



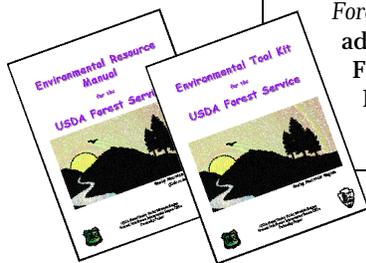
Materials Acquisition

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Reduce the number of credit cards and other purchasing instruments so you can further control the types and quantities of items to be purchased.
- To reduce the potential of raw material becoming hazardous waste, never buy hazardous materials. Always insist on a non-hazardous alternative. Never just accept the vendor's sales pitch. Verify it yourself, through the Material Safety Data Sheet or actual acceptance testing, that the product is non-hazardous.
- Purchase only what is needed. Do not over buy so material goes to waste because of shelf-life expiration, changing requirements, or material destruction due to weather or other factors. Watch for buildup of partially used products in storage cabinets.
- If you have buying leverage, use it to minimize packaging. Insist that all shipping materials (e.g., bulk boxes, pallets, wooden enclosures) be returnable.
- Never buy supplies with year-end monies because this most often results in over-buying or external losses due to shelf life or changing requirements.
- Buy GSA available products with recovered or recycled content because of savings in natural resources during production and overall lower cost.
- Never accept product samples that contain regulated chemicals.
- Insist that all products purchased have current Material Safety Data Sheets.
- Do not buy products in aerosol canisters. Buy in usable bulk and try today's dispensing canisters that are air driven.
- Incorporate all necessary and appropriate language into subcontracts and agreements to ensure your forest/district pollution prevention ethic is upheld by your support organizations.
- Provide training to facility buyers on the nature of hazardous materials in order to prevent the purchase of products containing hazardous materials.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

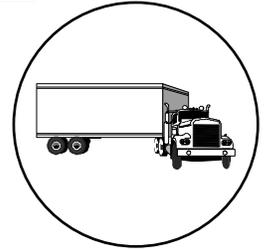




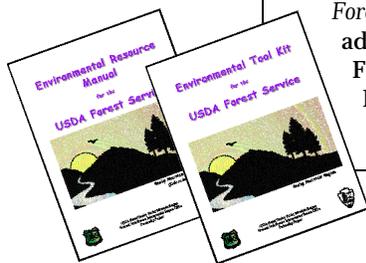
Shipping and Receiving

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Reduce all shipping materials. Wastes typically generated from shipping materials to and from your forest/district include boxes, pallets, shrink wrap, tape, strapping, wrapping materials, drums, and plastic containers. Corrugated paper products represent the largest waste stream with more than 25 billion boxes generated annually, which make up over 30% of the total municipal solid waste in the United States.
- Rethink ways to eliminate unnecessary packaging: choose packaging that matches the product size, weight, shape, fragility, filling requirements, pallet pattern, warehousing needs, and mode of shipment. Eliminate multiple packaging and shrinkwrap.
- Work with suppliers to reduce or eliminate packaging whenever possible, and insist on the use of recycled-content packaging.
- Require suppliers to use padded delivery vehicles to reduce packaging needs.
- Ship in bulk whenever feasible to avoid individual product shipping packaging. Reuse incoming shipping materials, including boxes, peanuts, and bubble wrap. Use shredded paper.
- Insist that suppliers accept return shipments of packaging (e.g., pallets, containers, drums).
- Recycle wastes and avoid landfills!
- Do not accept broken or leaking packages!
- Make sure a Material Safety Data Sheet accompanies all products.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.



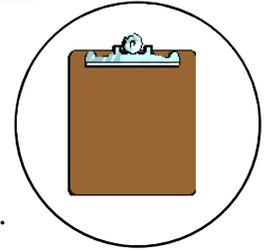


Inventory Control

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Develop a forest policy that end-of-the-year money will not be used to buy supplies and products.
- Have a first-in, first-out inventory management for new supplies and products.
- Ensure that everyone who orders materials and products has a good understanding about how much they use each year and how much they have on hand *before* placing new orders.
- Order only the amount you will use in one year or season. This will reduce out-of-date and old product waste.
- Reduce and ultimately eliminate all out-of-date materials and products. From 50% to 70% of the waste sent out by many facilities is out-of-date or no longer used materials and products. Much of it has to be treated as a hazardous waste; this is a very expensive process.
- Beware of accepting “free” product samples from other federal agencies and vendors. If it is not something you *know* you will use, it may need to be disposed of in the future, perhaps as a hazardous waste, at a great cost!
- Always require a Material Safety Data Sheet with all free product samples from any source.
- Consider having a forest/district-wide cleanup annually. If you do, be sure to involve all departments and end the cleanup with a brainstorming session to outline ways to prevent poor inventory control in the future.
- Combine purchasing and inventorying of products between functions within forests/districts to reduce the number of different products, reduce over-purchasing, and inventory control.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

