

US EPA ARCHIVE DOCUMENT

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Parts 261 and 266**

[FRL-3974-4; EPA/OSW-FR-91-023]

Hazardous Waste Management System; General; Identification and Listing of Hazardous Waste; Used Oil**AGENCY:** U.S. Environmental Protection Agency.**ACTION:** Supplemental notice of proposed rulemaking.

SUMMARY: This notice announces the availability of additional data on the composition of used oil and used oil residuals. EPA will consider the new data in making its final decision whether or not to list some or all used oils as hazardous waste, as proposed in November, 1985. Also, based on a portion of the new data, EPA is today considering amending its regulations under the Resource Conservation and Recovery Act (RCRA) by listing as hazardous four wastes from the reprocessing and re-refining of used oil. Finally, today's notice provides additional information on the proposed used oil management standards for recycled oil under section 3014 of RCRA. Public comment is requested on the proposed used oils and residuals to be listed as hazardous, on a number of specific aspects of the newly available data, on specific aspects of the Agency's approach for used oil management standards, and on several aspects of the hazardous waste identification program as related to used oil.

DATES: Comments will be accepted until November 7, 1991.**ADDRESSES:** The public must send an original and two copies of their comments to EPA RCRA Docket (OS-305), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460. Place the Docket Number F-91-UOLP-FFFFF on your comments.

The EPA RCRA Docket is located in room 2427, 401 M Street SW., Washington, DC 20460. The docket is open from 9 a.m. to 4 p.m., Monday through Friday, except for Federal holidays. The public must make an appointment to review docket materials by calling (202) 260-9327. The docket numbers F-85-UO-FFFFF and F-91 ULOP-FFFFF are available for the public review. The public may copy a maximum of 100 pages from any regulatory document at no cost. Additional copies cost \$.20 per page.

FOR FURTHER INFORMATION CONTACT: For general information contact the RCRA Hotline, Office of Solid Waste,

U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; Telephone 800-424-9346 (toll free) or 703-920-9810 locally. To obtain copies of the supplemental proposal, contact EPA RCRA Docket, at 202-260-9327 or Regulatory Development Branch at 202-260-8551. If no answer, please leave your name and address to receive a copy of the supplemental proposal.

For information on specific aspects of this rule, contact Ms. Rajni D. Joglekar, U.S. EPA, 401 M Street, SW., Washington, DC 20460, Telephone (202) 260-3516.

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I. Background

A. Regulation of Hazardous Waste

On December 18, 1978, EPA initially proposed guidelines and regulations for the management of hazardous wastes as well as specific rules for the identification and listing of hazardous wastes under Section 3001 of the Resource Conservation and Recovery Act (RCRA) (43 FR 58946). At that time, EPA proposed to list waste lubricating oil and waste hydraulic and cutting oil¹ as hazardous wastes on the basis of their toxicity. In addition, the Agency proposed recycling regulations to regulate (1) the incineration or burning of used lubricating, hydraulic, transformer, transmission, or cutting oil that was hazardous and (2) the use of waste oils in a manner that constituted disposal.²

In the May 19, 1980 regulations (45 FR 33084), EPA decided to defer promulgation of the recycling regulations for waste oils in order to consider fully whether waste- and use-specific standards may be implemented in lieu of imposing the full set of subtitle C regulations on potentially recoverable and valuable materials. At the same time, EPA deferred the listing of waste oil for disposal so that the entire waste oil issue could be addressed at one time. Under the May 19, 1980 regulation, however, any waste oil exhibiting one of the characteristics of hazardous waste (ignitability, corrosivity, reactivity, and toxicity) that was disposed, or accumulated, stored, or treated prior to disposal, became regulated as a hazardous waste subject to all applicable subtitle C regulations.

B. Used Oil Recycling Act

In an effort to encourage the recycling of used oil and, in recognition of the

¹ The term "waste oil" includes both used and unused oils that may no longer be used for their original purpose.

² "Use in a manner constituting disposal" means the placement of hazardous waste directly onto the land in a manner constituting disposal or the use of the solid waste to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land (40 CFR 261.2(c)(1)).

potential hazards posed by its mismanagement, Congress passed the Used Oil Recycling Act (UORA) on October 15, 1980 (Pub. L. 96-463). UORA defined used oil as "any oil which has been refined from crude oil, used, and as a result of such use, contaminated by physical or chemical impurities." Among other provisions, UORA required the Agency to make a determination as to the hazardousness of used oil and report the findings to Congress with a detailed statement of the data and other information upon which the determination was based. In addition, the Agency was to establish performance standards and other requirements under section 7 of UORA as "may be necessary to protect the public health and the environment from hazards associated with recycled oil" as long as such regulations "do not discourage the recovery or recycling of used oil." These provisions are now included in section 3014 of RCRA.

In January 1981, EPA submitted to Congress the used oil report mandated by section 8 of the UORA.³ In the report, EPA indicated its intention to list both used and unused waste oil as hazardous under section 3001 of RCRA based on the presence of a number of toxicants in crude or refined oil (e.g., benzene, naphthalene, and phenols), as well as the presence of contaminants in used oil as a result of use (e.g., lead, chromium, and cadmium). In addition, the report cited the environmental and human health threats posed by these waste oils, including the potential threat of rendering ground water unpotable through contamination.

C. Hazardous and Solid Waste Amendments

On November 8, 1984, the Hazardous and Solid Waste Amendments (HSWA) were signed into law. In addition to many other requirements, HSWA mandated that the protection of human health and the environment was to be of primary concern in the regulation of hazardous waste. Specific to used oil, the Administrator was required to "promulgate regulations * * * as may be necessary to protect human health and the environment from hazards associated with recycled oil. In developing such regulations, the Administrator shall conduct an analysis of the economic impact of the regulations on the oil recycling industry. The Administrator shall ensure that such regulations do not discourage the

³ Report to Congress: Listing of Waste Oil as a Hazardous Waste Pursuant to section (8)(2), Pub. L. 96-463; U.S. EPA, 1981.

recovery or recycling of used oil consistent with the protection of human health and the environment." (Emphasis added to highlight HSWA language amending RCRA section 3014(a) (see section 242, Pub. L. 98-616).) This altered EPA's mandate with respect to the regulation of used oil by requiring that protection of human health and environment be a prime consideration, even if such regulation may tend to discourage the recovery or recycling of used oil.

HSWA required EPA to propose whether to identify or list used automobile and truck crankcase oil by November 8, 1985, and to make a final determination as to whether to identify or list any or all used oils by November 8, 1986. On November 29, 1985 (50 FR 49258), EPA proposed to list all used oils as hazardous waste, including petroleum-derived and synthetic oils, based on the presence of toxic constituents at levels of concern from adulteration during and after use. Also on November 29, 1985, the Agency proposed management standards for recycled used oil (50 FR 49212) and issued final regulations, incorporated at 40 CFR part 266, subpart E, prohibiting the burning of off-specification used oil⁴ in non-industrial boilers and furnaces (50 FR 49164). Marketers of used oil fuel and industrial burners of off-specification fuel are required to notify EPA of their activities and to comply with certain notice and recordkeeping requirements. Used oils that meet the fuel oil specification are exempt from most of the 40 CFR part 266, subpart E regulations.

