

Discussion Paper

Burning Used Oil in Space Heaters

Publication #93-04-533, Revised November 2006 (Previously f-hwtr-93-533)

Sometimes, used oil may be burned in space heaters. Only certain types of used oil may be burned by some people under specific conditions. This paper discusses these types and conditions.

Amendments to the *Dangerous Waste Regulations*, [Chapter 173-303 WAC](#), from 1986 addressed the [management of used oil burned for energy recovery](#). The regulations provide special management and handling standards, because used oil may pose a risk to public health and the environment when disposed of improperly.

What is used oil?

“Used oil” is any oil that has been refined from crude oil or any synthetic oil that has been used and, as a result of such use, is contaminated by physical or chemical impurities¹. A “used-oil generator” is the person or facility that uses the refined oil.

Examples of used oil include:

- **Spent automotive lubricating oils** (including car and truck crankcase oil), transmission fluid, gear lube, brake fluid, and off-road engine oil.
- **Spent industrial oils**, including compressor, turbine and bearing oils, hydraulic oils, metal-working oils, gear oils, electrical oils (as from transformers), and refrigerator oils; and
- **Spent industrial process oils.**

Used oil will contain contaminants. The specifications for these contaminants determine who may or may not burn used oil in a space heater. Oil that is “on-spec,” or is within the limits for contaminants set forth in the Used Oil Specifications table to the left may be burned in space heaters.

Used Oil Specs (from [RCRA 279.11](#))

Contaminant	Max. level for specification
Arsenic	5 ppm. maximum
Cadmium	2 ppm. maximum
Chromium	10 ppm. maximum
Lead	100 ppm. maximum
Halogens	4,000 ppm. total

On-specification used oil does not exceed any concentration of contaminants specified above, and *the flash point is not below 100 degrees.*

Off-specification exceeds one of the maximum concentrations of contaminants specified above *or has a flash point of less than 100 degrees.*

No one is allowed to burn oil in a space heater which has been mixed with other dangerous waste. This is unsafe and illegal.

The other types of used oil that may NOT be burned in space heaters include:

- Metal-working oils or fluids formulated with chlorinated compounds (such as chlorinated paraffins and chlorinated alkene polymers).
- Electric oil with more than 2.0 parts per million (ppm.) polychlorinated biphenyls (PCBs).
- Refrigerator oils and any other oil that designates as Extremely Hazardous Waste (EHW).

¹ The regulations pertaining to the burning of used oil for energy recovery are found in WAC 173-303-515

A person may not assume that used oil is on-specification or legal to burn. In fact, used oil is presumed to be off-specification unless testing proves otherwise. This presumption can only be “rebutted” or disproved through testing. The first person who claims that a used oil is on specification must provide evidence such as test results to substantiate such a claim.

Special considerations for halogens

Used oil containing more than 1,000 ppm. of total halogens is presumed to be mixed with halogenated dangerous waste listed in WAC [173-303-9903](#) or [173-303-9904](#). Anyone who wants to burn such oil in a space heater must show that no one has mixed the oil with dangerous waste.

Used oil is on-specification if test results demonstrate that individual dangerous halogenated constituents (those found in [Section 9905](#)) are not present in significant concentrations. That is, if no single constituent exceeds 100 ppm., then the oil is on-specification. Also, used oil that contains a total halogen content of less than 4,000 ppm. is considered on-specification.

If the total halogen content exceeds 4,000 ppm., it is considered off-specification. If the total halogen content exceeds 10,000 ppm., the oil is considered a dangerous-waste fuel. The burning of dangerous-waste fuel in oil-fired space heaters is prohibited by regulation. It may only be burned in specially permitted incinerators, as in WAC [173-303-510](#).

Who can burn used oil in a space heater?

A used-oil generator may burn their own used oil generated either on-site or at another facility owned by that same generator under the aggregation-point rules, regardless of specification status. Used-oil collection centers can also burn used oil collected from household do-it-yourself oil changers. Generators do not have to test their own oil or oil from households. Used oil that has been shown through testing to be on specification can be burned in space heaters.

What space heaters can be used?

The heater must be designed to have a maximum capacity of not more than 0.5 million BTU per hour. The combustion gases from the heater must be vented outside.

Frequently-asked questions about managing used oil

1. Can a service station owner/operator mix his dangerous wastes with his used oil and burn the mixture in his space heater?

No. Under the current regulations, any used oil mixed with a dangerous waste, even small-quantity-generator dangerous wastes, may not be burned in space heaters. Used oil which has been mixed with dangerous wastes must be managed under WAC [173-303-510](#), *Special Requirements for Dangerous Wastes Burned for Energy Recovery*.

2. Can a garage burn off-specification used oil?

Off-specification used oil can only be burned in a space heater if the oil is burned by the person who generates it or the oil is generated by do-it-yourself oil changers (households).

3. Under what conditions can a garage accept used oil from another business for burning in a space heater?

A garage can only accept used oil from another business if the oil can be shown to be on-specification. The garage or the other business must test the oil (or provide documentation, such as

past test results, showing the oil is on-specification) before it is burned in a space heater. The burner would be required to keep copies of test analyses or other documentation for three years showing the oil is on-specification. A garage can also accept used oil from any other business that the owner/burner owns, in which case the garage must also comply with the used oil regulations for aggregation points.