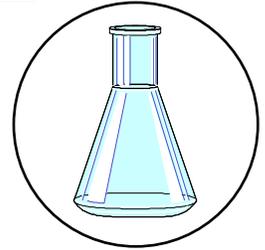




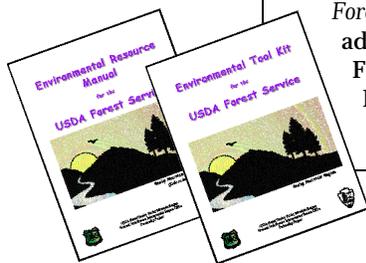
Laboratories

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Establish a standard labeling procedure for all used and unused reagents in test tubes, beakers, vials, and bottles. This will avoid having to consider unknown materials as hazardous wastes.
- Buy only the products you need, and in quantities you will use. Over-buying leads to unused products with expired shelf-life, which can potentially turn into a hazardous waste.
- Establish a strict inventory control on all products to avoid wastes and misuse. See *General Housekeeping Practices* flyer.
- For more than 50 reagents and chemicals on hand, consider instituting a simple bar-coding based inventory system.
- Substitute non-hazardous or less toxic materials for hazardous materials. Consider sodium hypochlorite for sodium dichromate; alcohol for benzene; cyclohexane for carbon tetrachloride in standard qualitative tests for halide ions; acetamide with stearic acid in phase change and freezing point depression experiments; and 1,1,1-trichloroethane instead of carbon tetrachloride and/or chloroform.
- Consider detergents, potassium hydroxide, and sonic baths as substitutes for the chromic acid solutions used to clean glassware.
- Scale down your experiments to minimize use of materials and ultimately wastes.
- Consider on-site recycling to reclaim solvents and noble metals such as silver and mercury.
- Require all individuals who conduct research in the forest/district to “pack it out.”
- Develop a chemical hygiene plan and conduct training as prescribed by the Forest Service in the document entitled “*Chemical Exposure to Hazardous Chemicals in the Laboratory.*”



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.



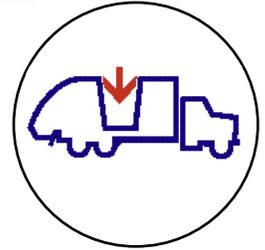


Active and Abandoned Boneyards

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Survey your forest/district and identify all abandoned and active boneyards – whether they are permitted or not, or whether they were created by facility operations or by outside or illegal activities.
- Limit the boneyards to the ones you have; do not open additional locations.
- Each boneyard should be visually inspected to determine if there is cause for concern that there has been a release of hazardous materials. Warning signs can include soil staining and chemical odors.
- All hazardous materials (e.g., abandoned drums or other containers, electrical equipment with PCBs) must be removed and disposed of within regulatory guidelines. Use an outside licensed hazardous waste hauler and require that testing be done to determine the waste content.
- Never allow known or suspected hazardous materials to be stored in any boneyard – regardless of container integrity.
- Consider forest/district-wide solid waste minimization and recycling programs; see *Facility Recycling Programs* and *Solid Waste Minimization Programs* flyers.
- If you suspect a hazardous waste contamination in any boneyard, take action immediately through your forest/district pollution prevention coordinator. Work with the Regional RCRA Project Manager and forest/district pollution prevention coordinator to do a survey of the site.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





Handgun and Rifle Ranges

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Collect all brass and aluminum cases for recycling, either as scrape metal, or for reloading.
- Carefully contain and collect *all* lead shot and lead-related firing range materials.
- Discharged lead shot and lead dust are the largest hazardous waste streams in your firing range. Lead shot often contaminates the ground or other areas where it is collected, so be aware. Do not sweep lead dust particles as this only serves to spread the dust into the air. Wet mopping or the use of special vacuum cleaners (with lead trapping filters) can often be used effectively to remove lead dust particles.
- If your range is inside, be especially cautious of lead dust as it is a hazardous air pollutant and is regulated. Ventilation from firing areas must not be mixed with air to and from other areas. Filters in your ventilation system may become contaminated with lead dust and need to be considered as a hazardous waste when removed.
- Collect discharged ammunition through a sand or water trap. Eventually the sand or water may become contaminated and must be considered hazardous when removed.
- Use a commercial laundry to clean uniforms, gloves, and other materials used at the firing range.
- Recycle targets (e.g., paper and metal) as long as they are not contaminated with lead; otherwise they may have to be considered a hazardous waste.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

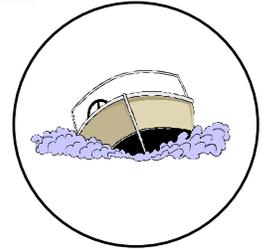




Marinas and Boatyards

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Make every effort to minimize the impacts of the following operations common to marinas and boatyards: painting and paint removal, welding and metal cutting, woodworking, and engine repair and servicing. Where possible, out-source hazardous waste-generating operations to local off-forest service providers.
- One of the biggest risks in this area is the potential for contamination of surface waters from wastes from the marinas and boatyards. Ensure that this concern is mitigated by doing service work only in approved areas, and make sure that wastes (liquid and solid) from these areas cannot reach surface waters or objects that are moved into surface waters.
- For tips on reducing wastes associated with engine repairs and servicing, see the following flyers: *Automotive Repair Operations*; *Automotive & Industrial Cleaning Solvents*; *Used Oils and Lubricants*; *Used Batteries*; *Automotive Brake & Transmission Repair Wastes*; *Automotive Tire and Rubber Product Wastes*; *Spent Automotive Filters*; *Automotive Used Antifreeze*; *Automotive Servicing "Hot Tanks"*; and *Rags, Wipers, and Absorbents*.
- For general marina concerns, see *Used Fuels and Solid Waste Minimization* flyers.
- For tips on reducing waste associated with boatyard painting and reconditioning operations, see *Paint Applications and Paint Cleanup* flyers.
- Rainwater runoff is a major concern for marinas and boatyards. Make certain that all materials that are hazardous are protected from the rain and any rainwater flows into the surface water.
- Recycle fish wastes back into the ecosystem, but make sure appropriate places are marked.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