On March 10, 1986 (51 FR 8206), the Agency published a supplemental notice requesting comments on additional aspects of the proposed listing of used oil as hazardous. In particular, commenters to the November 29, 1985 proposal suggested that EPA consider a regulatory option of only listing used oil as a hazardous waste when disposed, while promulgating special management standards for used oil that is recycled. The supplemental notice also contained a request for comments on additional issues related to the "mixture rule" (40 CFR 261.3(a)(2)(iii)), on test methods for determining halogen levels in used oils, and on new data on the composition of used oil and used oil processing residuals.

⁴ Used Oil that exceeds any of the following specification levels is considered to be "off-specification" used oil under 40 CFR 266.40(e): Arsenic—5 ppm, Cadmium—2 ppm, Chromium—10 ppm, Lead—100 ppm, Flash Point—100 °F minimum, Total Halogens—4,000 ppm.

D. Decision Not to List Recycled Used Oil

On November 19, 1986, EPA issued a decision not to list as a hazardous waste used oil that is being recycled (51 FR 41900). At that time, it was the Agency's belief that the stigmatic effects associated with a hazardous waste listing might discourage recycling of used oil, thereby resulting in increased disposal of used oil in uncontrolled manners. EPA stated that several residues, waste waters, and sludges associated with the recycling of used oil may be evaluated to determine if a hazardous waste listing was necessary, even if used oil was not listed. EPA also outlined a plan that included making the determination whether to list used oil being disposed as hazardous waste and promulgation of special management standards for recycled oil.

EPA's decision not to list used oil as a hazardous waste based on the potential stigmatic effects was challenged by the Hazardous Waste Treatment Council, the Association of Petroleum Refiners, and the Natural Resources Defense Council. The petitioners claimed that (1) the language of RCRA indicated that in determining whether to list used oil as a hazardous waste, EPA may consider technical characteristics of hazardous waste, but not the "stigma" that listing might involve, and (2) that Congress intended EPA to consider the effects of listing on the recycled oil industry only after the initial listing decision.

On October 7, 1988, the Court of Appeals for the District of Columbia found that EPA acted contrary to law in its determination not to list used oil under RCRA section 3001 based on the stigmatic effects. (See *Hazardous Waste Treatment Council v. EPA*, 861 F.2d 270 (D.C. Cir. 1988) [HWTC II].) The court ruled that EPA must determine whether to list any used oils based on the technical criteria for waste listings specified in the statute.

E. Recent Agency Activities

After the 1988 court decision, EPA began to reevaluate its basis for making a listing determination for used oil. EPA reviewed the statute, the proposed rule, and the many comments received on the proposed rule. Those comments indicated numerous concerns with the proposed listing approach. One of the most frequent concerns voiced by commenters related to the quality and "representativeness" of the data used by EPA to characterize used oils in 1985. Numerous commenters indicated that "their oils" were not represented by the data and, if they were represented,

those oils were characterized when mixed with other more contaminated oils or other hazardous wastes. Many commenters submitted data demonstrating that their oils, particularly industrial used oils, did not contain high levels of toxicants of concern.

In addition, the Agency recognized that much of the information in the 1985 used oil composition data is more than five years old, as most of the information was collected prior to 1985. Since the time of that data gathering effort, used automotive oil composition may have been affected by the phase-down of lead in gasoline. The Agency also recognized the need to collect analytical data addressing specific classes of used oils as collected and stored at the point of generation (i.e., at the generator's facility).

Finally, the promulgation of the toxicity characteristic (TC) (55 FR 11798, March 29, 1990) is known to identify certain used oils as hazardous. Due to the possibility of changes in used oil composition described above and the new TC, the Agency recognized that additional data on used oil characterization may be needed prior to making a listing determination. The Agency believes it is important to consider the effects of the TC before taking final action on the listing determination and used oil standards in accordance with its mandate in section 3014(b) of RCRA to "list or identify" used oil as a hazardous waste.

F. Purpose of Today's Notice

EPA's overall approach to used oil consists of three major components. First, EPA identifies approaches for making a determination whether to list or identify used crankcase oil and other used oils as hazardous wastes, as required by section 3014(b). (See discussion in section III of this notice.) Second, EPA proposes a number of alternatives relating to management standards to ensure proper management of used oils that are recycled. EPA discusses an approach under which the management standards would be issued in two phases. (See discussion in sections VIII.C and IX of this notice.) Phase I will consist of basic requirements for used oil generators, transporters, road oilers, and recyclers including burners and disposal facilities to protect human health and the environment from the potential hazards caused by mismanagement of used oil. Once the Phase I standards are in place, EPA may decide to evaluate the effectiveness of these standards in reducing the impact on human health

and the environment. Upon such evaluation, EPA will consider whether or not more stringent regulations are necessary to protect human health and the environment, and propose these regulations as Phase II standards. The third part of EPA's general approach to used oil is the consideration of nonregulatory incentives and other nontraditional approaches to encourage recycling and mitigate any negative impacts the management standards may have on the recycling of used oil, as provided by section 3014(a). (See discussion in section II of this notice.)

Today's notice presents supplemental information gathered by EPA and provided to EPA by individuals commenting on previous notices on the listing of used oil and used oil management standards. As discussed above, numerous commenters on the 1985 proposal to list used oil as hazardous contended that the broad listing of all used oils unfairly subjects them to stringent subtitle C regulations because their oils are not hazardous. Based on those comments, the Agency has collected a variety of additional information regarding various types of used oil, their management, and their potential health and environmental effects when mismanaged. Today's notice presents that new information to the public and requests comment on that information, particularly if and how this information suggests new concerns that EPA may consider in deciding whether to finalize all or part of its 1985 proposal to list used oil as a hazardous waste.

In addition, today's notice expands upon the November 29, 1985 (50 FR 49258) proposal to list used oils as hazardous and the March 10, 1986 (51 FR 8206) supplemental notice by discussing regulatory alternatives not previously presented in the *Federal Register*. Based on the public comments received relative to the two notices, the Agency has investigated several important aspects of used oil regulation, including application of the mixture rule (40 CFR 261.3(a)(2)(iii)) to used oils. For these aspects, the Agency has identified alternative approaches that were not presented explicitly in the earlier notices. Those alternatives are presented in today's notice. (See discussion in sections IV and V of this notice.)

Today's notice also discusses the Agency's intention to amend 40 CFR 261.32 by adding four waste streams from the reprocessing and re-refining of used oil to the list of hazardous wastes from specific sources. (See discussion in section VII of this notice.) The Agency noted its intention to include these

residuals in the definition of used oil in its November 29, 1985 proposal to list used oil as hazardous. The wastes from the reprocessing and re-refining of used oil, which are more fully described later, include process residuals from the gravitational or mechanical separation of solids, water, and oil; spent polishing media used to finish used oil; distillation bottoms; and treatment residues from primary wastewater treatment.

Today's notice also includes a description of some of the management standards (in addition to or in place of those proposed in 1985) that EPA is considering promulgating with the final used oil listing determination. EPA, under various RCRA authorities, is considering management standards for used oils, whether or not the oil is classified as hazardous waste. (See discussion in sections VIII and IX of this notice.)

