Environmental Best Management Practices for Small Businesses

Introduction

An environmental best management practice (BMP) is an action or combination of actions implemented to reduce the environmental impacts of business operations. There are two types of pollution prevention: source reduction and recycling. Source reduction reduces or eliminates the generation of waste. Recycling takes used materials, modifies their form, and makes them available for future reuse. The BMPs provided in the fact sheets listed below are a combination of source reduction and recycling strategies, which provide economic as well as environmental and safety benefits.

Each BMP fact sheet focuses on a particular sector, and draws information from several sources, which are listed in the endnotes section of each fact sheet. The BMPs listed in each fact sheet may be used as a guide for your business. Depending on your business' individual needs and technical and financial capacities, the BMPs may require modification. When adapting a BMP to your business, it may be necessary to contact your local regulatory agency to determine permit requirements. It is important to note that the BMPs listed in these fact sheets are intended as a starting point for your business' environmental management plan, and are not all-inclusive. Further information is available through links at the end of each fact sheet. For additional information about regional specific BMPs, or BMPs not covered in these fact sheets, contact your local authorities and regulating agencies. It is not expected that each BMP will work in all situations; each small business must factor in their own needs, resources, and capacities to find the ones that work best for them.

The fact sheets are intended to work in conjunction with the Environmental Protection Agency's *Practical Guide to Environmental Management for Small Business* and its companion book, *Documenting Your Environmental Management Plan.* For copies of these guides, please refer to the links provided on this website.

Each fact sheet is divided into five sections:

1) Sector Introduction: Provides basic background information on environmental impacts associated with the sector.
2) Best Management Practices: Divided into two or more subsections. Each subsection consists of a paragraph describing a particular environmental impact, followed by a list of BMPs which address the problem.
3) Investments in Technology: Supplies additional information on technologies mentioned in the BMPs or provides information on new technologies to consider when making your choice of BMPs to use. Information about returns on investment is provided where possible, but the true payback period will vary greatly, dependent upon your situation. To determine if a particular technology is right for your operations contact a local vendor for more information.
4) Case Study: Demonstrates the effectiveness of a BMP used in a business.
5) Other Sources: Provides links to BMP information listed in the fact sheet. Also provides additional resources available to small businesses.

Best Management Practice

Service Station

Sector Introduction

Service stations, for the purpose of this fact sheet, are smaller stations that conduct a wide variety of general repairs and routine maintenance, such as changing fluids and repairing leaks. These activities produce hazardous waste that must be properly managed. Service stations that have gas pump areas can also make use of this fact sheet. The BMPs listed in this fact sheet are a starting point for your business. Additional suggestions for a wider range of activities, including chlorofluorocarbons and underground storage tanks, can be found using the links in the "Other Sources" section.

Best Management Practices

Service stations must manage waste fluids from maintenance activities. Many of these wastes are classified as hazardous, and compliance with regulations can be challenging. Even fluids that are not hazardous may become contaminated with heavy metals during use and require management as hazardous waste. Regulations that apply to service station activities are directly related to generator status. Generator status is based on the amount of hazardous waste produced each month. There are ways to reduce the amount of hazardous waste generated at a service station. This may reduce the number of regulations your service station must follow, and reduce the cost of disposal. The following BMPs may help reduce the amount of hazardous waste being generated from service station operations.

- Check with your state Small Business Assistance Program to determine if used oil, antifreeze, tires, and solvents have special regulations or requirements. [2]
- Recycle used oil. Used oil does not have to be considered hazardous waste if it is properly managed and recycled. [3]
- Participate in a closed-loop system: purchase recycled oil and recycle used oil through one distributor. [4]
- Consider burning used oil in oil-fired space heaters. If the heater is a commercial unit, check with the state for any special air permits or other state requirements before burning used oil in space heaters. [2]
- Drain used oil filters completely to render them non-hazardous. (Oil filters have an anti-drain back valve that does not allow all of the oil to drain from the used filter. If used oil filters are sent to the landfill, the excess oil can cause contamination. Up to six ounces of oil can be released after the used filter is crushed.) Filters should be gravity hot drained using one of the following methods: [2]
  - Puncturing the anti-drain back valve of the filter dome end and hot draining (>60°F for at least 24 hours),
  - Hot draining and crushing,
  - Dismantling and hot draining.
- Collect used oil filters and send them to a facility that will recycle the metal, and recycle or utilize the oil. [6]
- Designate separate, well-labeled containers for each waste fluid, such as oil, gasoline, or solvents, to increase the ability to recycle the waste product. Oil cannot always be recycled when it has been mixed with other fluids. [19]
- Use separate drip pans and collection containers for each type of fluid, to avoid contaminating waste in bulk collection containers. [3]
- Send contaminated or off-specification fuels (contaminated with water, dirt, or other non-hazardous substances) to a fuel burner to be used for energy. When disposed in this manner, these materials are not regulated as hazardous wastes. [8]
- Vacuum spilled materials to reduce the amount of contaminated absorbents that must be disposed. When absorbents must be used, reuse them until completely saturated. [13]
- Use a commercial laundry service to avoid disposing of shop rags. Make sure they are able to handle hazardous materials that may be on the rags. [3]