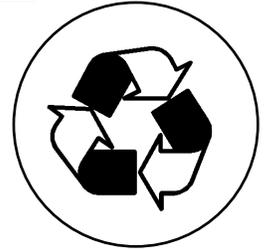




Solid Waste Management

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Develop a forest/district-wide Solid Waste Management Program using the Forest Service tool kit cited below. Generation of solid waste at most forests/districts is primarily from discarded product packaging, shipping containers, waste paper, metal, wood, and even furniture and appliances. Many of these wastes can be avoided or sent to secondary markets for recycling.
- Launch a forest/district-wide recycling effort as part of your Solid Waste Management Program. Recycling one aluminum can saves enough energy to produce 19 more. Recycling one glass bottle saves enough energy to power a 100-watt bulb for four hours.
- A forest/district recycling program takes management and staff commitment, and involves everyone, including visitors. A successful recycling program can be achieved by recycling, appointing a recycling coordinator, and developing support materials such as posters and memos.
- Inventory types and approximate volumes of materials being sent to landfills. Devise the critical approach for collecting the materials so they can easily be separated and sent to secondary markets.
- Promote your recycling program to your employees, subcontractors, and visitors. Keep track of how much your recycling program has avoided in new raw materials and natural resources.
- A recycling program may not be a big money maker. Even if you only break even, you will have achieved a great service to your facility and to our natural resources.
- Publicize your program district/forest-wide to increase awareness and buy-in.
- There are many “internal” operational solid waste ideas that have had great results: reduce the number of copies for distribution and print on both sides of paper, use computer e-mail or postings, reduce font sizes, buy only what is needed (even though you think you might save money), donate waste food scrapes to charity organizations or compost them.
- For visitor and conference centers: use china and glassware instead of disposal items, use recycled paper products wherever possible, provide newly laundered linen only on request, use cloth napkins instead of paper.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.





General Office Activities

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- While the office environment does not typically use hazardous materials nor generate hazardous wastes, they do produce solid wastes which are common to all forests. Establish a forest/district-wide program to reduce the solid waste streams, especially paper, plastic, glass, cardboard, and aluminum.
- To conserve energy, use compact fluorescent light bulbs instead of incandescent bulbs. Replace all magnetic fluorescent ballasts with electronic ballasts. Replace old fluorescent bulbs with new energy efficient bulbs.
- Replace all disposable office service items (e.g., coffee cups, plates, utensils) with reusable items. Minimize use of paper; see *Solid Waste Minimization* flyer. Not only will the environment benefit, direct cost savings will be realized.
- Send all spent printer and typewriter cartridges for recycling and use recycled replacements.
- Establish an office recycling program. See *Solid Waste Recycling Programs* flyer. The forest/district environment is a direct beneficiary as is the forest/district budget.
- Whenever possible, use recovered content products (e.g., paper, napkins, and even office furniture). See your GSA supplier.
- Conserve energy by turning all equipment off when not in use. Lowering all heating thermostats and raising all air conditioning thermostats. Buy *Energy Star* electronic equipment. Participate in the *Green Lights Program*.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





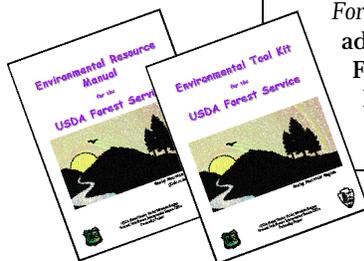
Lodging and Hospitality

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Include lodging and hospitality functions in your Solid Waste Management Program. These can include overnight guest lodging, camping areas, conference and visitor center activities, and food services – all of which can be major contributors to your forest/district waste streams.
- Use china, glassware, metal utensils, and cloth napkins as much as possible to reduce the use of one-time only disposable items.
- Set up recycling centers for all visitors and guests for collecting cans, bottles, newspapers, paper, and other common wastes. Be sure these enter your forest/district recycling program for shipment to secondary recycling markets.
- Always use paper, plastic name card holders, and other service needs that contain recycled content. Collect and re-use.
- Provide bus and other forms of transportation as much as possible to avoid car rental and private vehicle use in your forest/district.
- Clean rooms only on request to reduce labor, use of cleaning materials, and disposal of unused complimentary guest items. Provide new linens on request to avoid unnecessary laundry with savings water and cleaning materials.
- Let all guests and visitors know of your conservation goals and strategies and solicit their support.
- Eliminate all cleaning products that contain regulated chemicals. Buy in small quantities sufficient to meet needs in order to reduce waste. Eliminate all aerosol canisters and use look- alike. Minimize the use of bleach. Look for multi-tasking types of cleaners to reduce the number of products.
- Use cloth wiper and eliminate the use of disposal paper wipers.
- Look for secondary uses of laundry water.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

