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Best Management Tips for Automotive & Truck Repair Businesses

Vehicle repair businesses are potentially major sources of hazardous waste due to the nature of their work. Following are tips provided by the Waste Management Section, Environmental Assistance Coordinator. These tips will help you stay in compliance with hazardous waste regulations and represent a first step in a sound pollution prevention program. These steps can also help decrease total costs by reducing product purchases and cutting disposal costs. You can take pride in helping maintain Nebraska's clean and healthy environment. You may even gain new customers because of your environmentally sound practices. This material is intended for guidance purposes only. It is not meant to substitute for any applicable Nebraska environmental regulations. These tips are not meant to cover every possibility, but do provide some food for thought. If you have additional ideas that work for you, please let us know by contacting the NDEE Waste Management Compliance Unit, Environmental Assistance Coordinator at (402) 471-8308.

Floors

- Keep floors clean. Catch leaks before they reach the floor.
- Avoid flushing with water to clean floors. Instead, use a wet vacuum or mop and dispose of cleaning wastes properly. There are floor-cleaning machines on the market that do an excellent job of cleaning shop floors and minimizing waste.
- Areas where vehicles are stored or repaired should have an impermeable surface and have provisions for containment of vehicle leaks.
- Vehicle wash bays should be completely bermed. Use drip pans so fluids do not leak onto the ground or concrete. Store drip pans to prevent drips, leaks and spills.
- Consider sealing service bay concrete floors with an impervious material.
- Don't let paint residues build up on the floor to be hosed down a drain or outside. These wastes could be hazardous.

Floor Drains

- Floor drains in service bays and vehicle washing areas must be connected to a holding tank with a gravity discharge pipe, to a sump that pumps to a holding tank, or to a municipal sanitary sewer. Obtain permission from your local publicly owned water treatment plant for your floor cleaning wastes to enter the sanitary sewer. NDEE recommends the use of an appropriately

designed and operational oil/water separator. Floor drains must not be connected to a leach field or septic system if the drain is used for automotive fluids.

- If vehicle washing is conducted regularly, floor drains in wash bays should be connected to a separate oil/water separator that then discharges to the municipal sanitary sewer. Wastewater from vehicle washing represents significant flows that can hydraulically overload an oil/water separator and may contain detergents that can emulsify oils in an oil/water separator and impair treatment of oily wastewater from service bay floor drains.
- Oil/water separators must not be used to collect spills or concentrated wastes.
- Service bay floor drains that discharge to dry wells must be cleaned out and eliminated. Liquid and sediment samples from closed dry wells should be taken for hazardous waste testing. Contaminated dry wells should be removed and contents disposed in accordance with regulatory requirements.
- The “sludge” from floor drains may be a hazardous waste. Perform a proper hazardous waste determination before disposal. See the NDEE Environmental Guidance Document “Sump, Pit, Trench, & Trap Wastes: Hazardous Waste Determinations.”

Lifts and Pits

- Hydraulic lifts should be regularly checked for leaks and potential releases of fluid. Above ground lift systems should be used in lieu of in-ground systems when possible.
- Service pits with earthen floors should be checked for contamination. If contamination is found, action should be taken to clean it up. Service pits should be completely surfaced with concrete and sealed with a suitable material. Provide for collection of spills or accumulations of wastes.

Storm Water Management

- Uncovered vehicle storage areas can have a separate storm water collection system with an oil/water separator that will discharge to the municipal sanitary sewer or to a holding tank. In any event, some facilities may need to be covered by a National Pollutant Discharge Elimination System (NPDES) Permit for storm water discharge associated with an industrial activity.

Work Areas

- Keep work areas clean to reduce spills and leaks. Check for leaks regularly and fix leaks immediately.
- Where space permits, dedicating service bays for specific operations such as parts cleaning and degreasing, engine steam cleaning, radiator repair, fluid changes and replacement, vehicle washing, rust proofing and undercoating, and body stripping and painting can minimize cross contamination. Dedicated service bays also facilitate segregation of waste types, and allow for more efficient handling of materials and wastes.
- Each service bay should be provided with a means to collect wastes. If hazardous waste is generated at any bay or station, a satellite accumulation container can often be used.