When promulgated, the standards may: (a) Prohibit road oiling, (b) restrict used oil storage in surface impoundments, (c) limit disposal of nonhazardous used oil, (d) require inspection, reporting, and cleanup of visible releases of used oil around used oil storage containers and aboveground tanks and during used oil pickup, delivery, and transfer, (e) impose spill cleanup requirements and allow for limited CERCLA liability exemptions, (f) institute a tracking mechanism to ensure that all used oils reach legitimate recyclers, and (g) require reporting of used oil recycling activities. The used oil burner standards included in 40 CFR part 266 subpart E will continue to regulate the burning of used oil for energy recovery. All of the requirements (including those in part 266, subpart E) may be placed in a new Part (e.g., 40 CFR part 279). Used oils that are hazardous (either listed or characteristic) that cannot be recycled are not included in these provisions, but are instead subject to 40 CFR parts 261-270.

With today's notice, EPA is providing information and requesting comment on management standard options that expand upon or differ from those proposed in 1985. What is provided with today's notice is not an exhaustive list or discussion of possible used oil management standards, but a discussion of some additional standards that are under consideration by EPA. In some cases, EPA is providing information in this notice to clarify issues in response to public comment on the Agency's 1985 proposed rule, so that commenters may have the opportunity to consider additional issues the clarification may raise. In other cases, the Agency is

providing information and soliciting comment on additional management standards or management standards that vary from those proposed in 1985. (See appendix A that cites the appropriate *Federal Register* pages from the 1985 proposal. Also see specific sections in this notice for used oil management standards.)

Given the extensive body of public comment on used oil issues in general, the Agency will request public comment only on specific considerations for which new alternatives have been identified. Comments are not solicited regarding other elements of the 1985 proposal and subsequent notices. However, these earlier-announced alternatives and comments received about them remain part of this rulemaking and of EPA's full consideration of used oil issues. EPA will respond to comments previously received upon finalization of the rule.

II. Incentives for Promoting the Collection and Recycling of Do-It-Yourself Generated Used Oil and Used Oil Procurement Activity

In 1988, 1.3 million gallons of used oil was generated. Fifty-seven percent of the 1.3 million gallons generated entered the used oil management system and was recycled. Of the remaining used oil, the do-it-yourself (DIY) generator population (i.e., generated by homeowners) disposed of approximately 183 million gallons of mostly automotive crankcase oil, while nonindustrial and industrial generators dumped/discharged of 219 million gallons. EPA believes that the majority of the remaining 43 percent of used oil that was generated could and should be recycled in an effort to meet the nation's petroleum needs and conserve natural resources.

A. DIY-Generated Used Oil

RCRA does not provide authority to regulate the disposal of household waste (e.g., DIY-generated motor oil and oil filters), nor does it give EPA the authority to mandate collection programs for DIY-generated used oil. Over the past five years, EPA has developed public education programs and informational brochures to encourage DIY generators of automotive crankcase oil to recycle their used oil. The Agency realizes, however, that educational outreach alone may not be adequate, given the absence of a mechanism to facilitate the collection of used oil from these generators. Very little DIY oil is currently being recycled (<10 percent of DIY-generated used motor oil). Commenters have indicated that local collection programs can be

successful over the long term only if petroleum prices remain high or if used oil handlers are required to accept used oil from DIY generators in exchange for some benefit.

Some states encourage collection and recycling of DIY used oil by providing some regulatory relief to used oil generators accepting DIY used oil. For instance, in New Jersey, automotive service stations are exempt from manifesting requirements if they accept DIY used oil. Several other states that regulate used oil offer similar relief to used oil handlers that collect or recycle DIY oil. EPA is interested in learning more about the effectiveness of these state requirements in increasing the recycling of used oil and minimizing DIY oil dumping. EPA, therefore, requests information on program feasibility and effectiveness, particularly from used oil handlers located in states with similar programs.

RCRA does not give EPA the authority to mandate the recycling of used oil. However, the Agency does have authority to require such management of used oil under Section 6 of the Toxic Substances Control Act (TSCA). Section 6(a) provides that if the manufacture, processing, distribution, use, or disposal of a chemical substance or mixture presents an unreasonable risk of injury to health or the environment, the Administrator shall, by rule, apply requirements to that substance, to the extent necessary to protect against such risk. Commenters have suggested that section 6 be used to promote used oil recycling. This could be achieved by requiring lubricating oil manufacturers to use a certain percent (to be determined) of DIY used oil in their production processes.

The Agency has evaluated and documented the environmental harm caused by mismanagement of used oil. This is discussed in detail in section VIII.A of today's notice, and in "Environmental Damage From Used Oil Mismanagement," which is included in the docket for today's notice. EPA believes it may be beneficial to use the authority in TSCA section 6 and other TSCA provisions to mandate the recycling of used oils that feasibly can be recycled. Recycling used oil and not disposing of it is a more environmentally preferable management alternative. EPA requests comment on whether TSCA section 6 is an appropriate statutory mechanism to control used oil mismanagement via its recycling.

There are five approaches currently under consideration. EPA requests comment on these approaches and other alternatives that warrant the Agency's consideration. These approaches, if

implemented, might establish a system of both regulatory and incentive-based mechanisms to address: (1) The production of lube oils, (2) their collection after initial use and (3) their recycling or proper disposal in a manner consistent with the goals of RCRA section 3014. To obtain and respond to public comment before taking any of these steps, and to ensure that they may achieve their intended purposes in the least burdensome and most efficient manner, EPA is soliciting comments on, and requesting that those comments be organized to separately address the five approaches under consideration. While EPA solicits comments on these possible approaches, EPA wishes to emphasize that it is not today proposing to adopt any incentive system when it finalizes the Phase I management standards discussed in sections VIII and IX below. Rather, the following discussion is akin to an ANPRM on these issues. A description of each follows.

1. Acceptance of DIY Used Oil by Used Oil Generators and Retailers

Similar to some state programs, EPA may require used oil generators and lube oil retailers to follow certain steps, including posting signs stating their acceptance of DIY-generated used oil, checking DIY-generated used oil for evidence of mixing, and maintaining collection containers in compliance with storage standards. EPA might use TSCA section 6 authorities to promulgate such rules.

As explained in a later section of this notice, certain used oil generators (*i.e.*, service station dealers, any government agency that establishes a facility solely for the purpose of accepting used oil, and refuse collection services required to collect and deliver used oil to an oil recycling facility), as defined in section 101(37) of CERCLA, may become eligible for an exemption from CERCLA liability under CERCLA section 114(c). These generators may be required to, at a minimum, support their claim of DIY-generated used oil acceptance by maintaining records of the quantities of DIY-generated used oil collected and comply with the section 3014 used oil management standards.

2. Acceptance of DIY Oil by Used Oil Recyclers, Re-refiners, and Refiners

This program could be similar to the one for used oil generators except that used oil recyclers and re-refiners, including lubricating oil manufacturers, may be collecting DIY-generated used oil (or contracting collection) either at curbside or in specific locations. EPA may require commercial used oil recyclers/re-refiners to initiate

community, municipality, or civic organization-based DIY collection programs. The requirements that the Agency may explore for used oil recyclers/re-refiners are the same as those being considered for lube oil retailers, with minor differences. Like lube oil retailers, recyclers might be required to accept DIY-generated used oil and check incoming oil for evidence of mixing. Additional provisions may include keeping records of annual quantities of DIY-generated used oil accepted, and reporting the disposition of DIY-generated used oil. Lube oil manufacturers may be required to use a certain percent of lube oil feedstock coming from DIY-generated used oil. The DIY-generated used oil collected through such programs must be managed in accordance with all applicable used oil management standards by the collectors and processors, however.

