Stormwater Best Management Practice

Developing a Used Oil Recycling Program

Minimum Measure: Illicit Discharge Detection and Elimination
Subcategory: Trash and Illegal Dumping

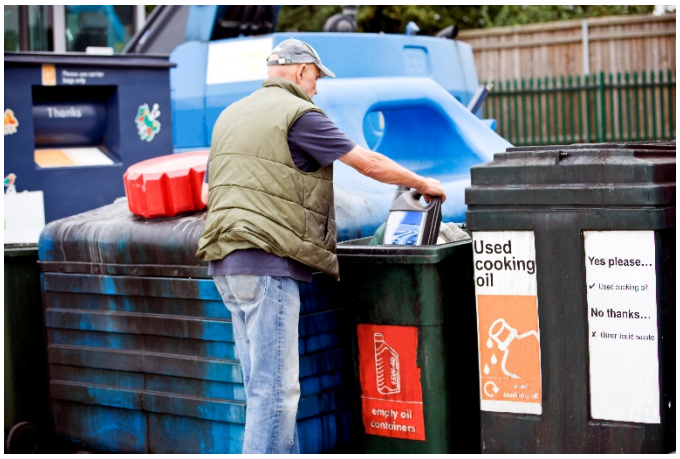
Description

Used motor oil is a hazardous waste that contains heavy metals, contaminants and dirt filtered or discarded from engines. It is toxic to humans, wildlife and plants—which means anyone using it should store it and dispose of it properly.

More specifically, the user should:

- Never dump used motor oil in a landfill or down a drain.
- Store the oil in a plastic or metal container with a secure lid.
- Never use containers that previously stored bleach, gasoline, paint, solvents or other household chemicals for used motor oil.
- Never mix used motor oil with other substances such as antifreeze, pesticides or paint stripper.
- Dispose of it at a local recycling or disposal facility.

Fortunately, it is sometimes possible to recycle or reuse used motor oil. In the United States, recyclers handle an estimated 380 million gallons of used oil every year (U.S. EPA, 2019), marketing it to asphalt plants, steel mills, boilers, pulp and paper mills, cement/lime kilns, and a number of other places. Furnaces can burn reprocessed motor oil for heat, and power plants and industrial burners can use it as fuel. Recyclers can blend motor oil for marine fuels, mix it with asphalts for paving, or re-refine it into lubricating oils that meet the same standards as new oil. It takes only 1 gallon of used oil to produce two-and-a-half quarts of high-quality lubricating oil, thus reducing demand for new crude oil (U.S. EPA, 2019).To encourage proper disposal and recycling of used oil, municipalities can establish an oil recycling program. When establishing oil recycling programs, municipalities should provide the public with informational resources, including drop-off locations and hours of operation. The public can look up nearby recycling centers on Earth 911's website. For more information, visit EPA's managing, reusing, and recycling webpage.



Providing communities with easily accessible methods to properly dispose of used oil is critical to protecting stormwater quality.

Applicability

All states and communities that seek to protect their local environment and public health can benefit from oil recycling programs. Urban areas may find them especially useful, because vehicles are the most common source of used motor oil—and urban areas have more vehicles, so they generate more used oil.

Implementation

A wide variety of businesses generate and handle used oil. But used oil recycling is still uncommon: for example, Florida recycles only 35 percent of the more than 7 million gallons of motor oil sold there each year (FDEP, 2019). Title 40 of the Code of Federal Regulations part 279 details EPA's used oil management standards. These standards highlight good housekeeping requirements and essential information that businesses can use to manage and implement a used oil recycling program while protecting human health and the environment.

State statutes often have built-in oil programs, providing the framework and in some cases the funding to encourage the collection and recycling of used oil. Most legislation also contains a component that requires

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educating the public about oil recycling. The American Legislative Exchange Council has developed a model used oil collection act, which provides incentives to increase the number of certified collection facilities for used oil.

Two types of local-level oil recycling programs currently exist: drop-off locations and curbside collection. A drop-off location is a designated spot or business in the community where residents can bring their used oil: for example, a service station, recycling center, auto parts retail store, quick lube or landfill. These locations are effective because they are familiar, permanent, conveniently located and abundant in most communities. In curbside collection, a municipality or waste collection service allows residents to leave oil at the curbside in an approved container, either on a designated day or upon request. Local or state governments can implement recycling programs through mandate; service stations, quick lubes, auto parts retailers, oil processors or any combination of the above can also implement them independently.

