Wessler Engineering

WHERE'S YOUR WASSIE?

A Municipality's Guide to Handling Used Oil, General Chemicals, Universal Waste and Electronic Waste

USED OIL HANDLING

Most municipalities are familiar with handling oil from activities associated with maintenance of vehicles and equipment. When used oil is collected and handled properly, it can be a source of income. Oil is drained from vehicles or machinery because it has become dirty and no longer serves its intended purpose effectively. Even though it can no longer be used for its original purpose, once it is collected, reconditioned, or re-refined, oils can be used or sold in some form over and over again. So, a used oil recycler may pay for used oil. The first part of used oil handling is understanding what is and what is not considered used oil.

Table 1

USED OIL IS:

- Synthetic oil usually derived from coal, shale or polymer-based starting material.
- Engine oil typically includes gasoline and diesel engine crankcase oils and piston-engine oils for automobiles, trucks, boats, airplanes, locomotives, and heavy equipment.
- Transmission fluid
- Refrigeration oil
- Compressor oils
- Metalworking fluids and oils
- Laminating oils
- Industrial hydraulic fluid
- Copper and aluminum wire drawing solution
- Electrical insulating oil
- Industrial process oils
- Oils used as buoyants

USED OIL IS NOT:

- Oil that is bottom clean-out waste from virgin fuel storage tanks, virgin fuel oil spill cleanups, or other oil wastes that have not actually been used.
- Products such as antifreeze and kerosene.
- Vegetable and animal oil, even when used as a lubricant
- Petroleum distillates used as solvents
- Used oils mixed with hazardous waste
- Oils that do not meet EPA's definition of used oil can still pose a threat to the environment when disposed of and could be subject to the hazardous waste regulations and management practices.

Indiana has passed regulations for the generation and handling of used oils, conveniently called the <u>"Used Oil Rule" (329 IAC 13)</u>. The rule only applies to oils predetermined to be acceptable for recycling. If the used oil is mixed with a listed or characteristic hazardous waste, it is considered a waste and subject to regulation under the hazardous waste rules (329 IAC 3.1) and not the Used Oil Rule. Used oil that contains over 1,000 parts per million of total halogens is presumed to have been mixed with a listed hazardous waste unless otherwise demonstrated. If used oil is mixed oil is mixed with fuels or solvents, used oil has now turned into waste oil which can be expensive to dispose of properly.



Types of Used Oil Handling

There are several types of businesses or handling categories based on the activities at each facility.

The Rule defines management requirements for each type of used oil handler:

- Used oil generators
- Used oil collection centers and aggregation points
- Used oil transporters and transfer facilities
- Used oil processors and re-refiners
- Used oil burners (off-specification used oil for energy recovery)
- Used oil fuel marketers

Most municipalities will be used oil generators from vehicle and equipment maintenance activities. However, some may also be an aggregation point for town, city or county departments and citizens to drop-off their used oil. This typically occurs when the municipality operates their own community recycling program. Another use commonly found in municipalities is that used oil is used to heat large storage areas or garages where heating units run by burning used oil. This site would be considered a used oil burner.

Container Storage and Handling

Part of generating or collecting used oil, is implementing the required storage and handling management practices.

- Do not store used oil in containers other than drums, tanks or acceptable portable containers. Used oils should not be stored in open pans/trays, pop bottles, or cups.
- Used oil storage containers and above ground tanks must be in good condition with no signs of rusting, dents, or other deterioration.
- Used oil storage containers must not be leaking.
- Clean up spills promptly.
- Report oil spills to IDEM according to the <u>Indiana Spill Rule</u> (327 IAC 2-6.1).
- Do not mix used oil with part-washing chemicals or other solvents.
- Do not apply used oil as a dust suppressant.
- Do not store used oil in surface impoundments (i.e., lagoons).
- Used oil containers should be placed on a flat solid surface to prevent tipping or sinking into the ground. Tanks should be at least 6 inches off the ground to prevent corrosion. This allows for visual observations of spills under the container.