3. Target System for Lube Oil Producers

EPA is considering the establishment of a "target" system for all lube oil producers under TSCA section 6, under which each producer may have to recycle, or arrange for recycling of, specific quantities of used oil. EPA may require that lube oil producers and importers follow certain steps, such as registering with EPA, reporting annually on whether projected recycling targets were met, and providing documentation to support compliance with EPA-designated targets. Under the RCRA authority, EPA would require used oil purchase, sales, and recycling data collection and reporting while under the TSCA authority, EPA would ban sales of lube oil by certain non-registered producers and importers as discussed below.

Under such a program, EPA might ban or otherwise restrict lube oil sales by non-registered producers and importers. The Agency is also considering setting recycling targets (*e.g.*, a mandatory recycling ratio or other numerical target) for each lube oil producer and importer based on their share of the lube oil market. The targets might be established for used oil in general, or they might be specifically directed at DIY-generated used oil. EPA solicits comments on this approach.

4. Used Oil Credit System

EPA also is considering using TSCA section 6 authorities to set a mandatory "recycling ratio" (*i.e.*, a target) for used oil and to require lube oil producers to bear the responsibility for assuring that used oil is recycled in accordance with

the established ratio.⁵ The mandatory recycling ratio may be set as a percentage of the annual production quantity of lube oils. In the initial year of the program EPA could set the recycling ratio at the current recycling rate for used lube oils (e.g., 30%). The Agency could then increase the mandatory recycling ratio annually (e.g., by 2% per annum) to encourage increased levels of used oil recycling.

Lube oil manufacturers may be responsible for accepting DIY-generated used oil, implementing the mandatory recycling ratio and demonstrating compliance with the mandatory recycling ratio. The credit system differs from the "target" system, in that this demonstration could be made in one of several ways. Manufacturers could recycle used oil themselves by collecting and putting used oil back through the refinery process, could purchase re-refined oil from a re-refiner or processor, could purchase "used oil recycling credits" from re-refiners or used oil processors. Used oil re-refiners and processors may generate credits for every unit of used oil recycled. Recycling credits generated by re-refiners and processors could be sold to primary lube oil manufacturers at a price set by market forces.

EPA requests comments on the mechanisms described above for promoting the collection and recycling of DIY-generated and other used oils. EPA solicits comments in particular on several issues. First, should a system of differential credits for used oil re-refining be implemented, under which used oil recycled through re-refining generates, e.g., 1.5 times as many credits per gallon as reprocessing for fuel? Second, what role, if any, should EPA play as a potential seller of last resort if credits are in short supply? Third, could EPA allow the banking of such credits and if so, what limitation(s) may be placed on the use of banked credits? Fourth, what "balance period" should be selected for manufacturers to demonstrate compliance with the recycling ratio, and how may such balance periods relate to the calendar year? Fifth, how should the recycling of U.S. oil in foreign recycling facilities (e.g., Canada) be handled for purposes of generating credits?

Deposit-Refund System for Used Oil
EPA also believes a deposit-refund system to encourage collection of additional quantities of DIY-generated

used oil can be developed. Under this approach retailers of lube oil may be required to collect a deposit on certain quantities of lube oil. If lube oil retailers are required to accept used oil, these facilities could then refund deposit amounts to customers on returning their used oil. EPA is concerned over the large quantity of used oil improperly disposed by DIY oil changers and is seriously considering requiring such deposits and refunds to increase collection from this segment. EPA believes that while a mandatory recycling percentage—such as those described above will increase the overall collection of all types of used oil—such a system does not directly address the DIY segment. EPA is concerned that if sufficient funding under the "deposit/refund system" is not available to the retailer, the cost of making refunds will have an impact on the retailers' net profit. EPA requests comment on the likely impacts on the business of such a system and how the impact could be minimized.

The amount of lube oil on which deposits may be paid may undoubtedly be greater than used oil returned by customers for refund, because some oil is inevitably not captured from the filter, etc. This result may either produce some excess revenue to retailers, or may allow a somewhat greater amount to be paid in refund than the deposit amount.

EPA solicits comment on several specific issues pertaining to a deposit-refund system for used oil implemented at retail. First, what may be sufficient monetary amounts of such deposits and refunds to induce various levels of change in DIY behavior without inducing possible perverse effects—such as diluting the oil to increase its volume? Second, what level of deposits and refunds might be required to induce additional DIY recycling over time? Third, what would the administrative and other burdens of such a system? Fourth, would it be appropriate to implement both a mandatory recycling ratio and a deposit-refund system? Fifth, since the system would probably produce excess revenue to retailers if the deposit amount were equal to the refund amount, should EPA consider either differential deposits and refunds or allow retailers to retain excess revenue to defray program costs? Sixth, to reduce the impacts of changes in virgin oil prices on recycling, should the deposit/refund amounts be "pegged" (in an administratively set schedule) to a benchmark virgin oil price?

B. Used Oil Procurement Activity

Besides efforts to encourage the collection of DIY-generated used oil,

EPA has instituted other measures to encourage used oil recycling. For example, in 1988 EPA published a final procurement guideline for Federal Procurement of lubricating oils containing re-refined oil. The 1988 guideline designates lubricating oils as products for which the procurement requirements of RCRA section 6002 apply. The guideline also provides guidance to Federal government procuring agencies for complying with the requirements of RCRA section 6002 procurement provisions. All procuring agencies and all procurement actions involving lubricating oils where the agency buys \$10,000 or more of the lube oil products at one time, or during the course of the past fiscal year, are required to comply with the section 6002 guidelines. The purpose of RCRA section 6002, and EPA's subsequent procurement guidelines, is to stimulate demand for products made from recycled materials and to assist in stabilizing the market for these products. In addition, EPA currently is working with the General Services Administration and the Department of Defense to certify vendors of recycled lube products for civilian and military purchases. EPA also is investigating vehicle warranty issues for vehicles using re-refined lube products. In some cases car dealerships are refusing to honor manufacturers' vehicle warranties if re-refined lube oils are used in the vehicles. EPA currently is investigating the root of this issue and may work with vehicle manufacturers to establish company positions that could be passed on to individual dealerships.

III. Used Oil Identification and Characterization

In 1985 and 1986, commenters expressed substantial concern regarding the impact of listing all used oils as hazardous wastes. Many commenters pointed out that certain used oils were not hazardous at the point of generation (i.e., at the point that the used oil was removed from a crankcase or drained from machinery). Commenters also took exception to the data used to characterize used oil, saying that the information did not properly represent the spectrum of used oils generated. In addition, many commenters indicated uncertainty regarding the impact of the mixture rule on wastes containing *de minimis* quantities of used oils. Commenters also expressed concern regarding the appropriateness of subtitle C regulation for derived-from residuals such as wastewater treatment sludges. Today's notice identifies the issues presented by commenters, presents

⁵The credit system described here is essentially the same system provided for under the proposed Oil Recycling Incentives Act" (H.R. 872, S. 399, 101st Congress 1st session).

alternatives devised by either the Agency or the commenters, and requests public comment on the efficacy of the presented alternatives.