General Maintenance and Repair

- Keep up to date on new and improved technologies, practices, and regulations affecting your business.
- Use drip pans to minimize leaks and spills onto the floor. Don't do any maintenance involving potential fluid losses over open ground.
- Consider using high-performance, longer lasting oils to reduce the frequency of changes and the amount of waste produced.
- Implement an oil analysis program. This type of program can be used as a productive tool for potential maintenance and extend the time between oil changes. Oil analysis programs are most efficient when used for fleets of vehicles.
- Recycle used motor oil through a reputable recycling service. Do not pour used oil on the ground or in a storm drain, septic tank or dry well. Check with your waste oil handler to determine if you can dispose of cutting oils in your waste oil container. See the NDEE Environmental Guidance Document "Used Oil and Filters Management."
- Drain used oil filters for 12 hours. Used oil filters for recycling must be crushed, dismantled or punctured and hot-drained. Do not place oil filters in the trash without first ensuring they are properly drained (punctured and hot drained, crushed, etc.). The NDEE recommends recycling used oil filters.
- Most brake cleaners and carburetor cleaners contain constituents that can create hazardous waste. Contact NDEE Hazardous Waste Compliance Assistance if you have questions.
- Brake pads and shoes may contain asbestos. The dust from brakes may also contain asbestos. Do not use an air hose; instead use a HEPA-filtered vacuum or wet wipe the brake. Store asbestos wastes separate from other wastes in plastic bags and then into a sealed and labeled container. Notify the waste hauler that asbestos waste is present. You will probably need special permission from the landfill to dispose of asbestos waste.
- Consider recovering antifreeze either on-site or off-site. Units are available that chemically restore ethylene glycol by removing impurities and neutralizing organic acids formed as breakdown products in the coolant. Commercial services are also available that recycle antifreeze. If you recycle on site, filters and sludge produced from recycling may be hazardous. Therefore, you will need to determine if these wastes are hazardous.
- Test the used antifreeze to determine if it is hazardous waste, and dispose of it or recycle it accordingly. Store waste antifreeze in a separate, closed container labeled "SPENT ANTIFREEZE ONLY". Prior to recycling, spent antifreeze that is a hazardous waste must be managed as a hazardous waste.
- Do not mix antifreeze with any other wastes (such as used oil or waste solvents). Do not dispose of antifreeze in a storm drain, septic tank or dry well. Do not pour antifreeze on the ground or in the parking lot.
- Keep fuel tanks away from sources of sparks and flames.

- Recycle glass.
- Recycle lead wheel weights as scrap metal.

Parts Cleaning and Degreasing

- Service parts cleaners regularly to ensure there are no leaks and all seals fit properly.
- Isolate organic solvent parts cleaning and degreasing areas from floor drains.
- Pre-clean parts with a squeegee, rag, or wire brush. This approach helps minimize or possibly eliminate the use of hazardous solvents and prolong the life of cleaning solutions.
- High-pressure water washing may be an effective method of parts cleaning. Wastewater can sometimes be treated in an oil/water separator or specially designed system and recycled.
- When possible, use only hot water for pre-cleaning and subsequent cleaning steps. With an aqueous system, a detergent may be used and a rust inhibitor may be added if parts are sensitive to corrosion. Do not add chemicals or detergents to your cleaning water that allow oil to emulsify and then pass through your oil/water separator if installed.
- Aqueous or alkaline cleaners may be substituted for solvent-based cleaners in some applications, particularly for non-aluminum parts. Consider using a less hazardous solvent cleaner such as a citrus-based or terpene cleaner. Use solvents with the lowest percentage of VOC possible.
- Substitute non-chlorinated solvents for chlorinated compounds wherever possible.
- If hot water, detergent, or alkaline baths are inadequate, then use a non-chlorinated organic solvent such as d-limeoline (a terpene) or a high flash (>140°F) organic solvent. Avoid chlorinated solvents and other solvents with a specific gravity greater than 1.0. Check the Material Safety Data Sheet for that information.
- If organic based solvents are deemed necessary, explore alternatives that lengthen the solvent service life.
- Use one multi-purpose solvent if it generates non-hazardous waste rather than several to increase reuse and recycling potential and reduce purchasing complexities.
- Conduct parts cleaning and degreasing in a self-contained, recirculating solvent sink. Don't use any solvent in the sink other than the primary solvent.
- Increase freeboard and place hoods or covers on parts-cleaning tanks to minimize evaporation of solvent. Keep cleaning container closed when not in use to avoid evaporation, spills, fires and explosive hazards. Do not run parts cleaners unnecessarily.
- Place a drip rack over the cleaning tanks to allow for dragout to drain prior to any following cleaning step. Reduce dragout from parts cleaning by allowing a longer drip time, or wipe parts with wipers. Be aware the used wipes might then become a hazardous waste.