This list does not include local regulations, fire or building codes that may require different or more stringent storage practices.

Labeling

While the Used Oil regulations aren't as difficult as other waste regulations, miss using one word and marking or labeling your used oils "Waste Oil" may cause you headaches. Containers or tanks containing used oil for recycling should be labeled or marked as "Used Oil." "Waste Oil" is regulated as a hazardous waste. If you determine an oil has been mixed with a solvent and has to be disposed of, then it should be labeled or marked as "Waste Oil" and no longer falls under the Used Oil Rule. Refer to these labeling requirements:

- Label all used oil storage tanks, piping and containers with the words "USED OIL."
- Used oil containers and tanks must be labeled or marked clearly. Replace faded or peeled signs, stickers or other labels as needed.
- Additional labels could include Department of Transportation diamond-shaped placards or National Fire Protection Association labels.



Spill Prevention

These simple practices will help keep municipal property clean and free of spills.

- Secondary containment must be provided for all above ground storage tanks. Secondary containment could be a double-walled tank or a concrete structure. As a rule of thumb, secondary containment is sized to contain at least 110% of the contents in the container. So a 350 gallon tank should have a containment that has a capacity of at least 385 gallons.
- For an outdoor tank containment system, the drainage valve must always be in the closed position.
 Accumulated water can be released into the ground only if no contamination is present (no sheen).
- Secondary containment should be provided for all used oil containers.
 Secondary containment can be structural (concrete), spill pallet or drum container. Indoor drums may not need full containment if they are stored on an impervious surface in a structural sound building and away from building entrances and garage doors.

- If containment is provided for indoor drums, clean out any residual oils frequently.
- If appropriate secondary containment is not provided for indoor drums, maintain a sufficient amount of absorbent materials (socks, mats, granular, etc.) onsite to contain a spill from migrating to a vegetated area or a storm drain.
- Place drip pans under leaking vehicles while they are waiting to be repaired.
- Empty drip pans when you move it from one vehicle to another or when the pan is half full (to avoid spills.).
- Designate specific drip pans for used oil, antifreeze and other liquid wastes to avoid mixing the wastes.



- Place oil collection containers in close proximity to vehicle service areas.
 Limiting the distance used oil must be carried will reduce the likelihood of drips or spills reaching the shop floor.
- Scoop up oil spills using either a squeegee and a dust pan or a shop vacuum and pour the oil into your used oil tank or container. By cleaning up spilled oil in this manner, you will avoid generating and managing spill material clean-up waste.
- If a tank is located outdoors, consider installing bollards to prevent vehicles or equipment in motion from damaging the tank.
- Ensure outdoor tanks are secured to prevent unauthorized access, vandalism and theft.
- Prevent rust by routinely painting the outside of outdoor tanks.

Recordkeeping

While generators and aggregation points are not required to maintain records of used oil collected and recycled, it is recommended that the municipality maintain all shipping papers that document the receipt of the used oil by the recycling company/ transporter. If the municipality is paid for its used oil, a copy of the check would be acceptable.

Municipal Transporting

Municipalities may transport less than 55-gallons of used oil (or oil that has been collected through a household do-it-yourselfer collection program) at a single time to a used oil collection center or to your own aggregation point without an Environmental Protection Agency (EPA) ID number.

When transporting used oil from one department to another, ensure containers are tightly sealed, labeled "Used Oil", and are in good condition. No more than 55-gallons can be transported at any time. The used oil must be transported by a municipal employee and in a municipally-owned vehicle.

Used Oil Burner

According to the Used Oil Rule, used oil can be burned in the appropriate equipment according to the used oil rule. This energy recovery can provide heat to garages, warehouses, or other storage areas. Follow these requirements if you are a used oil burner:

- Used oil burners can only burn used oil generated by the municipality or collected from citizens.
- The used oil burner must be designed to have a maximum capacity of not more than 500,000 Btu/hr.
- Vent the heater's combustion gases outside of the building. Install the burner in accordance with the regulations of the Indiana Department of Fire & Building Services.