A. Used Oils To Be Evaluated at the Point of Generation

In response to the 1985 proposal to list used oil as a hazardous waste, numerous commenters contended that not all used oils are typically and frequently hazardous at the point of generation. These commenters argued that used oil drained directly from a crankcase or machinery reservoir may not contain the constituents of concern at levels exceeding regulatory concern and, in fact, that used oils were adulterated after the point of generation through mixing with other wastes.

The Agency initiated an investigation of used oils at the point of generation. Also, the Agency sought to determine whether significant differences existed in the composition of and hazards associated with various used oil streams. Thus, in contrast to the November 1985 proposed rule, which may have identified and listed all used oils as hazardous, the Agency investigation sought to determine whether or not a basis for listing existed for separate types of used oils. The EPA study addressed whether each type of used oil met the criteria for listing at the point of generation, whether the existing toxicity characteristic may capture those types of used oil that are clearly hazardous, and whether good housekeeping (management) practices could prevent post-use adulteration of used oils. Thus, the Agency sought to determine which types of used oil met, at the point of generation, the criteria for listing as contained in 40 CFR 261.11.

B. Data Collection

EPA began a sampling and analysis study in 1989 that addressed the composition of used oils at the point of generation. During the study, EPA was able to obtain samples of used oils as drained from the crankcase or oil reservoir of automobiles, other vehicles, and machinery and from on-site storage tanks. This approach allowed a comparison of the composition of the used oils at the point of generation to the composition of used oils in storage tanks and identification of the extent of any post-use adulteration that occurred. While storage tanks are not the only place where post-use adulteration could occur, EPA selected this sampling strategy because they are the first place adulteration could conceivably occur. The newly generated data from the 1989 study are discussed in detail later in today's notice. At this time, the Agency

requests comment on this newly collected data and on the concept of basing the listing determination solely on used oils at their point of generation rather than after collection and likely adulteration, the latter being the approach considered in the November 1985 proposal.

The Agency notes that, as discussed more fully below, the management standards for used oil may well include requirements designed to control and discourage adulteration of used oil. If effective, such management standards could reduce the adulteration of as generated used oil, thus allowing the Agency to determine whether to list or identify as hazardous used oil from various segments on the basis of the concentrations of the constituents of concern as generated. Although EPA believes that adulteration of as generated used oil is a reasonable mismanagement scenario and is concerned that regulations may not fully stop this practice, the Agency is considering a number of proposals (e.g., rebuttable presumption and 1,000 ppm halogen cutoff for non-intentional mixing of hazardous solvents or wastes) that may, in effect, require those who adulterate as generated used oil to manage the waste as hazardous. The Agency is particularly interested in comments that address whether or not evaluation and listing of used oils at the point of generation is protective of human health and the environment, whether it is consistent with the criteria for listing contained in section 3001 of RCRA and 40 CFR § 261.11, and whether EPA may continue to consider post-use adulteration of used oil as a basis for listing used oil as hazardous.

In conducting the sampling and analysis study, EPA considered several factors. When the toxicity characteristic (TC) was promulgated on March 29, 1990 (55 FR 11798), it added 11 constituents to the original list of 14 EP Toxic constituents that may cause a waste to be characteristically hazardous. The Agency believed that it might be necessary to address the additional organic constituents and the new TC Leaching Procedure in its study. Second, EPA recognized that for a significant number of used oil samples collected and analyzed prior to the 1985 proposal, analytical data were not available regarding the possible presence of polynuclear aromatic hydrocarbons (PAHs) in used oils. PAHs may present a significant danger to human health if present in high enough quantities. Of particular concern were PAHs such as benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene, all of which

are currently included as appendix VIII constituents.

In order to address used oils as generated, the Agency defined a number of unique types or classes of used oil. On the basis of the information gathered prior to 1985 and on the public comments received in response to the November 29, 1985 proposed listing, the Agency identified a number of independent segments within the used oil universe. In addition to the most well known used oil generators (i.e., automotive and diesel engines), the Agency identified several smaller used oil segments, including diesel powered heavy equipment and railroad engine crankcase oils, marine oil, hydraulic oil and fluids, metalworking oil, electrical insulating oil, natural gas-fired engine oil, and aircraft engine oil. Selection of these segments is discussed in "Used Oil Characterization Sampling and Analysis Program," which is included in the docket for today's rule.⁶

Each of these segments was evaluated primarily for the presence of selected TC constituents (arsenic, chromium, cadmium, lead, barium, benzene, trichloroethylene, and tetrachloroethylene) and secondarily for the presence of PAHs. The segments also were evaluated to determine the compositional concentration of the specified constituents and to determine to what extent samples exhibit the toxicity characteristic. This approach was undertaken so that a decision whether to list any or all portions of the used oil universe might adequately reflect the hazardous nature of each segment.

C. Point of Generation Data

1. Stratified Random Sampling Plan

A sampling and analysis study of known generators representing the various used oil categories was undertaken by EPA in 1989 to (1) provide updated information on the composition of automotive and industrial used oils at the point of generation and (2) determine the status of these used oils with respect to the toxicity characteristic (TC). The sectors chosen for study based on the above discussion are shown in Table III.C.1.

⁶ Briefly, the sample type and size was determined based on the 1985 sampling and analytical study, data received from the commenters in response to the 1985 proposal, and the current used oil generation and storage practices. A limited number of samples were collected for certain used oil (e.g., marine oils) to substantiate the 1985 proposal used oil data.

TABLE III.C.1.—USED OIL SECTORS

Automotive Oil and Fluids, including:
—Automotive (unleaded gasoline engine) Crankcase Oil.....
—Automotive Oils/Fluids in Used Oil Storage Tanks.....
Diesel Engine Crankcase Oil, including:
—Truck/Bus Engine Crankcase Oil.....
—Truck/Bus Oils/Fluids in Used Oil Storage Tanks.....
—Diesel Powered Heavy Equipment Crankcase Oil.....
—Railroad Engine Crankcase Oil.....
Marine Oil.
Hydraulic Oils/Fluids.
Metaworking Oil.
Electrical Insulating Oil.
Natural Gas-Fired Engine Oil.
Aircraft Engine Oil.
Aircraft Oil/Fluids in Storage Tanks.

Based on the information gathered prior to 1985 and on the public comments received in response to the 1985 proposed listing, the Agency identified a number of independent segments within the used oil universe. The segments included automotive and diesel engine oils as well as categories of industrial used oil, as shown in Table III.C.1.

Once the categories were established, sampling frames consisting of lists of used oil generators (*i.e.*, units) representing each category were developed. The generators were identified in localized geographic regions (1) to reduce time and travel costs associated with the field sampling so that resources could be allocated toward laboratory analyses and (2) to better define the location and population of generators to be sampled. The sampling strategy was not intended to characterize variation in used oil on the basis of geographic origin because no information suggests that used oil collected from generators in localized regions vary. Generally, engines are designed to run within specific temperature ranges, with variations dependant upon climatic temperature conditions. We would expect that, across the United States, similarly designed engines will run at similar temperatures and will break down and/or contaminate the engine oil in similar ways. In the early stages of the used oil sampling and analysis program, EPA collected a limited number of used oil samples in Houston, Texas. These samples were collected to allow laboratory personnel to become familiar with the physical and chemical properties of used oil. The samples collected in Houston, while limited, tend to corroborate the assumption that

geographic variability will not strongly impact the overall findings of the study.

