

# 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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## References

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