- On-site recycling systems may be used that employ distillation or filtration. These systems are maintained by trained staff or a contract person. Consider using a reduced-emission/closed loop system that captures evaporative losses.
- Spent aqueous and other non-hazardous solutions may be hazardous after use due to elevated concentrations of heavy metals or toxic organic substances. You will probably need to sample and test the spent solution(s) for hazardous waste. If determined to be a regulated hazardous waste, then manage it accordingly. Contact NDEE Hazardous Waste Compliance Assistance if you have questions.
- Solvent discoloration does not necessarily mean the end of the solvent's usefulness. Do not pour used cleaning solution on the ground, in a storm drain, septic tank, or dry well. Change solution only when necessary.
- Do not intentionally evaporate solvents as a means of disposal.
- Store sludge from tanks in a closed and properly labeled container. Do not dispose of sludge on the ground or in a dumpster. Don't use a septic tank pumping service to remove the sludge from parts washers.
- Consider employing a service that will maintain the parts-cleaning unit, exchange spent solvents, recycle the solvents off-site, or dispose of the spent solvents properly on a contractual basis. Some services recycle up to 80 percent of the solvent and sell it back at a reduced price. Extend the time between solvent servicing if at all possible. Be aware the waste codes provided by the solvent service company might not adequately reflect your actual waste.
- Self-serviced filtration or distillation parts washers can significantly reduce waste generation and long-term costs.

Engine Steam Cleaning

- Conduct steam cleaning inside at a designated location. Prevent wastewater from discharging to the ground.
- Minimize the use of solvents for steam cleaning engines and parts.
- Steam-cleaning wastewaters may usually be discharged to the municipal sanitary sewer system. An operational oil/ water separator might be required. First contact your local publicly owned treatment works to determine if they have any specific pre-treatment requirements or other limitations.

Auto Body Refinishing and Painting

- Paint in dedicated, separate, and secure areas with no floor drains. Do not allow any paint or paint wastes into the drainage system unless the system is specifically designed to handle these wastes.
- Consider mechanical paint stripping methods such as sand, glass, garnet, CO₂ or plastic bead blasting instead of conventional chemical stripping methods.

- Use a sander with a dust collector to remove paint instead of stripping. This removes paint and metal dust from the air and reduces use of hazardous chemicals. Consider using a vacuum sander instead of a pneumatic sander. Vacuum sanders reduce worker exposure to dust, time cleaning dust off the floor, and time cleaning cars. There is also less chance that dust will settle on newly painted cars.
- Sweep up filler dust separately and dispose of it in the dumpster. Don't mix filler dust with paint waste or sludge because this can increase the weight of your hazardous waste.
- Inspect parts before painting to be sure they are clean, dry and rust-free.
- Use the least amount of masking tape and paper as possible. Reduce prep wastes and labor by using spray on, peel off booth compounds.
- Use waste paint as a rough coat for undercoating or other applications.
- Use neutral color primers and sealers to allow easy topcoat coverage.
- Rotate paint stocks, using the oldest first. Computerize inventory control to prevent materials from expiring. Consider having a computerized paint mixing system.
- Mix only the amount of paint needed. Keep records of the amount of paint needed for specific jobs for future reference. Spray paint in large batches to reduce the number of times a gun must be cleaned.
- Consider use of water-based paints over organic based paints to reduce the amount of hazardous waste generated. When possible, use paints that do not include heavy metals. Use non-phenol strippers to reduce toxicity due to phenols and acid additives. Use enamel based paints rather than lacquer based paints because enamels have less solvent, reducing air pollution emissions. Enamels are less likely to react with fiberglass filler.
- Use paints with low volatility, lower metal concentrations, and higher solid content when possible.
- Warming paint mixtures may reduce the amount of thinner required.
- Ensure that water curtains in paint booths are recirculating the water.
- Use washable and reusable metal or styrofoam paint booth filters. Disposable "dry" paint booth filters should be tested periodically to determine if they are hazardous waste.
- Use more efficient painting processes, such as electrostatic painting or powder coating when possible. These will reduce the amount of paint overspray and paint waste generated. The efficiency of paint-spraying equipment varies:

EFFICIENCY OF PAINT-SPRAYING EQUIPMENT

<u>Type:</u>	<u>Efficiency:</u>
Air-Atomized	30-60%
Electrostatic	65-80%
HVLP	70%
Powder-coating	90-99%

- Use High Volume, Low Pressure (HVLP) or Low Volume, Low Pressure (LVLP) spray guns. HVLP spray guns give higher transfer efficiencies and reduce worker exposure to overspray.
- Regularly calibrate paint transfer equipment to maintain proper application rates and reduce waste. Properly regulate the air supply to spray guns.
- Reduce the paint cup size on spray guns to reduce the amount of wasted paint. Scrape out dried paint in the paint cup instead of using paint thinner. Purchase several sizes of paint cups for different size jobs.
- Use refillable, air-powered spray paint containers to replace aerosol spray cans. These work especially well for small touch-up jobs.
- Clean spray guns and nozzles immediately after painting before waste builds up and hardens.
- Use recycling spray gun washers to reuse solvent and reduce the amount of waste generated. Reuse cleaning solvents until they are too dirty for cleaning. Clean spray guns and equipment frequently for efficient paint transfer.
- Pour any unusable paints into a special closed container marked "Waste Paint". Do not intentionally evaporate paint wastes as a means of disposal.
- Do a hazardous waste determination on paint overspray paper and paint filters and dispose of them accordingly.
- Do not spray paint gun cleaner solvent onto the paint filters. Spray it into a container, and then add to the "Waste Paint" container for disposal, or reuse the solvent as thinner or as an ingredient in a follow-on paint job.
- Purchase paints in recyclable or returnable containers to reduce disposal costs.

Vehicle Washing

- Minimize use of hydrocarbon solvents for vehicle washing.
- Technologies exist for recycling wastewater from vehicle-washing operations by using rinse waters as makeup for wash water. Use appropriate treatment for filtration and grit removal.
- Discharge wash waters to a dedicated grit or oil/water separator that can then discharge to the municipal sanitary sewer.

Radiator Repair

- Avoid soldering over the test tank. The solder waste increases the concentration of lead and zinc in your tank. If used solder is recycled through a scrap metal hauler, it is not a hazardous waste. Never put used solder in the dumpster or on the ground.
- Use a radiator fluid that is conducive to recycling.
- Keep boil tanks in a secure area with secondary containment. Use the solutions in the boil tanks for as long as possible.
- Use a three-step process:
 1. A boil-out tank with no discharge for cleaning;
 2. A dragout tank (rinse) with no discharge from which rinse water is decanted into the boil-out tank to make up for evaporative losses.
 3. A recycling system for rinsing and pressure testing from which the water is treated to remove metals, such as copper, nickel, lead, zinc, tin, and chromium, and then reused.
- Rinse radiator parts over a boil-out tank and allow them to drip for at least 10-20 seconds.
- Drainage from boil-out tanks should be collected in holding tanks or drums and might need to be disposed of as hazardous waste.
- Minimize use of hydrocarbon solvents for radiator repair operations.
- Treat rinse water for metals discharges. If necessary, send the treated water to a municipal sanitary sewer in accordance with applicable water regulations.
- The accumulation and disposal of sludge from the treatment of recycled rinse waters might need to be managed as hazardous waste.
- Follow the best management practices for auto body painting for spray painting radiators.