- Order only the amount of product needed for a given period of time to reduce the likelihood that it might expire prior to use.[4]

- Track the quantity of hazardous waste generated and waste reduction activities to document waste generation status. This will be useful if your business is ever inspected.[2]

Hazardous Waste – Cleaning Fluids

The chemicals used to clean vehicle parts, maintenance bays, and tools might also be hazardous waste. Parts washers can contain solvents that are hazardous, and disposal of waste solvent can be expensive. The following BMPs are aimed at reducing the amount of hazardous waste produced, by prolonging the useful life of solvents and using a more environmentally friendly parts washer.

- Wash off or brush parts before immersing in solvent, to prevent the introduction of contaminants into the bath. Use old solvent to pre-wash parts.[1]

- Close lid of tank after use to prevent evaporation. Shut off sink when not in use.[4]

- Filter solvent to remove grit and water.[4]

- Remove parts slowly after immersion in solvent bath to prevent spills and allow excess solvent to drip back into the parts washer. Do not dry off parts with compressed air.[4]

- Investigate less toxic and/or water based substitutes for traditional solvents. For example, consider using citrus based solvents.[15]

- Eliminate solvent tanks, or eliminate solvent based part washing completely, by changing to a water-based pressure washing system.[6]

Water Pollution

Service station activities pose a potential to contaminate water, either via wastewater discharges from service areas, or storm water runoff from fueling, parking, and exterior storage areas. Both types of discharges may be subject to regulation. The following BMPs focus on ways to reduce the potential for water contamination.

- Check fluid storage containers for leaks and spills on a routine basis.[8]

- Store chemicals in closed containers and covered areas, away from high traffic areas to minimize the chances of a spill. Secondary containment devices, such as catch pans or concrete berms, are an excellent way to control and minimize the impact of spills that do occur.[13]

- Store used parts in a covered area. Used parts may be contaminated with hazardous materials or can be a source of heavy metals that can cause contamination when they come in contact with storm water.[8]

- Store used batteries in a covered area with secondary containment.[3]

- Check any hydraulic lifts in maintenance bays periodically, to ensure they are not leaking hydraulic fluid. Repair leaks as soon as they are identified.[1]

- Seal floors or pits in maintenance bays with an impervious material, such as cement.[1]

- Use drip pans to catch leaking fluids from vehicles. Promptly remove oil and fluids from maintenance bay floor by vacuuming or by using absorbents. Floors should not be hosed down with water, and wastes should be disposed of as required by your state agency.[1]

- Clean fueling areas often to prevent fuel and fluids from being washed away by storm water runoff. Fueling areas should not be cleaned with water. Use absorbent materials for cleanup.[3]

- Create an inspection schedule for fueling areas to ensure that leaks and spills do not go unnoticed and accumulate.[18]

- Check with your local wastewater treatment plant before placing anything in the sewer system.[4]

Solid Waste

Replacing large vehicle parts results in a large quantity of waste to be stored and disposed. These materials can be bulky and take up a lot of space when disposed of in a landfill. The following BMPs list ways to reduce problems associated with solid waste storage and offer ways to reduce the amount of waste sent to a landfill.

- Recycle used oil filters. Oil filters are made of steel; therefore, they can be recycled or sold as scrap metal. Your company can use the scrap metal as a revenue source. Visit the Steel Recycling Institute's website to identify companies in your area who will accept used oil filters.[6]

- Recycle used metal parts for scrap metal value.[6]

- Send scrap tires to an authorized facility for recycling, shredding, baling, or recovery. [20]

- Do not store tires unless you have to. Storage of used tires can provide a breeding ground for mosquitoes. If you must store tires, make sure they are undercover, so they don't collect rainwater. [4]

General

- Avoid high sulfur content diesel fuels. Sulfur in diesel fuel is a contributor to air pollution. Talk with your supplier to determine the sulfur content. Advertise that you use low sulfur diesel fuel. Let customers know the impacts of sulfur on air quality. [8]

- Try to use a multipurpose cleaner that will replace several different solutions for general housekeeping tasks. [4]

- Inspect all materials when they arrive from the supplier. If any material is broken, leaking, or not what you ordered, return it to the supplier immediately. Do not continue to store it in your service station if it will not be used. [4]