Summary of Used Oil Requirements

Table 2

	Generator/Aggregation Points (Rules 4 and 5)	Off-Specification Burner (Rule 8)
Storage in Containers and Above ground Tanks	Good Condition	Good Condition
Labels for Above ground Tanks and Containers	Yes	Yes
Secondary Containment System (Oil Impervious	No	Yes
Berm, Dike, or Retaining Wall and Floor)		
Environmental Release Cleanup	Yes	Yes
U.S. EPA Identification Number and Notification	No	Yes
Tracking	No	Acceptance records
Analysis	No, except information or testing	Yes, information or testing if
	if needed to rebut the hazardous	needed to rebut the hazardous
	waste mixing presumption	waste mixing presumption
Recordkeeping (for Three Years)	No	Yes, information or testing data
		if needed to rebut the hazard-
		ous waste mixing presumption;
		acceptance records
Preparedness and Contingency Plans	No	No
Biennial Reporting	No	No
Unit Closure	No	No
Dust Suppressant Ban	Yes	Yes
Surface Impoundment Ban	Yes	Yes

Information from IDEM website: <u>http://www.in.gov/idem/5042.htm#for</u>



General Chemical Handling and Storage Practices

Chemical and waste handling may be a low priority to municipalities. However, it is essential in maintaining good housekeeping and material storage practices for a Municipal Separate Storm Sewer System (MS4) program. By planning ahead and properly storing chemicals, your municipality can prevent pollution and spills. Below are some best management practices for chemical storage and handling:

- Keep chemical and oil containers closed at all times; unless adding chemicals to the container.
- Chemicals should be stored in containers that are in good condition and not rusted or dented.
- To prevent spills, transfer chemicals in damaged containers to containers in good condition.
- Place and store chemicals in containers compatible with the materials being stored. For example, do not store corrosive materials (acids) in a steel drum that may eventually deteriorate the container.
- Do not store chemicals in inappropriate containers, e.g. pop bottles, open pans, pails or drinking cups.

- Store chemicals in a manner to prevent ruptures or leaks. For example, store chemicals away from high traffic areas to prevent puncturing or tipping.
- Store chemicals away from entrances and garage doors. If a spill occurred near an entrance, it could migrate outdoors and possibly to the stormwater system.
- Completely drain containers and oil filters before disposal or recycling the containers.
- Clean area around chemical storage areas at the end of each shift. Return small chemical containers to their proper storage cabinet or location.
- Conduct regular inspections of chemical storage areas to check for container deterioration, leaks, staining, containment systems and spill equipment.
- Provide your employees training on labeling, handling and storing chemicals and oils.
- Personnel should be aware of emergency contacts in the event of a spill. Place a list of emergency contacts at the phone nearest a chemical storage area.



Universal Waste

Universal waste is not referring to space dust or space station debris; but bulbs, batteries, pesticides and mercury devices. These materials contain heavy metals that can contaminate landfills and water. The purpose of the U.S. EPA's Universal Waste Rule (329 IAC 3.1-16 and 40 CFR 273) is to promote recycling, decrease certain regulatory requirements, and prevent pollution.

Based on experience, most municipal facilities will typically fall in to the conditionally exempt small quantity generators (CESQG) category (see table below). As such, wastes generated by CESQGs have the option to manage universal wastes according to the rule. The Universal Waste Rule promotes recycling, conservation of resources, and pollution prevention.

For municipalities, it is best to handle bulbs, batteries, pesticides and mercury devices according to the Universal Waste Rule. For MS4 programs, universal waste should be collected and recycled to minimize long-term exposure of the wastes and heavy metals to MS4 conveyances and other stormwater systems.