Rustproofing and Undercoating

- Rustproofing operations may use equipment similar to that used in auto body painting. Follow the best management practices for auto body painting for these operations.
- Eliminate the use of organic solvents in rustproofing operations where possible.
- Consider using high-pressure washing as an alternative to organic solvents.
- If pressure washing is done without using organic solvents, the wastewater may discharge to a municipal sanitary sewer. Ensure all regulations are met.
- Do not undercoat vehicles with used solvent or solvent sludge. These can drip from the vehicles and be washed into streams or rivers with stormwater.

Spill Control

- **SPILL NOTIFICATION** – Nebraska Department of Environment and Energy.
Business hours: (402) 471-2186
After hours: (402) 471-4545 (Nebraska State Patrol)
- Report spills of any amount to a waterway and all spills greater than 25 gallons.
- Spill kits should be pre-positioned at vulnerable locations. These should be stocked with equipment appropriate to the spill threat. For example, “oil only” absorbent pads or pillows would be appropriate for a fueling area near a creek.
- Immediately contain and clean up a spill or leak. Seal off floor drains to ensure a spill or leak does not reach a storm drain, sanitary sewer, septic tank, or dry well.
- Use only enough sorbent materials as necessary. Reuse sorbents until they absorb no longer. Used sorbent materials should be placed in a closed container and a hazardous waste determination done to determine proper disposal management. Alternatives to sorbents such as “kitty litter” type clays include specially designed mops and reusable sorbent socks and mats that may be wrung out. If the spill is a hazardous waste, then the spent sorbent will usually be a hazardous waste.
- Neutralize acid spills. Have an appropriate neutralizing agent pre-positioned. Use caution when neutralizing any acid.
- Keep track of where spills occurred and why. Examine areas for improvements to prevent future spills.

Material and Waste Management

- Material Safety Data Sheets (MSDS) are an important but limited source of information in hazardous waste determination.
- Train employees adequately about proper handling of hazardous materials and all wastes.
- Segregate wastes when appropriate. For example, chlorinated from non-chlorinated solvents, oils from solvents, and antifreeze from both oils and solvents. This can minimize disposal costs and facilitate recycling and reuse.
- Store wastes in suitable indoor locations or under covered areas outside whenever possible.
- Keep waste collection containers closed unless necessary to add or remove product. Ensure that lids fit properly.
- Limit access to product storage. Employees should be provided only what they actually need.
- Collect and store petroleum-based fluids drained from vehicles. Put used oil, transmission fluid, etc., in used oil tanks. Do not place antifreeze, brake fluid, or solvent with used oil. A reputable used oil collector can pump your tanks or containers.

- Use high-performance, longer lasting oils.
- Recycle spent oil filters for their scrap metal content. Use a drain rack over a waste oil pan to drain and collect all residual oil prior to disposal. Used oil filters for recycling must be crushed, dismantled, or punctured and hot-drained.
- Consider taking advantage of the universal waste regulations. Store fluorescent bulbs as universal waste lamps for recycling in a properly closed and labeled container with the date of initial storage. Do not break the fluorescent bulbs. See Title 128, Chapter 25 or NDEE Guidance Document “Universal Waste”, both are available on the NDEE website.
- Recycle lead-acid batteries. Inspect batteries for cracks and leaks, especially if they have been exposed to freezing temperatures. Do not put batteries in the trash or in a solid waste disposal facility. Do not pour battery acid on the ground.
- Store large quantities of batteries in an isolated area with no floor drains. Storage areas should be sealed with an acid-resistant material and have a containment berm. Batteries stored on pallets should not be stacked higher than 3 to 5 feet and should be covered and stored within an enclosed area, protected from freezing temperatures. Avoid storing batteries outside or on the ground. Do not drain batteries into a sewer or on the ground. Batteries waiting recycling may be stored in acid-resistant tubs. Anchor batteries when transporting.
- Empty aerosol cans are usually a reactive hazardous waste because they may explode when heated. If the can is empty and being recycled for scrap metal it may be excluded from being a hazardous waste. Consider using an aerosol can puncturing device to render the cans non-reactive. The NDEE recommends recycling punctured aerosol cans. Manage broken or malfunctioning spray cans as a hazardous waste or check on returning the can to the supplier. Don't dispose of partially empty cans in the dumpster. Stock only the necessary aerosol products. Use refillable spray bottles to reduce the number of aerosol cans. Refillable metal bottles are available that are pressurized with shop air. Also available are plastic bottles that are pressurized with hand pumps.
- Sort scrap metals by type. Keep catalytic converters that contain platinum in a separate area. Store scrap metal parts or other parts that were in contact with lubricants in closed containers indoors or covered and secured from storm water accumulation. Dumpsters containing scrap metal should have the drain plug in place and kept covered. Dumpsters should be located on a concrete pad with a means to collect storm water caught in the dumpster. Store scrap parts to prevent others from considering your scrap pile a dump. Regularly remove scrap metals to keep storage areas from being unsightly to the public.
- Spent rust inhibitors are usually toxic and might be a hazardous waste.
- Inspect damaged vehicles for leaks. Use drip pans and isolate the leaks from floor drains and other possible pathways to the environment.
- Have a reputable waste transporter clean oil/water separators and/ or grit collection traps every 6-12 months.
- Grit and sludge collection pits must have a proper waste determination performed at adequate intervals.