Generators included in each subpopulation (strata) were identified through telephone directories, Standard Industrial Code (SIC) classifications, an automated data base, and trade organizations. Simple random sampling of each used oil generator subpopulation was conducted in order to reduce bias in the selection of generators. Greater detail regarding the sampling frames used is presented in "Used Oil Characterization Sampling and Analysis Program," in the docket.

The selected sites were visited and samples were collected. The number of samples collected in each of the targeted sectors ranged from four to twenty. For some sectors (where the adulteration can potentially occur) it was possible to collect used oil samples from both the point of generation and the on-site storage tank, thereby allowing an evaluation of the extent to which used oil in on-site storage units may undergo adulteration.

The thrust of the latest sampling effort was to substantiate and further elucidate the previously collected used oil characterization data, not to develop a set of new data on which to base the listing decision. In 1985, EPA obtained data from approximately 1,000 samples that were representative of the generation and storage practices. For many used oil industrial segments, new samples were collected in 1988 as spot check samples to verify the 1985 characterization data. For the other used oil segments (*e.g.*, automotive crankcase oils), used oil samples were collected in larger numbers to (a) assess the changes in used oil characteristics resulting from the phase-down of lead in gasoline and (b) differentiate as generated versus storage tank samples of used oil. The data presented in today's notice will be evaluated along with the data provided by the commenters during the comment period for this notice. EPA also will evaluate the data used in 1985 proposal to list used oil and the commenter submitted data received in response to the 1985 proposal.

EPA believes that waste characterization data provides one of the decision-making tools when making a listing determination; under 40 CFR § 261.11(a)(3). EPA also considers the following decision-making factors: waste quantities, toxicity, and hazard potential of the constituents, mobility and transport potential of the waste in the environment, known health and environmental damage cases, plausible types of improper management of waste, and actions taken by the other

governmental agencies or regulatory programs (*e.g.*, state regulations or other Federal regulations).

2. Analytical Approaches Used

In coordination with the 1989 EPA used oil sampling and analysis effort, a Quality Assurance Project Plan (QAPjP) was prepared and implemented in accordance with the EPA format and guidance specified in SW-846, "Test Methods for Evaluating Solid Waste (Physical/Chemical Methods), Third Edition." The QAPjP details the analytical plan and procedures implemented to verify the quality of the data obtained.

The analytical program was designed to characterize used oils with respect to the compositional concentration of the constituents of concern and with respect to the Toxicity Characteristic (TC). In order to do this, the Toxicity Characteristic Leaching Procedure (TCLP) was applied to used oil samples, and after filtration, the liquid phase (filtrate) of the samples were analyzed for selected constituents of concern using analytical methods from SW-846. While EPA has not designated standard reference materials for the TCLP, many standard reference materials exist for the analytical methods that were subsequently employed. For example, in conducting organometallic analysis, EPA employed Conostan, a petroleum-derived standard reference material. Information on standard reference materials used is further elucidated in the background document on the sampling and analysis effort.

In conducting the TCLP, the initial step is filtration of the sample. The TCLP calls for the used oil sample to be filtered using a 0.6–0.8 μm glass fiber filter. Upon completion of filtration, two fractions of the used oil sample exist. The first is the filtrate, which has passed through the filter. The second is the solids, which have not passed through the filter but are, in turn, used to form leachate following acid extraction. EPA ran a compositional analysis on the filtrate to determine the concentration of constituents that could be released from the used oil.

Next EPA assumed that minimal concentrations of hazardous constituents would leach from the solid phase (*i.e.*, the material remaining on the filter) if the full TCLP was performed.⁷

⁷ The full TCLP method calls for rotary agitation followed by pressure filtration and analysis of the leachate of the solid portion of a waste sample if it contains greater than 0.5% solids.

This assumption, which was verified by further laboratory analyses, enabled EPA to estimate the TCLP final analyte concentration based on the concentration of TC compounds found in the filtrate. Compositional data from the initial filtrate phase also provided EPA with data to estimate the composition of the unfiltered used oil sample. It should be noted that these estimates are lower bounds for the TCLP final analyte and compositional concentrations for each used oil sample. The Agency confirmed that these lower bounds are a fair estimate of the full TCLP concentrations for the used oil sample. Additional detail regarding these leaching analyses can be found in the docket.

Total compositional concentrations were estimated by assuming that the contaminant concentrations in the filtrate were identical to those in the unfilterable portion. Thus, the total concentration would be equal to the filtrate concentration. This assumption is justified based on laboratory evidence; used oils tend to clog the filter after a portion has passed through. Only in rare cases were solid particles found to clog the filter; rather, the filter clogged from the oil itself and little difference between the unfilterable portion and the filtrate could be discerned. This leads the Agency to contend that the filtrate is representative of the used oil as a whole.

After filtration, analyses were conducted on the filtrate portion of the sample. All of the samples were analyzed for metallic contaminants. Approximately twenty-five percent of the samples were analyzed for organic constituents. The Agency believed that most used oils that contained TC constituents would exhibit the characteristic for D008 [Lead], as well as other characteristics. Since lead was believed to be the dominant TC constituent, more metals analyses were conducted than organic analyses.

Table III.C.2 provides a summary of the analytical methods used to characterize the samples. Full detail on these methods and their application to used oils can be found in "Used Oil Characterization Sampling and Analysis Program," in the docket.

TABLE III.C.2—ANALYTICAL METHODS FOR TESTING USED OIL

Parameter:	Analytical Method:
Filtration	● SW-846 Method 1311, Toxicity Characteristic Leaching Procedure (TCLP).
Inorganics	Sample Preparation: ● SW-846 Method 3040, Dissolution Process for Oils, Greases, or Waxes (kerosene dissolution). ● SW-846 Method 3051, Microwave Digestion (HNO ₃ only). Analysis: ● SW-846 Method 6010, Inductively Coupled Plasma Atomic Emission Spectroscopy, or ● SW-846 Method 7000 series, Atomic Absorption/graphite furnace.
Volatile Organics	● SW-846 Method 8240 GC/MS for Volatile Organics (purge and trap). ● SW-846 modified Method 3810, Headspace (with isotope dilution).
Semi-Volatile Organics	Sample Preparation: ● SW-846 Method 3580, Waste Dilution. Analysis: ● SW-846 Method 8310, Polynuclear Aromatic Hydrocarbons (HPLC). ● SW-846 Method 8270, GC/MS for Semi-Volatile Organics: Capillary Column Technique (modified for selective ion monitoring).
PCBs	● SW-846 Method 8080, Organochlorine Pesticides and PCBs.

3. New Methods Under Consideration For Used Oil

In conducting the analysis of the used oil samples that were collected, the Agency found that several of the available analytical protocols enumerated in SW-846 required adaptation and one required modification in order to efficiently analyze for the target analytes found in the used oil matrix. The Agency is not requesting comment on the modified methods at this time, but is presenting this discussion for information purposes only. The modified method was used to detect volatile organic analytes in oily waste. As stated below, the method modification was undertaken to detect very low levels of organics in used oil. This modification allowed detection of small quantities of volatile organics and increased (rather than decreased) the potential for a used oil sample to exhibit the TC for volatile organic constituents. A draft copy of the method is available in the docket for today's notice and the Agency intends to propose a revised

SW-846 Method 3810 in the near future. No modified methods were necessary for metal analyte detection.