Increasing Public Awareness

Communities should increase public awareness of how to properly dispose of and recycle used oil. They can achieve this by using Web sites or social media or by displaying used oil collection signs in automobile repair shops and auto parts stores. Communities should educate the public on the part they can play in recycling used oil. For example, when getting an oil change (at a service station, quick lube, etc.), a driver should check if their mechanic recycles motor oil. Home mechanics should always take used motor oil to a recycling center. To make recycling motor oil more convenient for the home mechanic, oil recycling programs should put recycling locations in convenient places throughout communities (e.g., auto parts stores, local recycling centers).

In 1991, the American Petroleum Institute (API) established a used oil collection and recycling program. The program educates the public about collecting and recycling used oil, making oil collection more convenient, and handling this valuable resource appropriately. See API's Used Motor Oil Program Web site for more information.

Local Recycling Programs

Many states, cities and communities have developed their own recycling programs. Communities can use existing used oil programs around the country as models when developing their own programs. For example, San Diego, California, and Kansas City, Missouri, have both developed successful oil recycling programs. In addition, CalRecycle, a California state program, provides monetary incentives for development and maintenance of local collection programs, as well as grants for research and demonstration projects. CalRecycle uses a statewide network of collection opportunities and outreach efforts to publicize and encourage used oil recycling. The program provides information including collection locations, certification information, proposed regulations, used oil facts and other resources. For more information, visit the CalRecycle Used Oil Recycling Program Web site.

Benefits

Recycling used motor oil benefits the environment, public health and the economy. Improperly disposing of oil in landfills, ditches and waterways, or dumping it on the ground or down storm sewers, can cause it to migrate into surface water and groundwater. Below are some statistics that may help educate residents about the benefits of oil recycling and the impacts from improper disposal:

- The annual demand for lube oil in the United States is around 2.5 billion gallons, including 1.5 billion gallons of automotive lubricating oils (DOE, 2006).
- The United States recycles around 1 billion gallons of used oil each year (DOE, 2006).
- The United States improperly disposes of an estimated 350 million gallons of used oil each year (DOE, 2006)
- In 2004, vendors sold 150 million gallons of lubricating oil in California. About 60 percent of the oil was recycled; an estimated 20 to 40 percent of the remainder was combusted or leaked (CalEPA, 2006).

Limitations

The potential for contamination sets a constraint on oil recycling. Oil is a hazardous waste when mixed with other substances, such as chemical residues in storage

containers. In such cases, collection facilities should dispose of it in keeping with applicable environmental regulations (including, potentially, the Resource Conservation and Recovery Act).

Another limitation is public education. While oil recycling programs can be effective, it is often difficult to effectively educate and inform the public about oil drop-off locations. Municipalities can address this limitation by including recycling information in utility bill inserts, on community Web sites and newsletters, and in newspaper ads and mailings.

Effectiveness

The effectiveness of a used oil recycling program is difficult to quantify as there is little quantitative information to draw upon. A University of California Berkeley study tracked the annual volume of oil recycled in California from 2007 to 2012 and found that, on average, consumers recycled 70 percent of the oil sold in the state. However, each year saw a general decrease in the amount of oil recycled, indicating the importance of increased outreach and education (Kuczenski et al., 2014). A national report by the U.S. Department of Energy also attempted to quantify used oil disposal and recycle patterns. The authors found that, from 1996 to 2004, fewer people were changing their own oil and more were relying on "do it for me" outlets such as quick lube shops, garages and auto dealerships, suggesting less chance of improper disposal by "do it yourself" (DIY) consumers (DOE, 2006). They also reviewed data from individual states and concluded, qualitatively, that there had been improvements in DIY oil changers behavior but that improper disposal was still common. Communities can reduce improper disposal by providing information on recycling facilities, making recycling more convenient for the public and continuing public education.

Costs

Costs for used motor oil recycling programs vary depending on whether a community has already established similar programs. Major costs include advertising and oil collection. CalRecycle funds its statewide program through a 24-cent-per-gallon fee added to the sale of lubricating oil throughout California (CalRecycle, 2020). While service stations and collection facilities often allow the public to drop off their oil free of charge, these facilities need to pay a recovery service to collect and dispose of the accumulated oil.

Costs for programs also vary depending on whether they use curbside pickup or drop-off facilities. For example, Boulder County, Colorado, charges businesses $0.11 a pound to drop off used oil at the county hazardous waste facility (Boulder County, 2020). Local recovery services can offer more specific information about oil collection fees and services available.

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

References

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