State of Florida
DEPARTMENT OF ENVIRONMENTAL REGULATION

Interoffice Memorandum

FOR ROUTING TO OTHER THAN THE ADDRESSEE

To: _____ Loctn: _____
To: _____ Loctn: _____
To: _____ Loctn: _____
From: _____ Date: _____

TO: District Managers
District Air Engineers
District Air Permitting Engineers
Local Program Air Directors

THRU: Randy Armstrong
Howard Rhodes
Richard Wilkins

FROM: Clair Fancy

DATE: October 22, 1987

SUBJ: Policy to Regulate Used Oil Burning

On November 29, 1985, the U.S. EPA promulgated final regulations on the burning of used oil fuel. These regulations establish specifications for used oil fuel that may be burned in non-industrial boilers. The Department has adopted the rule by reference and has communicated its position on used oil burning by means of a memorandum sent to managers of electric utilities, asphalt plants, and other industrial burners on January 5, 1987.

At the time that the January 5, 1987 memorandum was distributed, the Department was uncertain how used oil fuel which did not meet the specifications established by the EPA rule should be handled. Since that time, the Bureau of Air Quality Management (BAQM) has been actively involved in developing guidelines to regulate the burning of used oil fuel which does not meet EPA specifications. This memorandum provides a summary of the specification limits established by the EPA for burning used oil in non-industrial boilers as well as presenting the BAQM's policy for regulating the emissions from burning off-specification used oil in industrial furnaces and boilers. The policy to regulate off-specification used oil is based on a paper which was presented at the 1987 Annual Conference of the Florida Section's Air Pollution Control Association by Barry Andrews. A copy of the paper is attached. In addition, this memorandum will address how sources burning either specification or off-specification used oil should be permitted.

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Specification Used Oil Burning

Emission Limitations

Non-industrial boilers may only burn oil which is in compliance with the following limitations:

Constituent/Property	Allowable Level
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Total Halogens	4,000 ppm maximum *
Flash Point	100 degrees Fahrenheit minimum

* It is presummed that used oil containing greater than 1,000 ppm total halogens has been mixed with a halogenated hazardous waste. Used oil fuels that contain more than 1,000 ppm total halogens should not be burned in non-industrial boilers unless the marketer can show that the used oil does not contain any halogenated hazardous waste.

Industrial boilers and furnaces may also burn specification used oil.

Permitting Guidelines

Specification used oil will be considered to be equivalent to virgin oil. Only in the case that an air permit or BACT determination does specifically prohibit the burning of used oil, will it be necessary to contact the appropriate district or local office to obtain authorizations.

Off-Specification Used Oil Burning

Emission Limitations

Non-industrial boilers may not burn used oil which exceeds the previously mentioned specification levels.

Industrial boilers and furnaces may only burn used oil which complies with the following limitations. These emission limitations are based on the type of fuel burning equipment used as follows:

Asphaltic Concrete Kilns, Light-Weight Aggregate Kilns, Lime Kilns, and Industrial Boilers

Arsenic, Cadmium, and Chromium:

$$\frac{(As)}{3.9 \times 10^{-4}} + \frac{(Cd)}{9.8 \times 10^{-4}} + \frac{(Cr)}{1.4 \times 10^{-3}} \leq 1.0$$

where (As), (Cd), and (Cr) defined by

$$MFR = \frac{(Mw \times Rw) + (M_F \times R_F)}{H_T} \times 10^{-6}$$

where:

MFR - individual metal feed rate in pounds per million Btu of total heat input

Mw - individual metal concentration in used oil (ppm)

Rw - used oil feed rate in pounds per hour

M_F - concentration of metal in the other fuel (ppm)

R_F - feed rate of other fuel in pounds per hour

H_T - total heat input to the device in million Btu/hour

Lead:

MFR shall not exceed 1.6×10^{-2} pounds per million Btu.

Hydrogen Chloride:

CFR shall not exceed 0.70 pounds per million Btu.

where CFR is defined by

$$CFR = \frac{(Cw \times Rw) + (C_F \times R_F)}{H_T} \times 10^{-6}$$

Where:

CFR - total chlorine feed rate in pounds per million Btu

Cw - Chlorine concentration in the used oil (ppm)

C_F - Chlorine concentration in the other fuel (ppm)

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Cement Kilns (Wet & Dry)

Arsenic, Cadmium, and Chromium:

$$\frac{(As)}{1.7 \times 10^{-3}} + \frac{(Cd)}{4.3 \times 10^{-3}} + \frac{(Cr)}{6.3 \times 10^{-3}} \leq 1.0$$

Lead:

MFR shall not exceed 6.7×10^{-2} pounds per million Btu.

Hydrogen Chloride:

CFR shall not exceed 1.8 pounds per million Btu.

Permitting Guidelines

For facilities presently burning or planning to burn off-specification used oil it will be necessary to contact the appropriate district or local program office to obtain authorization (permit revision). It is expected that the majority of the requests to burn off-specification used oil will be in compliance with the emission limitation equations presented herein. To expedite approval, the various districts will be provided with worksheets and detailed instructions to quickly determine if an off-specification used oil burner will be in compliance.

Exemptions

Exemptions will be granted to facilities which generate and burn small quantities of off-specification used oil on site. To qualify for this exemption a burner must only burn off-specification used oil fuel that is generated on-site and is burned in quantities that do not exceed one percent of a particular fuel burning equipment's total volume consumption or heat input. On-site burners will be characterized as "small quantity" burners by the following criteria:

Equipment	Size (MMBtu/hr)	Quantity limit/device (gallon/month)
Boilers (1)	0.4 to 1.5	7
	>1.5 to 10	13
	>10 to 50	26
	>50 to 150	55
	>150 to 400	100
	>400	300
Asphaltic Concrete kilns (2)	>18	110
Lime kilns (3)	>60	200
Light-Weight Aggregate kilns (4)	>45	110
Wet Cement kilns (5)	90 to 200	170
	>200	420
Dry Cement kilns (5)	60 to 160	140
	>160	280

(1) No more than two boilers at a time
(2) No more than one asphaltic concrete kiln at a time
(3) No more than two lime kilns at a time
(4) No more than three light-weight aggregate kilns at a time
(5) No more than three cement kilns at a time

Conclusion

The Bureau of Air Quality Management believes that the policy outlined in the memorandum will accomplish the Department's goal to encourage the burning of used oil, yet provide assurance that the public's health and environment will not be threatened.

As with any regulation or policy development, it is difficult to address all the situations and problems that could occur when writing proposals for regulating sources. Any questions regarding the content of this memorandum should be directed to Barry Andrews, Project Engineer, Bureau of Air Quality Management, at (904)488-1344.

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