Analytical difficulties were particularly troublesome with respect to organic analytes. These difficulties arose because the analytical detection limits required by this investigation were somewhat lower than those that could be achieved by existing methodology in these matrices.

For volatile organic contaminants, the Agency found that the traditional purge and trap GC/MS method (Method 8240) did not provide detection limits that were sufficiently low. As an alternative, the Agency has modified an existing headspace screening method (Method 3810) to include isotope dilution. This allows convenient injection of headspace samples. This modified method, which is included in today's docket, includes the addition of several standard isotopes that correspond to each of the target analytes. Based on the results of the analyses in the evaluation of used oils, the Agency is considering addition of this method to SW-846. At this time, the Agency is conducting studies of automated headspace methodology in order to expand its applicability beyond the target analytes addressed under the used oil investigation. Improved reproducibility for the method can be obtained by using an automated headspace analyzer in place of the manual syringe.

For semi-volatile organics analyses, the Agency had similar difficulties. The existing SW-846 methods were adequate for analyzing most samples, but the used oil matrix required dilutions that yielded unacceptable detection limits. To improve the detection levels, the Agency utilized a specific ion monitoring (SIM) option on the GC/MS. Instead of scanning the sample for a full spectrum of semi-volatile compounds, the Agency found that detection limits an order of magnitude lower could be achieved using SIM. This adaptation is entirely within the scope of Method 8270 and allowed the Agency to lower the detection limit for specific semi-volatile organic constituents, PAHs. The Agency is considering the applicability of SIM to other analytical programs at this time. However, since most semi-volatile analyses are targeted for a wide range of compounds, application of SIM may be limited to those situations where few target analytes are being investigated.

4. Commenter Submitted Analytical Data

Many commenters on the 1985 proposal to list used oils as hazardous

waste stated that certain used oils should not be classified as hazardous. After EPA published its decision not to list used oil as hazardous waste (51 FR 41900, November 19, 1986), several commenters submitted data regarding the composition of and constituent concentrations in used oils generated at their facility or facilities. The Agency has reviewed this newly submitted data, which is located in the docket for today's notice, and will consider the data in making a decision to list. Comments are welcome on the newly submitted data, as discussed below.

Reynolds Metal Company submitted analytical data regarding the constituent levels in used oils from three aluminum rolling plants as well as oil sludge residue resulting from oil treatment. Additional data on aluminum mill oil was submitted by Alumax. Reynolds analyzed two types of oil before and after use: A light weight synthetic oil and a water-based oil emulsion. The data submitted suggest that metalworking oils generated in the aluminum rolling process do not typically exhibit the TC for metal contaminants.

Reynolds conducted additional analyses of the same three types of virgin and used oil samples for organic

constituents. The data for volatile organics indicate that virgin and used metalworking oils employed by Reynolds in the production process do not exhibit the TC characteristic. For semi-volatile organics, the data for samples of water-based oil emulsion indicate that this type of oil does not exhibit the TC for semi-volatiles.

However, data for samples of lightweight synthetic oil and petroleum solvent were submitted with such high detection limits that the Agency is precluded from rendering an opinion.

Alumax submitted data on two samples of rolling oil from one mill operation. The samples were of cold mill oil and hot mill oil. Analytical data indicate that toxicity characteristic constituents are not present at levels of regulatory concern in the two samples and detection limits were well below the regulatory level. Further, Alumax provided analytical data on volatile and semi-volatile constituents in each of the two samples, which indicate that the constituents are not present at levels of regulatory concern.

The Agency believes that data submitted by Reynolds Metal Company and Alumax for metalworking oils used in aluminum mills may support the conclusion that these oils generally do

not exhibit the toxicity characteristic and are not hazardous at the point of generation. EPA requests comments on the used oil data submitted by Reynolds and Alumax that can be found in the RCRA Docket for today's notice.

In addition, Reynolds submitted data regarding the characterization of an oil sludge. It is not clear from the information whether the sludge is a distillation bottom from a vacuum distillation process employed in the recovery of oil or whether the sludge is from the wastewater treatment process. Further, Reynolds did not submit any TCLP analysis data on oily sludges. The Agency encourages Reynolds and other commenters to submit process information, characterization, and additional data concerning such sludges.

5. Results

a. *Compositional analysis.* As previously discussed, EPA determined the constituent concentrations found in the liquid phase of the sample after filtration. The summary of the sampling and analysis study results is presented in Table III.C.3, which shows the data separately for each category of used oil sampled and analyzed.

TABLE III.C.3A.—USED OIL SAMPLING AND ANALYSIS SUMMARY

Constituent	Automotive crankcase oil— Unleaded gasoline engines			Automotive oils/fluids— Storage tank samples			Diesel engine crankcase oil—from truck and buses			Diesel truck/bus maintenance—Facility storage tanks			Diesel heavy equipment— Crankcase oil		
	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)
	Ana- lyzed	Con- taminant detect- ed		Ana- lyzed	Con- taminant detect- ed		Ana- lyzed	Con- taminant detect- ed		Ana- lyzed	Con- taminant detect- ed		Ana- lyzed	Con- taminant detect- ed	
Arsenic.....	12	0	<1	8	0	<2.4	10	1	2	10	1	0.39	10	0	<1
Barium.....	12	5	1.0-43	8	3	11.6-32.6	10	2	1.5-6.4	10	2	9.7-76.4	10	1	1.5
Cadmium.....	12	7	0.5-3.4	8	5	1.0-5.0	10	2	0.7-3	10	6	0.27-1.9	10	6	0.8-4.5
Chromium.....	12	10	0.8-23	8	3	2.67-5.0	10	5	1.8-7.1	10	2	2.45-7.0	10	5	1.5-8
Lead.....	12	12	5.5-150	8	8	29-345	10	10	2.9-19.0	10	9	8.0-133	10	8	1-33.0
Benzene.....	7	6	0.53-13.2	6	5	0.28-420	2	0	ND	2	2	19.3			NA
Trichloroethylene.....	7	0	<25	6	0	<50	2	0	ND	2	1	1.0			NA
Perchloroethylene.....	7	0	<25	6	4	89-1700	2	0	ND	2	1	74			NA
Trichloroethane.....	7	1	25	6	3	51-2100	2	0	ND	2	1	60			NA
Tetrachloroeth- anes.....	7	0	<25	6	0	<50	2	0	ND	2	0	<2			NA
Benzo(b)fluor- anthene.....	4	4	13-91	3	3	5-19	4	1	1.5	4	2	2.4-46	2	0	<5
Benzo(k)fluor- anthene.....	2	2	10-22	3	3	1.9-12	4	1	1.1	3	1	1.2	2	0	<5
Benzo(a)pyrene.....	4	4	25-86	3	3	7.3-24	4	1	2.0	4	1	3.0	2	0	<5
PCBs.....	2	0	ND	3	0	ND	1	0	ND	1	0	ND			NA

(1) Analyte concentrations in TCLP filtrate. ND=Constituent not detected. Detection limits varied with matrix affects. NA=Not analyzed. Revised: 2-12-91.