Generator Category	Quantity Generated Per Month	Amount Stored On Site
Conditionally Exempt Small Quantity	No more than 220 pounds	No more than 2,200 pounds
Generator (CESQG)	No more than 2.2 pounds acutely	
	hazardous waste	
Small Quantity Generator (SQG)	Between 220 and 2,200 pounds	No more than 13,228 pounds
Large Quantity Generator (LQG)	More than 2,200 pounds	No limit



Universal Waste Batteries

The types of batteries regulated by the Universal Waste Rule include discarded non-rechargeable and rechargeable batteries that contain heavy metals (cadmium, lead or mercury). These include nickel-cadmium (Ni-Cad) batteries, lead acid batteries and mercury oxide batteries. Alkaline and zinc-carbon batteries typically do not contain heavy metals in amounts that qualify them as a universal waste. However, it is best to manage these batteries in the same manner as others to prevent pollution.

The handling and management practices for batteries include:

- Place batteries that show evidence of leakage, spillage or damage that could cause leakage in a container (5-gallon pail).
- Battery storage containers must be closed when not in use; in good condition, and compatible with the contents (plastic).
- Before placing a battery into the storage container, tape the terminals to prevent short-circuiting, which may cause explosions during shipping.
- Label containers storing batteries as "Universal Waste Batteries," "Waste Batteries" or "Used Batteries."
- Mark the container with the date the first battery was placed in the container.
- Storage and accumulation of batteries is allowed for no more than one year. The containers must be taken to a recycling facility, or picked up by an approved universal waste recycler within one year of the marked date.
- Train employees on the proper management practices described above.

Universal Waste Bulbs/Lamps

The types of bulbs or lamps regulated by the Universal Waste Rule include fluorescent bulbs, compact fluorescent light bulbs (CFLs), incandescent bulbs, high intensity discharge (HID) bulbs, mercury vapor bulbs, metal halide, high-pressure sodium bulbs and neon/argon lamps used in signs. Also, don't let the "green-tip" bulbs fool you, those still contain mercury. These types of bulbs can be found in buildings, warehouses, garages, streetlights and parking lots.



The handling and management practices for bulbs include:

- Place used bulbs in a container in good condition (typically the one the bulbs were received in).
- Bulb storage containers must remain closed unless adding material to the container.
- Label containers storing bulbs as "Universal Waste Lamps," "Waste Lamps" or "Used Lamps."
- Mark the container or box with the date the first bulb was placed in the container.
- Storage and accumulation of bulbs is allowed for no more than one year. The containers must be taken to a recycling facility or picked up by an approved universal waste recycler within one year of the marked date.
- Bulbs will release mercury vapors when broken or crushed. Bulb crushing is not allowed under Indiana law if bulbs are managed under the Universal Waste Rule.
- Crushing devices that completely contain the glass, phosphor powder, metals and mercury vapor are handled under hazardous waste regulations. These materials and air filters are recycled by an offsite company.
- Train employees on the proper management practices described above.



Universal Waste Pesticides

This category includes recalled, cancelled and suspended pesticides and pesticides collected and managed as part of a waste pesticide program.

The handling and management practices for pesticides include:

- Do not remove the original container labels identifying the type of pesticide and handling practices.
- Manage waste pesticide containers in a manner to prevent a spill or release. The container must have no signs of leaks, spills or other damage.
- Waste containers must be closed when not in use, in good condition and compatible with the contents.
- When pesticides are to be disposed of, label containers as "Universal Waste Pesticides" or "Waste Pesticides."
- Mark the container with the date it was deemed a universal waste.
- Storage and accumulation of waste pesticides is allowed for no more than one year. The containers must be taken to a recycling facility or picked up by an approved disposal company within one year of the marked date.
- Transport waste pesticides in a vehicle that is closed, structurally sound, compatible with the material, and showing no signs of leaks or spills.
- Train employees on the proper management practices described above.