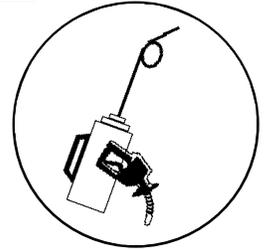




Used Fuels

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Never use any type of fuel as a degreaser or parts cleaner anywhere, for any reason!
- All fuels are considered a “hazardous material” and if discarded, must be treated as a hazardous waste due to their low flash point and/or chemical components (e.g., toluene and xylene).
- Never allow fuels to be released onto or into the ground, into a surface body of water, or into any domestic or stormwater sewer system.
- Use only one fuel/oil mixture for all small engines in the forest/district. Assign one person to do all the mixing. Keep it in one larger container for dispensing as needed. Drain and collect all fuels at the end of the season for re-storage or disposal.
- Filtering water or other debris from gasoline using a chamois or density segregation is acceptable. Sediments from gas tanks or fuels are not hazardous if dried.
- Find a new use for used gasoline, even if you have to filter it. This avoids the costly process of collecting, storing, managing, transporting, and disposing of it as a hazardous waste.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region

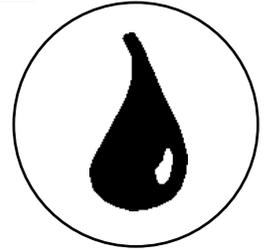




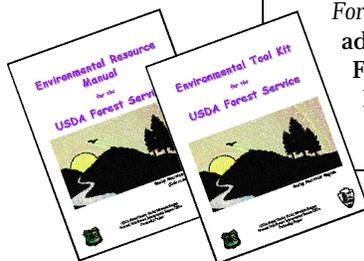
Used Oils and Lubricants

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Recycle all used oils. Remember, it takes 42 gallons of crude oil to produce 2.5 quarts of new lubricating oil, and only one gallon of used oil to produce 2.5 quarts. Engine oils do not wear out, only the additives become depleted or altered by use – recycling used oil not only avoids regulatory concerns, it also conserves a limited natural resource.
- Always use an approved and licensed recycler. Used oils are not hazardous if they are recycled through an approved recycler or recovery process, and are not mixed with any other hazardous waste. Otherwise, they may be considered hazardous and handled, stored, transported, and disposed of as a hazardous waste.
- Never discard or drain used oil onto the ground, into the domestic or stormwater sewer systems, into bodies of surface water, into dumpsters, or used as a dust suppressant. Always collect used oil in central storage tanks for authorized recycling purposes. Use drip pans under leaking vehicles to avoid dripping oils onto the ground or your shop floor.
- All used oil containers *must* be marked “USED OIL” and have a secondary containment.
- Do not purchase or use, or allow to be used, oil additives in your automotive serving functions. These may result in making your used oil a hazardous waste and not qualified for exemption.
- Avoid accepting used oils from on-forest/district households; they may not be free of contamination.
- Test your used oils for chlorinated compounds, or keep records of the used oil recycler’s tests.
- You can only transport up to 55 gallons of used oil and that is only if you are hauling it to a licensed used oil collection center.
- Call the Defense Supply Center Richmond (1-800-345-6333) for someone to pick up your used oil if a local service provider is not found; also talk to them about using re-refined oil – it works!



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.



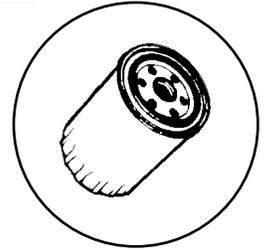


Spent Automotive Filters

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Improperly drained oil filters can contain as much as five ounces of used oil and are a major source of used oil waste in the United States. Thoroughly hot drain all filters for 24 hours, never drain filters outdoors, and puncture the oil filter around the dome to allow all trapped oil to escape.
- Do not purchase, accept, or use, terne-plated oil filters because they contain lead!
- Used oil filters are usually regulated as a hazardous waste because they often contain heavy metals, *unless* they are recycled. Crush, puncture, or dismantle drained used oil filters, and send them out for metal recycling.
- Collect all oil drained from the filters. You can combine it with the used oil drained from the vehicle. Recycle all used oils – see *Used Oils and Lubricants* flyer.
- Drain spent transmission and fuel filters as well, and once thoroughly drained, they can be considered non-hazardous and discarded in a dumpster. Check with your used oil recycler, they may take these used filters (even undrained) with the used transmission fluids.
- Treat air-conditioning filters containing CFC-12 or an equivalent Freon® as a hazardous waste. It may also be necessary to treat your antifreeze recycler filters as a hazardous waste as well.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





Used Antifreeze

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Take special care throughout all processes involving antifreeze to ensure they are not accessible by children or animals! Most antifreeze is comprised primarily of ethylene glycol which is sweet tasting and very attractive to most children and animals. It is a *deadly poison* to both.
- Used antifreeze is considered a hazardous waste because of the chemical components and heavy metals that it may contain, *unless* it is recycled on-site, or sent off-site to a licensed recycler.
- Never discard or drain or discard used antifreeze onto the ground, into the domestic or stormwater sewer systems, into bodies of surface water, or into dumpsters.
- In many cases ethylene glycol is now being replaced with propylene glycol, which is not as toxic. However, at the end of its useful life, it becomes just as hazardous as ethylene glycol.
- The optimum approach is to recycle used antifreeze in your automotive operation into reconditioned antifreeze. Small, inexpensive portable antifreeze recycling units are available for use on-site.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region

