detergents
- Food waste and trash

Approach

Minimize exposure of rain and runoff to fueling areas by using cover and containment. In and around these areas, use good housekeeping to minimize the generation of pollutants. Make stormwater pollution prevention BMPs a part of standard operating procedures and the employee training program. Provide employee education materials in the first language of employees, as necessary.

Reprinted below are the best management practices and related information from the 1997 Best Management Practice Guide – Retail Gasoline Outlets. This guide represents the work of the California Stormwater Quality Task Force's (SWQTF) Retail Gasoline Outlet Work Group. The Work Group formed in May 1996 and met on a regular basis to review and discuss appropriate best management practices for fueling and other closely related activities likely to be found at retail fueling operations. Representatives from industry, municipalities, and regulatory agencies participated.

Coverage

These best management practices cover three activities or areas:

- Fuel dispensing



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- Air/water supply
- Outdoor waste receptacles

Retail gasoline outlets will have every combination of these activities/areas onsite, including other activities not covered by this guide. For example, a facility may have a fuel dispensing area, air/water supply area, indoor service bay, but no outdoor waste receptacles. These BMPs cover the first two areas but not the indoor service bay. Best management practices for the indoor service bay may be found elsewhere. The inclusion of best management practices for air/water supply areas is not intended to suggest that air and/or water must be supplied by retail gasoline outlets in geographic areas not otherwise required to do so.

Design

The design of this guide is purposely different from many BMP lists that are designed as a menu of BMPs from which the facility owner/operator, and the inspector, may choose some but not necessarily all BMPs. These BMP lists are designed so that if the activity/area is onsite, each numbered BMP listed below the activity should be implemented. For some BMPs, as described below, several implementation options are provided. The best management practices are meant to be implemented, monitored, and maintained on a year round basis. The guide also makes an important distinction between existing facilities and new or substantially remodeled facilities. A definition of new or substantially remodeled is also provided. The Work Group used these design elements to help clarify and unify expectations.

Options

Several of the best management practices provide facility owners and operators options for compliance. For example, one best management practice is:

Minimize the possibility of stormwater pollution from outside waste receptacles by doing at least one of the following:

- Use only watertight waste receptacle(s) and keep the lid(s) closed
- Grade and pave the waste receptacle area to prevent run-on of stormwater
- Install a roof over the waste receptacle area
- Install a low containment berm around the waste receptacle area
- Use and maintain drip pans under waste receptacles

It is the intent of these BMPs that a) through e) are options. Effective implementation of at least one of these options, chosen by the facility owner/operator, should be deemed implementation of this best management practice.

Source Control BMPs

The best management practices are listed by activity or area.

Existing Facilities

Fuel Dispensing Areas

- Maintain fuel dispensing areas using dry cleanup methods such as sweeping for removal of litter and debris, or use of rags and absorbents for leaks and spills. Fueling areas should never be washed down unless the wash water is collected and disposed of properly.

Automotive Service – Service Stations

- Fit underground storage tanks with spill containment and overflow prevention systems meeting the requirements of Section 2635(b) of Title 23 of the California Code of Regulations.
- Fit fuel dispensing nozzles with “hold-open latches” (automatic shutoffs) except where prohibited by local fire departments.
- Post signs at the fuel dispenser or fuel island warning vehicle owners/operators against “topping off” of vehicle fuel tanks.

Facility - General

- “Spot clean” leaks and drips routinely. Leaks are not cleaned up until the absorbent is picked up and disposed of properly.
- Maintain and keep current, as required by other regulations, a spill response plan and ensure that employees are trained on the elements of the plan.
- Manage materials and waste to reduce adverse impacts on stormwater quality.
- Train all employees upon hiring and annually thereafter on proper methods for handling and disposing of waste. Make sure that all employees understand stormwater discharge prohibitions, wastewater discharge requirements, and these best management practices. Use a training log or similar method to document training.
- Label drains within the facility boundary, by paint/stencil (or equivalent), to indicate whether they flow to an oil/water separator, directly to the sewer, or to a storm drain. Labels are not necessary for plumbing fixtures directly connected to the sanitary sewer.
- Inspect and clean if necessary, storm drain inlets and catch basins within the facility boundary before October 1 each year.