4. If vehicles from the city fire department and the city public works department get serviced in different shops, can used oil from the fire department be burned in the space heater at the city public works department?

If two departments within a city government service their vehicles in separate shops *at different locations*, each is regulated as a distinct generator. Used oil generated in one service shop cannot be burned in a space heater in another service shop unless the used oil is first shown to be on-specification (see #2 above).

5. Is testing of used oil required before it can be burned in a space heater?

A generator may burn his or her own used oil or used oil from do-it-yourselfers, in a space heater without testing it, provided:

- (1) the space heater has a capacity of less than 0.5 million BTU per hour,
- (2) the combustion gases are vented to outside the working area, and
- (3) the used oil prohibitions are complied with.

6. Who is required to test used oil to demonstrate that it is on-specification?

The person who first claims that the used oil is on-specification must have evidence (e.g., test results) of such claim. For example, before Joe's Garage can burn (in his space heater) used oil generated at Fred's Speedy Lube (or another business); either Joe or Fred must test the oil to demonstrate that it is on-specification. The first person claiming the oil to be on-specification also becomes a used-oil marketer.

7. Bev's Janitorial Service uses a specially formulated soap which contains a few percent 1,1,1 trichloroethane. Bev poured used oil into an empty, unrinsed drum which previously held the soap. When Bev went to get rid of the used oil, she found that the used oil had 1,200 ppm. of total halogens. Is this used oil presumed to be mixed with a dangerous waste, according to WAC [173-303-515\(1\)\(b\)](#)? And, must Bev rebut the presumption of mixing to be able to burn this used oil for energy recovery under WAC [173-303-515](#), *Special Requirements for Dangerous Wastes Burned for Energy Recovery*?

If Bev's drum which held the soap product met the legal definition of "empty" under WAC [173-303-160](#), the oil would not be presumed to be mixed with a dangerous waste. However, to manage the oil under the conditions of WAC [173-303-515](#), Bev would still be required to rebut the presumption of mixing, because the total halogen content of the oil was above 1,000 ppm.

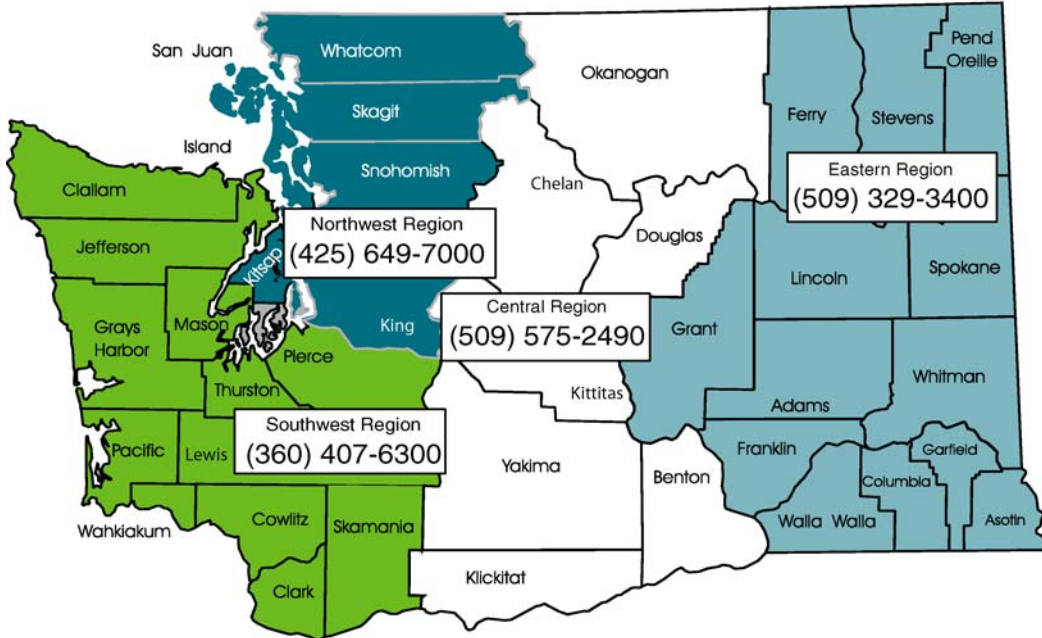
Alternately, Bev may choose to manage the used oil as dangerous-waste fuel under WAC [173-303-510](#). Note that if the drum had not met the definition of empty under WAC [173-303-160](#), the used oil would have to be managed as a dangerous waste, since it would have been mixed with dangerous waste.

Hazardous Waste and Toxics Reduction Program

Experienced compliance experts are available to advise you on safe waste management and compliance questions. Use the regional phone numbers below to ask for a Hazardous Waste Specialist.

Department of Ecology Regions

<http://www.ecy.wa.gov/programs/hwtr>



If you need this information in an alternate format, please call the Hazardous Waste and Toxics Reduction Program at 360-407-6700. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.