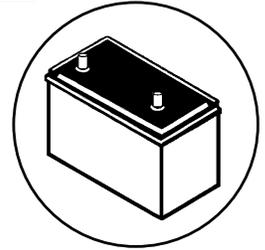




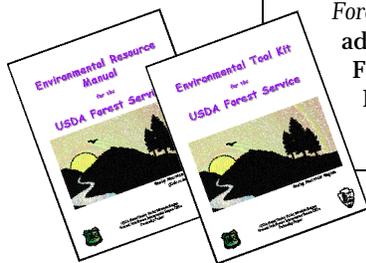
Used Batteries

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Used lead-acid batteries are regulated as a hazardous waste because they contain extremely corrosive acid and concentrated amounts of toxic lead, *unless* they are recycled or reconditioned for reuse. Therefore, *do not* store used batteries at your forest/district – turn them in on a one-for-one basis to an authorized battery recycler when you buy a new battery.
- If you have damaged or leaking lead-acid batteries that your recycler will not take, they must be collected, stored, managed, transported, and disposed of as a hazardous waste.
- Dry cell batteries may be hazardous if they contain mercury and must therefore, be collected, stored, managed, transported, and disposed of as a hazardous waste.
- Do not give away surplus batteries as they may create a hazardous waste problem for someone else unknowingly, and do not store them in your boneyards.
- Store all new and usable used lead-acid batteries in a covered and secure spill containment area that is not exposed to high or low temperatures (*do not* let them freeze or get too hot).
- If you service lead-acid batteries (e.g., charge, clean, add acid) you must have a designated location which has proper venting, secondary containment, and placarding. This is a worker and facility safety issue as well as potential for environmental concerns. Whenever possible, out-source all battery maintenance and eliminate this function.
- Immediately locate and remove for recycling all lead-acid batteries that are no longer usable. Look in boneyards, cabinets, on workbenches, in closets and storage lockers, around buildings, and anywhere else they may exist – and do not let them accumulate again.
- Spent nickel-cadmium (Ni-Cd) batteries can be considered a hazardous waste unless they are recycled. Check with your local Ace Hardware, Target, or Wal-Mart stores as they often accept spent Ni-Cd batteries for recycling, or call 1-800-8-BATTERY for the nearest recycling location.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.





Rags, Wipers, and Absorbents

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- EPA states that “recyclable” rags are those used “...in the normal process of cleaning parts...”, and not to clean up spills. Rags that are laundered through a commercial laundry are considered “recyclable” rather than hazardous waste even though they may contain hazardous solvents. Check with your state environmental agency for their policy.
- Rags and wipers that contain hazardous solvents, must be considered a hazardous waste, *unless* they are recycled through a commercial laundry. Check with your state for specific regulations.
- Cease using disposable paper wipers which will add to your hazardous waste volume. Use only “recyclable” rags and wipers, and be sure to use a reputable licensed commercial laundry.
- A major savings can be realized when using any rags or wipers by completely eliminating all cleaning solvents that cause regulated waste.
- Store all used rages and wipers in sealed, labeled waste containers. This will reduce air emissions.
- Do not use sawdust to clean floor spills. Use a floor cleaner that is appropriate for sewer discharge restriction.
- Used rags in storage can be a fire hazard. Be certain to use appropriate, marked, fireproof storage containers.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region



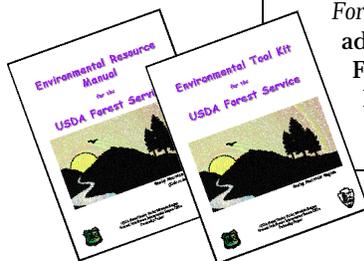
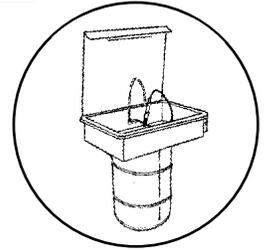


General Degreasing Solvents

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Cease all use of products that contain chlorinated compounds. Replace these with any of a wide-range of proven non-hazardous products that are now available. See the list of problem products in the Forest Service resource manual.
- Cease use of service-provider solvents that require you to sign a hazardous waste manifest before they remove it from your facility (e.g., Safety Kleen). Replace it with other cleaning techniques or products that are not hazardous.
- Be certain to test the new biodegradable solvents to be sure they work before buying a new system.
- Do not purchase aerosol containers as a solvent dispenser. Please see *Avoiding Aerosol Canisters* flyer.
- Reduce the number of solvents in use. Use filtration or distillation processes to recover solvent for reuse.
- Use solvent tanks in place of “dunk buckets,” and avoid drag-out losses with increased free-board or drain boards together with removing parts slowly from solvent to let excess fluid to drain.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





Used Refrigerants

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Phase out the use of all chlorofluorocarbons. Automotive air-conditioner refrigerants have been the largest source of ozone depleting chlorofluorocarbons (CFCs) in the United States, and are now outlawed as a part of a national program to reduce ozone impact and production of green house gases.
- Cooling and freezer systems are widely used in forest/district facilities and therefore are another area of CFC concern. Freon® R-12 (for medium temperatures) and R-502 (low temperatures) are most common. Include these in your phase-out program.
- Keep your structure air conditioning systems in good repair. Always use only certified and licensed technicians to work on your systems.
- Consider new Freon® technologies, R-134A (medium temperatures) and R-404A (HP62) for low temperatures or even R-401A or R-401B (MP39 or MP66), when replacing compressors or complete systems. Be sure to ask if you need to replace the system oil (typically a mineral oil).
- Automotive air conditioning refrigerants are considered a hazardous waste, unless they are recycled on-site for reuse, or sent off-site to a licensed CFC recycler. Never, dispose of CFCs by letting them evaporate into the atmosphere!
- All automotive refrigerants work must be accomplished by a licensed service technician.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region