Outdoor Waste Receptacle Area

- Spot clean leaks and drips routinely to prevent runoff of spillage.
- Minimize the possibility of stormwater pollution from outside waste receptacles by doing at least one of the following:
 - Use only watertight waste receptacle(s) and keep the lid(s) closed, or
 - Grade and pave the waste receptacle area to prevent run-on of stormwater, or
 - Install a roof over the waste receptacle area, or
 - Install a low containment berm around the waste receptacle area, or
 - Use and maintain drip pans under waste receptacles.

Air/Water Supply Area

- Minimize the possibility of stormwater pollution from air/water supply areas by doing at least one of the following:
 - Spot clean leaks and drips routinely to prevent runoff of spillage, or
 - Grade and pave the air/water supply area to prevent run-on of stormwater, or
 - Install a roof over the air/water supply area, or
 - Install a low containment berm around the air/water supply area.

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New or Substantially Remodeled Facilities

The elements listed below should be included in the design and construction of new or substantially remodeled facilities.

Fuel Dispensing Areas

- Fuel dispensing areas must be paved with portland cement concrete (or, equivalent smooth impervious surface), with a 2% to 4% slope to prevent ponding, and must be separated from the rest of the site by a grade break that prevents run-on of stormwater to the extent practicable. The fuel dispensing area is defined as extending 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot, whichever is less. The paving around the fuel dispensing area may exceed the minimum dimensions of the “fuel dispensing area” stated above. (Note: This best management practice is not specifically intended to apply to facilities that install a new canopy where no canopy existed.)
- The fuel dispensing areas must be covered, and the cover’s minimum dimensions must be equal to or greater than the area within the grade break or the fuel dispensing area, as defined above. The cover must not drain onto the fuel dispensing area. (Note: This best management practice is not specifically intended to apply to facilities that:
 - Are located in geographic areas not subject to federal or state stormwater regulations
 - Do not discharge stormwater either directly to surface waters or indirectly, through municipal separate storm drain systems
 - Do not add fuel dispensers
 - Replace, relocate, or add fuel dispensers within the parameters described in the BMP
 - Increase their throughput of fuel dispensed without modifying their equipment
 - Make only cosmetic or facial appearance changes to their existing canopy)

Outdoor Waste Receptacle Area

- Grade and pave the outdoor waste receptacle area to prevent run-on of stormwater to the extent practicable.

Air/Water Supply Area

- Grade and pave the air/water supply area to prevent run-on of stormwater to the extent practicable.

Substantially Remodeled Facilities

One of the following criteria must be met before a facility is deemed to be substantially remodeled and the design elements described above are required to be included in the new design and construction:

- The canopy cover over the fuel dispensing area is new or is being substantially replaced (not including cosmetic/facial appearance changes only) and the footing is structurally sufficient to support a cover of the minimum dimensions described above, or
- One or more fuel dispensers are relocated or added in such a way that the portland cement concrete (or, equivalent) paving and grade break or the canopy cover over the fuel dispensing area do not meet the minimum dimensions as defined above. Replacement of existing dispensers or underground storage tanks do not by itself, constitute a substantial remodel.

Automotive Service – Service Stations

For the purposes of the waste receptacle area and air/water supply area BMPs only, the facility is considered substantially remodeled if the area around the waste receptacle area or air/water supply area is being regraded or repaved.

Treatment Control BMPs

In 1996-97, the SWQTF Work Group considered other BMPs not listed here including:

- Oil/water separators
- Catch basin inserts

The evidence reviewed by the Work Group at that time indicated that the effectiveness and efficiency of these and other BMPs not listed was insufficient for them to pass peer review and therefore these BMPs could not be generally recommended for use statewide. Since 1997, a significant amount of research has been conducted across the country on treatment controls so the status of treatment control BMPs may have changed since that time. There may be situations in which these BMPs would be effective and efficient (as evidenced by research), and therefore appropriate.

For information on inspecting and maintaining treatment controls, see Section 4 of this handbook.

For information on designing treatment controls, see Section 5 of the New Development and Redevelopment Planning Handbook.

More Information

Booklets, Checklists, Fact Sheets, and Pamphlets

California Storm Water Quality Task Force, 1997. Best Management Practice Guide – Retail Gasoline Outlets.

Posters

Los Angeles County, 1995. Good Gas Station Operating Practices.

References

California Storm Water Quality Task Force (SWQTF), 1997. Best Management Practice Guide – Retail Gasoline Outlets.