Investments in Technology

- An oil-water separator can be used to treat water coming into contact with oily residues in either the shop area or the fueling area. Storm water and rinse water can be collected and treated to prevent oil from entering the municipal treatment plant or storm drain. The system operates by slowing down the flow of water as it passes through, to allow solids to fall to the bottom of the holding tank and oil-water separation to begin. The oily water then flows through oil coalescing plates. These plates allow for the oil to gather together into large droplets where they can float to the surface and be mechanically skimmed from the water. Depending on the system, the water can then be directed for reuse or sewer discharge. [1]

CASE STUDY
Lone Star Radiator Company

Lone Star installed a system to treat wastewater from its operations. Before installation, the water could not be discharged to the city's sanitary sewer, few waste haulers were able to handle it, and disposal was expensive. The water treatment system removes oil and heavy metals. Solids drop out of solution as a sludge, which is then dried and shipped to a certified recycler for reclamation. Likewise, petroleum products are sent to a recycler. The leftover water is reused for general cleaning in the shop.
Cost—$40,000
Waste reduction—36,000 gal/month
Savings—$100,000/month
Payback period—Less than one month

Source: Texas Natural Resource Conservation Commission, http://www.zerowastenetwork.org/success/story.cfm?ID=127

Other Sources of Information

1 Broward County, Florida, Pollution Prevention and Remediation Division, *Best Management Practices (BMPs)*, www.co.broward.fl.us/ppi03203.htm

2 Kansas SBEAP, Pollution Prevention Institute, *Here's How to Handle Auto Repair Shop Hazardous Waste*, www.sbeap.org/ppi/publications/autorepr.pdf

3 Pacific Northwest Pollution Prevention Resource Center, *Businesses Assistance Auto Repair Industry Resources*, http://www.pprc.org/pprc/sbap/auto.html

4 University of Missouri *Pollution Solutions, Waste Reduction Assistance for Small Businesses: Auto Repair*, http://outreach.Missouri.edu/polsol/autorepr.htm

[5] Resource Conservation and Recovery Act (RCRA) Hotline, 1-800-424-9346 (TDD 1-800-553-7672)

[6] Steel Recycling Institute, http://www.recycle-steel.org/

[7] Alaska Department of Environmental Conservation, *Enviroense, Fact Sheet: Automotive Maintenance Shops Pollution Prevention Tips*, http://es.epa.gov/techinfo/facts/alaska/ak-fs18.html

[8] U.S. EPA, Manufacturing, Energy and Transportation Division, *Fuel for Thought…How to Reduce Wastes at Your Shop*, http://www.epa.gov/Compliance/resources/publications/monitoring/selfevaluation/fuel4tho.pdf

[9] U.S. EPA, Region 9, *Fleet Maintenance Fact Sheets*, http://www.epa.gov/region09/p2/autofleet/factauto.html

[10] California Department of Toxic Substances Control, *Aqueous Parts Cleaning*, http://www.dtsc.ca.gov/PollutionPrevention/VSR/vsrfactsheets/AqueousPartsCleanAuto02.pdf

[11] California Department of Toxic Substances Control, *Case Studies in Aqueous Parts Cleaning*, http://www.dtsc.ca.gov/PollutionPrevention/VSR/vsrfactsheets/CasestudiesAuto02.pdf

[12] Connecticut Department of Environmental Protection, *Pollution Prevention Fact Sheet Index, Sector: Vehicle Repair and Body Shops*, http://dep.state.ct.us/wst/p2/vehicle/abindex.htm

[13] County of Maui, Department of Water Supply, *Best Management Practices for Business and Industry, Auto Body/ Repair Shop: Vehicle Related General Practices*, http://mauiwater.org/BMPlnkbus.html

[14] Illinois Environmental Protection Agency, *Regulatory Compliance and Pollution Prevention Tips for Automotive Repair and Autobody Shops*, http://www.epa.state.il.us/small-business/automotive-repair-shops/index.html

[15] The New Hampshire Pollution Prevention Program; *Pitstops Manual, Best Management Practices for Automobile Service Facilities*, http://www.des.state.nh.us/nhppp/pitstops.pdf

[16] Oregon Department of Environmental Quality, *A Sustainability Vision for the Automotive Services Industry*, http://www.deq.state.or.us/programs/AutoSust.pdf

[17] North Carolina Division of Pollution Prevention and Environmental Assistance, *Waste Reduction in Auto Repair and Fleet Maintenance*, http://wrrc.p2pays.org/industry/autorepair.htm

[18] Connecticut Department of Environmental Protection, *Pollution Prevention Options for Industry*, http://dep.state.ct.us/wst/p2/industry/p2options.pdf

[19] National Automotive Environmental Compliance Assistance Center, *CCAR-GreenLink: Environmental Compliance for the Automotive Industry*, http://www.ccar-greenlink.org/

[20] Texas Natural Resource Conservation Commission, *Scrap Tires*, http://www.tnrcc.state.tx.us/permitting/r_e/eval/we/tires/index.html