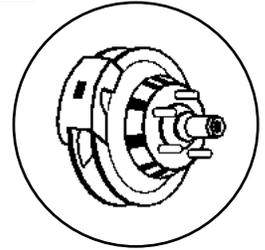




Automotive Brake Servicing

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Recycle all brake fluids. They typically contain diethylene glycol and as a waste may need to be treated as hazardous. Never pour brake fluid into the domestic or storm sewer systems, onto the ground, or dispose of in the trash or landfills.
- Asbestos dust and friable asbestos from older brake shoes are hazardous waste and can create air pollutants. Be careful when handling or working with these components as there are exposure limits – consider an asbestos collection system if this is a significant function.
- Some brake cleaners, and even carburetor cleaners, contain 1,1,1-trichloroethane (TCA), methyl ethyl ketone (MEK), methylene chloride or dichlorobenzene, all of which can cause wastes to become hazardous and are a contributor to hazardous air pollutants. Eliminate them!
- Spent transmission fluids typically contain lead and other toxic heavy metals and therefore must be treated as a hazardous waste *if* they are not recycled.
- Eliminate all products that contain chlorinated compounds. See *Automotive & Industrial Solvents* flyer.
- Do not purchase aerosol containers as a solvent dispenser. Please see *Avoiding Aerosol Canisters* flyer.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





Automotive Servicing “Hot Tanks”

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Hot tank wastes typically are hazardous (corrosive) because they have pHs below 2.0 or greater than 12.5. If this is your case, you will need to follow the costly process of collecting, storing, managing, transporting, and disposing of them as a hazardous waste.
- Move away from acid and caustic (alkaline) cleaners, and move towards less harmful, strong, detergent-based cleaners. Avoid hot tank cleaners that contain sodium hydroxide or 2-butoxyethanol.
- Consider two-stage cleaning with the first stage being for heavily soiled or greasy parts and the second stage for hot detergent cleaning and rinsing.
- Use high-velocity, low volume, spray wands to dislodge heavily soiled or greasy parts.
- Consider industrial grade “dishwashers” as an effective replacement for hot tanks.
- Ultrasonic cleaners, air agitation, and media bead blasting, are other forms of mechanical agitation that work great in some situations.
- If hazardous wastes are unavoidable, be sure to keep lids on the tanks and recycle or dispose of the contents with a permitted recycling service provider or permitted transporter/disposal facility.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region



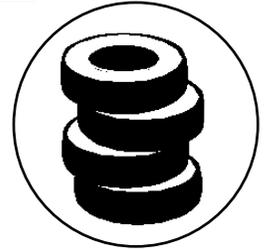


Tire and Rubber Product Wastes

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Approximately 78% of over 242 million scrap tires generated in the United States each year are still piled on land, while 7 to 10% are recycled into new products; give the land a chance and recycle all the rubber products that you can where you purchase your new tires.
- Best estimates are that 2 billion used tires are located in automotive shops, tire stores, and both legal and illegal dumps across the country. *Don't* discard your used tires in you boneyards! Recycle them off-site.
- To reduce risk of an uncontrolled fire, if you have bulk storage of tires in your forest/district, you need to consider at least 30-foot fire breaks between rows. Piles of tires should never exceed 100 feet by 50 feet by 20 feet high. Your local fire marshall may have additional guidelines for you to consider.
- For tires that are stored at your facility for reuse (e.g., snow tires), keep them out of rain and snow. Tires that are exposed to the elements are breeding grounds for disease-carrying mosquitoes and can be a fire hazard.
- Separate lead weights (for wheel balancing) from your discarded tires and send the lead to a recycling or salvage yard for recycling.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region





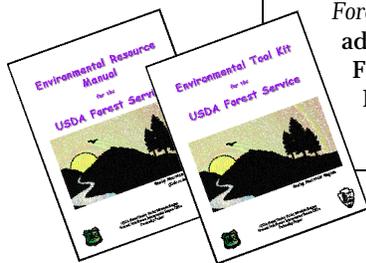
General Painting Operations

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Wherever possible, use non-hazardous paints (e.g., water-based or latex paints), thus removing a potentially large hazardous waste stream. Buy only what you need for the job, and mix only the paint you need for the task.
- Do not purchase paint in aerosol containers; see *Avoiding Aerosol Canisters* flyer.
- Standard air spray gun efficiencies typically range from 18 to 42%, with the minimum acceptable for high efficiency guns used by trained technicians at 65%. High Volume Low Pressure (HVLP) spray gun systems are the most efficient – use the most efficient method possible. They are also the most economical.
- One of the most efficient improvements in spray painting operations is *training*. Invest in training your operators for maximum results.
- Consider computer matching of paints for critical applications and to avoid paint wastes.
- Avoid excess wastes by using small paint cups and Teflon® paint cups for easier cleaning. Scrape paint cups of all dry residue paint before cleaning with a solvent.
- Make sure your surface is ready for painting to avoid losses from repainting.
- Practice good housekeeping methods throughout your painting operations – see *General Housekeeping Practices* flyer.
- Go to paint chip and computer matching techniques so you can completely eliminate small quantity paint accumulations for future use.
- Consider out-sourcing larger painting tasks and certainly out-source vehicle painting. Insist that service-providers use only non-hazardous paints and paint cleanup solvents.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