- Maintain the proper water level in oil-water separators to prevent pass through of oils and other floatables.
- Wring out solvent rags and soaked absorbent pads and booms for reuse. Minimize personal contact.
- Implement a regular inspection and maintenance schedule to address oil and grit separators, catch basins, and vehicle storage areas.
- Keep copies of all test results and waste profiles.
- Purchase only what you need, as you need it. Try buying multipurpose materials. Consider the cost of disposal when deciding what to purchase. Purchase the largest practical container while purchasing only what you need.

Petroleum, Oil, and Lubricants (POL)

- Use a central shop POL dispensing system. This minimizes waste and spills.
- Use an oil analyzer to determine the need to change oil in fleet operations to limit unnecessary oil changes.

Shop Rags

- Try to use towels that can be laundered instead of disposable towels.
- Moisten rags with a squeeze bottle instead of soaking rags in solvent.
- Use a wringer to remove excess liquids from used shop towels. In some cases, the liquid may then be reused.
- Shop towels contaminated with hazardous waste are also usually hazardous waste and must be managed as such.
- Don't dispose of solvents by pouring them into containers of used shop towels.
- Send shop rags to a laundry service. Notify the service of what types of soils are on the rags. Used shop rags are not regulated as hazardous waste as long as they are sent to a laundry to be cleaned and re-used, and have no free liquid in the shipping container.

RESOURCES:

- NDEE home page - <http://dee.ne.gov/>
- MSDS information - <http://www.ilpi.com/msds>

Contacts:

- NDEE Hazardous Waste Compliance Assistance (402) 471-8308
- NDEE Toll Free Number (877) 253-2603

- Keep Nebraska Beautiful, Materials Exchange Program (800) 486-4562
Or in Lincoln: (402) 486-4622
- National Automobile Repair Compliance Assistance Center
Coordinating Committee for Automotive Repair (888) 476-5465

NDEE Publications*:

- [Title 128 – Nebraska Hazardous Waste Regulations](#)
- [Title 132 – Integrated Solid Waste Management Regulations](#)
Titles are available on the NDEE Home Page under “Laws/Regs & EQC”, “Rules & Regulations”
- Environmental Fact Sheet – Comparison of Hazardous Waste Generator Requirements
- Environmental Guidance Document – Aerosol Can Waste
- Environmental Guidance Document – Chemical Waste Disposal Options for Small Businesses
- Environmental Guidance Document – Oil and Petroleum Related Wastes
- Environmental Guidance Document – Parts Washers
- Environmental Guidance Document – Sump, Pit, Trench, & Trap Wastes: Hazardous Waste Determinations
- Environmental Guidance Document – Universal Waste
- Environmental Guidance Document – Used Oil and Filters Management
- Environmental Guidance Document – Used Oil Collection Considerations
- Environmental Guidance Document – Waste Determination
- Environmental Guidance Document – Waste Service Providers Directory
Guidance is available on the NDEE Home Page under “Publications & Forms”

Produced by: Nebraska Department of Environment and Energy, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-2186. To view this, and other information related to our agency, visit our web site at <http://dee.ne.gov>.