Universal Waste Mercury-Containing Device

This category includes equipment or devices with elemental mercury. For example, thermostats, thermometers, barometer, mercury switches and certain types of meters, regulators and gauges that have mercury ampules. The collection and recycling of mercury devices provides the additional benefit of keeping mercury out of the sanitary sewer system.



The handling and management practices for mercury-containing devices include:

- Manage waste mercury-containing devices in a manner to prevent a release to the environment.
- Place any mercury-containing devices that show evidence of leakage, spillage or damage in a container (i.e. 5-gallon pail).
- Storage containers must be closed when not in use, in good condition, compatible with the contents and designed to prevent the escape of mercury.
- Label containers storing batteries as "Universal Waste Mercury-Containing Equipment," "Waste Mercury-Containing Equipment" or "Used Mercury-Containing Equipment."
- Mark the container with the date the first mercury-containing devices was place in the container.
- Storage and accumulation of mercury-containing devices is allowed for no more than one year. The containers must be taken to a recycling facility or picked up by an approved universal waste recycler within one year of the marked date.
- Handlers may remove mercury-containing ampules from devices or equipment only if specific management practices are followed.
- Train employees on the proper management practices described above.

Electronic Waste

As you hit the local electronics store for the latest gadget, do you think about what you will do with your old device? Electronics contain hazardous and toxic components that can impact the environment if not recycled or disposed of properly. Some of these components include heavy metals (lead, mercury, cadmium and hexavalent chromium), recyclable materials (steel, glass and plastic) and precious metals (copper, gold, tin, silicon and aluminum). These materials should be recycled to make new products to conserve natural resources and avoid pollution.

The following items are considered electronic waste (E-Waste) and are prohibited from being discarded by Indiana households, schools, and small businesses:

- Televisions
- Computer monitors
- Computers (including desktops, laptops, and tablets)
- E-readers
- Fax machines
- Peripherals (including keyboards, mice, external hard drives, printers, all-in-one printer/scanner/copiers, projectors, and any other devices that are sold exclusively for external use with a computer and provide input into or output from a computer)
- DVD players (including gaming systems that are able to play DVDs)
- Digital photo frames
- Digital media players
- iPods/MP3 players
- Camcorders/cameras
- DVR/TiVo devices (including cable boxes and satellite boxes, but not satellite dishes)
- Portable GPS navigation systems

Most municipalities as a CESQG can contact their local Solid Waste Management District (SWMD) to recycle electronic equipment. However, if the SWMD will only accept a limited amount of materials, refer to IDEM's webpage for additional recycling options and locations. Be sure to remove any sensitive or private information from devices, especially phones and computers, before recycling.

If you are accumulating E-Waste to be recycled at the next collection event or for offsite recycling, the following practices should be implemented:

- Store E-Waste in a manner that it is not exposed to the weather (indoors, closed container, etc.).
- If collecting cathode ray tubes, the containers or boxes must be labeled as "Used cathode ray tubes – Contains leaded glass," or "Leaded glass from TVs or computers." Any other container of broken E-Waste must be labeled or marked as "Electronic Waste."
- Storage containers of broken E-Waste must be constructed, filled and closed to minimize releases to the environment.
- Use a licensed and reputable recycling company for electronic waste.



Sources and References:

Table 1 - USEPA Table of What Used Oil Is and Is Not

Table 2 - IDEM Used Oil Management Standards

IDEM Used Oil Rule

IDEM Hazardous Waste

IDEM Universal Waste Rule

IDEM Electronic Waste



Need assistance with handling hazardous waste? We can help.

CONTACT US

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Wessler Engineering is a civil and environmental engineering firm, specializing in wastewater, drinking water, and stormwater projects, providing services ranging from master planning and design to construction administration and process energy audits. Founded in 1975 and based in Indianapolis, Indiana, we have branch offices in Evansville, West Lafayette, and Fort Wayne.