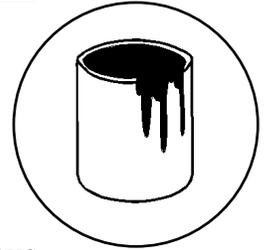




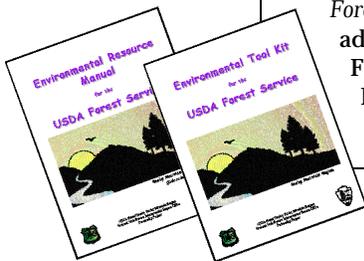
Paint Cleanup

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Institute simple housekeeping practices throughout all painting operations – see *General Housekeeping Practices* flyer.
- Paint cleaning solvents and thinners are now available that are hydrocarbon-based and non-hazardous – try to eliminate traditional solvents that are hazardous.
- If you continue to use solvents in your operations, consider a filtration or distillation unit to reclaim used solvent. Remember, solvent still bottoms are a hazardous waste.
- Always use an enclosed spray gun cleaner that traps and recycles 100% of the cleaning solvent. *Never* allow operators to clean their systems by spraying cleaning solvent into the atmosphere!
- Minimize the number of solvents used for all cleaning operations.
- Centralize all painting and paint cleaning operations to avoid unnecessary wastes.
- Use “spent” solvents as a “pre-cleaner,” thus reducing cleaning load on newer solvents.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

Rocky Mountain
Region

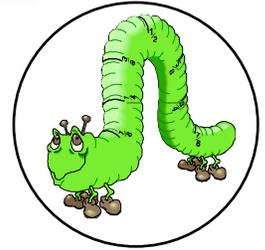




Pesticides & Herbicides (New and Old)

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Consider an Integrated Pest management (IPM) program which combines chemical, cultural, and biological practices into one program to manage pest populations. Consider less soluble, less-leachable, less-persistent, and less-toxic pesticides whenever possible.
- Minimize the use of pesticides and herbicides, and pick those that pose the least environmental risk for your situation. Treat only the necessary areas. Use contact pesticides whenever possible.
- When applying pesticides or herbicides, consider the weather's impact on pesticide migration. Control pesticide and herbicide droplet size and deposition. Avoid risk areas such as surface water, groundwater wells, wetlands, animal populations, and areas frequented by people.
- Mix and apply pesticides or herbicides only as specified by the manufacturer on the product packages.
- Calibrate application equipment. Consider using dyes to facilitate uniform application.
- Triple rinse all containers. Return cleaned containers to supplier or licensed drum reconditioner.
- Use cleaning water as makeup for the next pesticide or herbicide application. Use high pressure and water knife spray nozzles, steam cleaners, wiper blades for cleaning tanks and containers.
- Do not buy more than one year supply because they could become restricted in the future and may need to be disposed of as a hazardous waste. To avoid risk of product expiration or spillage, only mix enough pesticide/herbicide for your present application needs. Use good house-keeping practices to avoid unnecessary wastes – see *General Housekeeping Practices* flyer.
- If pesticides are used, a pesticide-use coordinator and certified specialists may be required. Be sure to comply with the requirements of Forest Service Manual Section 2100, Chapter 2150, "Pesticide-Use Management and Coordination."
- If pesticides are used, safety and pesticide spill emergency plans are required (see Forest Service Manual, Sections 2109.14,10 and 2109.14,60).



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.



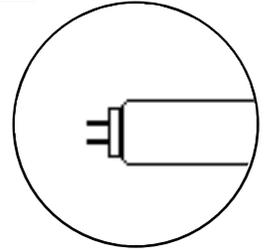


Recycling Mercury-Containing Lamps

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Some fluorescent and high-intensity discharge (HID) lamps contain a small quantity of mercury that can be harmful to the environment and to human health if improperly managed.
- If your fluorescent lamps contain mercury in concentrations that exceed 0.2 milligrams per liter, the lamp must be considered a hazardous waste, *unless* it is recycled through a permitted recycling facility.
- Be certain to ask for Materials Safety Data Sheets for all of your bulbs and lamps. This will allow you to determine if there are any hazardous waste concerns.
- Keep your spent lamps in replacement lamp boxes until you have enough to recycle. You *could* set up an operation to crush the lamps for storage until disposal, but this is not recommended.
- Lamps that do not contain hazardous materials (e.g., mercury) can also be recycled, or disposed of in a landfill.
- As an energy conservation step, consider replacing all magnetic fluorescent ballasts with new electronic ballasts, and replace older fluorescent light bulbs with new energy efficient fluorescent bulbs.
- Don't forget to join the U.S. Environmental Protection Agency's Green Lights Program. It can save your forest/district considerable energy costs and bring kudos to your efforts.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.



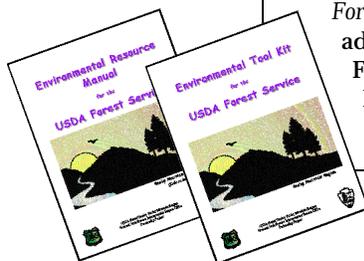
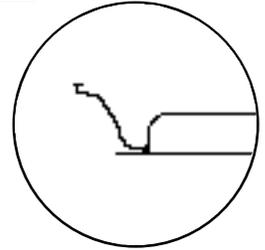


PCB- Containing Ballasts

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!

- Fluorescent lighting magnetic ballasts are commonplace throughout almost all forests and districts and many of their earlier versions contain polychlorinated biphenyls (PCBs). These can be extremely hazardous, and when removed, must be considered a hazardous waste.
- Identifying PCB-containing ballasts is somewhat easy: nearly all ballasts manufactured prior to 1979 contain PCBs, and all ballasts have date stamps. After July 1, 1978, ballasts that do *not* contain PCBs are required to be clearly marked as “No PCBs.”
- A leaking PCB-containing ballast is easy to identify; PCBs are a clear or yellow oil and in most cases can be visually observed.
- All leaking ballasts need to be carefully removed from installation and placed in an approved drum for storage, transport, and disposal as a hazardous waste.
- Non-leaking ballasts with PCB concentrations of greater than 50 parts per million (ppm) cannot be disposed of in landfills. As a policy, never landfill PCB-containing ballasts. Proper hazardous waste landfills are acceptable as is incineration. However, there are ballast recycling facilities available that you should consider. They usually cost less than incineration, and usually remove any long-term liability you might otherwise have.
- As a pollution prevention option, always replace magnetic ballasts and fluorescent lights with today’s high efficiency versions, including electronic ballasts which are non-PCB-containing units.
- You are not in compliance for PCB-containing ballast disposal. Do not dispose of any PCB-containing ballast within your forest/district.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.





General “Housekeeping” Practices

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Establish a strict inventory control to ensure all materials are properly stored and labeled. Use the “first-in, first-out” inventory control method to avoid loss from expired shelf-life. Store containers on pallets to prevent container corrosion. Routinely inspect all storage areas for leaking containers.
- Keep all lids and bungholes tightly closed to avoid evaporation of product and to prevent spills if the container is tipped over.
- Avoid spills by using a gravity spigot or pump to dispense bulk liquids. Avoid transferring liquids between containers by pouring if at all possible. If you must pour, always use a funnel when transferring liquids from larger containers to smaller ones.
- Establish controlled use of all hazardous products. Monitor all product usage, including the individual using the products, and quantities used. Patterns of excess use may become apparent that lend themselves to behavior modification.
- Keep your inventory storage and all work areas and laboratories clean and orderly.
- To optimize product use consider a central dispensing area where regulated materials can be issued on a return basis only. Keep track of all personnel who use these materials to track efficiencies. Never buy paints or cleaning products aerosol canisters. Buy only in manageable bulk to prevent product expiration and use aerosol “look alikes” such as compressed-air-driven recyclable spray containers.
- Always keep hazardous products separate from all other materials. Store according to manufacturer’s specifications.
- Combine inventories, reduce the number of products used, and limit quantities to only what can be used to avoid waste.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.





Senior Management Support

Pollution Prevention Survey Project

Get rid of waste and reduce your regulatory burden through pollution prevention!



- Commitment to progressive environmental management is the single most important environmental action a forest supervisor can make. Making this decision will empower all staff to maximize understanding and compliance with environmental regulatory obligations, and avoid environmental violations and financial liabilities for your forest.
- Management commitment to a pollution prevention program is critical to reduce waste generation, reduce environmental compliance obligations, protect natural resources, minimize environmental related expenses, and remove exposure for environmental violations and financial liabilities for your forest.
- Start your pollution prevention program with a forest policy emphasizing responsible environmental management through the concepts of pollution prevention and source reduction.
- Identify critical hazardous waste streams and establish goals and schedules for reduction or elimination. Measure overall progress. Identify less critical waste streams, and set new goals and schedules until all wastes have been addressed.
- Consider incentives for employees that really make a difference through the forest's pollution prevention program. Peer recognition, special awards, a chance to do more, a day off, and financial awards are some incentives that may be effective.
- Non-hazardous, effective products and/or processes are available for nearly every forest/district operational area. Search out those that work for your situation.
- Always be wary of gradual changes that increase wastes or allow hazardous materials on the forest/district. It is human nature to want to revert back to what is familiar.
- If you generate hazardous waste, Safety and Health and Pollution Prevention Coordinators are required as prescribed by the Forest Service Manual (Sections 2160.43b and 2160.43c), and training must be accomplished as prescribed in Sections 2161.04c, 2161.4, 2161.41, 2161.41a, 2161.41b, 2161.42, 2161.43, and 2161.44.



Got questions? The answers can be found in the *Environmental Tool Kit for the USDA Forest Service*, and the *Environmental Resource Manual for the USDA Forest Service*. For additional copies or more assistance, contact Robert C. Steckley, USDA Forest Service Rocky Mountain Region (Region 2) RCRA Project Manager at (303) 275-5173 (voice), (303) 275-5170 (facsimile), or rsteckle/r2@fs.fed.us.