US EPA ARCHIVE DOCUMENT

TABLE III.C.3B.—USED OIL SAMPLING AND ANALYSIS SUMMARY

Constituent	Heavy equipment maintenance facility storage tanks			Diesel railroad engine crankcase oil			Marine oil—marina used oil storage tanks			Marine oil—foreign cargo ships*			Marine oil—miscellaneous categories		
	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)
	Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected	
Arsenic	4	4	0.38-1.59	11	0	<1	7	0	<1	8	0	<1	3	0	<1
Barium	4	0	<10	11	4	1.3-4.3	7	7	2.0-9.9	7	1	17.8	3	1	1.5
Cadmium	4	4	0.51-1.48	11	1	12.0	7	7	1.0-3.4	8	0	<0.25	3	1	2.3
Chromium	4	3	0.89-2.43	11	8	1.1-43.3	7	7	3.1-6.4	8	6	1.2-5.0	3	1	3.6
Lead	4	4	10.8-142	11	7	1.5-31.5	7	7	65.0-360	8	7	2.0-19.0	3	3	0.4-160
Benzene			NA	1	0	<2.5	1	0	<2.5			NA			NA
Trichloroethylene			NA	1	0	<2.5	1	0	<2.5			NA			NA
Perchloroethylene			NA	1	0	<2.5	1	0	<2.5			NA			NA
Trichloroethane			NA	1	0	<2.5	1	0	<2.5			NA			NA
Tetrachloroethanes			NA	1	0	<2.5	1	0	<2.5			NA			NA
Benzo(b)fluoranthene			NA	3	0	<5			NA			NA			NA
Benzo(k)fluoranthene			NA	3	0	<5			NA			NA			NA
Benzo(a)pyrene			NA	3	0	<5			NA			NA			NA
PCBs			NA			NA			NA			NA			NA

* Samples did not filter with TCLP filtration device. Data are total constituent concentrations in unfiltered portion. (1) Analyte concentrations in TCLP filtrate. ND=Constituent not detected. Detection limits varied with matrix affects. NA=Not analyzed. Revised: 2-12-91.

TABLE III.C.3C.—USED OIL SAMPLING AND ANALYSIS SUMMARY

Constituent	Hydraulic oil/fluids			Metalworking oil/fluids			Electrical insulating oils			Natural gas-fired engine oil			Aircraft engine oil		
	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)
	Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected		Analyzed	Contaminant detected	
Arsenic	12	1	3.26	14	3	2.0-21.5	11	0	<1	15	0	<1	10	1	3.7
Barium	12	6	1.4-460	14	7	0.3-8.1	11	0	<1	15	8	2.1-23.0	10	0	<1
Cadmium	12	6	1.4-10.1	14	5	1.3-4.8	11	0	<0.25	15	1	1.9	10	5	2.0-13.0
Chromium	12	3	1.0-1.6	14	3	1.0-5.4	11	0	<1	15	0	<1	10	5	2.5-32.0
Lead	12	7	1.0-7.0	14	10	1.0-6033	11	1	1.0	15	8	1.5-30.0	10	5	1800-10500
Benzene	4	0	ND	5	0	<5	4	0	<5	4	2	26-32	3	0	<25
Trichloroethylene	4	0	ND	5	0	<5	4	0	<5	4	0	ND	3	0	<25
Perchloroethylene	4	0	ND	5	0	<5	4	0	<5	4	0	ND	3	0	<25
Trichloroethane	4	0	ND	5	0	<5	4	0	<5	4	0	ND	3	0	<25
Tetrachloroethanes	4	0	ND	5	0	<5	4	0	<5	4	0	ND	3	0	<25
Benzo(b)fluoranthene	3	0	<5	3	1	6	3	0	<5	3	0	<5	1	0	<5
Benzo(k)fluoranthene	3	0	<5	3	0	<5	3	0	<5	3	0	<5	1	0	<5
Benzo(a)pyrene	3	0	<5	3	0	<5	3	0	<5	3	0	<5	1	0	<5
PCBs	2	0	ND	3	0	ND	2	1	6.9	3	0	ND			NA

(1) Analyte concentrations in TCLP filtrate. ND=Constituent not detected. Detection limits varied with matrix affects. NA=Not analyzed. Revised: 2-12-91.

TABLE III.C.3D.—USED OIL SAMPLING AND ANALYSIS SUMMARY

Constituent	Aircraft oil/fluids—used oil storage tanks			Virgin oil		
	Number of samples		Concentration range (ppm)	Number of samples		Concentration range (ppm)
	Analyzed	Contaminant detected		Analyzed	Contaminant detected	
Arsenic	7	1	1.49	6	0	<9.9
Barium	7	2	3.0-80	6	0	<4.9
Cadmium	7	6	1-11.3	6	2	0.7
Chromium	7	4	1.5-10	6	0	<4.9
Lead	7	6	11-2400	6	1	1.0
Benzene	2	1	0.2	1	0	<5
Trichloroethylene	2	0	<25	1	0	<5
Perchloroethylene	2	0	<25	1	0	<5
Trichloroethane	2	2	290-2500	1	0	<5
Tetrachloroethanes	2	0	<25	1	0	<5

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TABLE III.C.3D.—USED OIL SAMPLING AND ANALYSIS SUMMARY—Continued

Constituent	Aircraft oil/fluids—used oil storage tanks			Virgin oil		Concentration range (ppm)
	Number of samples		Concentration range (ppm)	Number of samples		
	Analyzed	Contaminant detected		Analyzed	Contaminant detected	
Benzo(b)fluoranthene.....	1	0	<1	5	0	<5
Benzo(k)fluoranthene.....	1	0	<1	5	0	<5
Benzo(a)pyrene.....	1	0	<1	5	0	<5
PCBs.....			NA			NA

(1) Analyte concentrations in TCLP filtrate. ND=Constituent not detected. Detection limits varied with matrix affects. NA=Not analyzed. Revised: 2-12-91.

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The analytical results are for the analysis of the TCLP filtrate only and provide the number of samples analyzed, the number of samples in which a specific contaminant was detected, and the range of concentrations of the specific contaminant that was detected. QA/QC data generated in conjunction with the analytical program are available in today's docket. The concentration range (in parts per million) provides an indication of the extent to which a particular category of samples contains a given contaminant and to what extent the samples in that category may exceed regulatory levels of concern for compositional concentrations. The Agency evaluates a number of factors in making a listing determination, all of which are detailed in 40 CFR 261.11. Among the criteria for listing a waste as hazardous, 40 CFR 261.11(a)(3) states that the Administrator may list a waste as "toxic" hazardous waste if it contains any of the hazardous constituents in appendix VIII, after consideration of such additional factors as the toxicity and concentration of constituents in the waste, the mobility and persistence of the constituents in the waste, the degradability of the waste, the

bioaccumulation potential, the plausible types of improper management of the waste, the quantity of waste generated, and the nature and severity of the human health and environmental risks posed by the waste. EPA is continuing to rely upon the data presented in the 1985 proposal regarding the mobility, persistence, and bioaccumulation potential of used oil since the Agency has not received information refuting its findings on these additional factors. The Agency also has developed additional data regarding environmental damage caused by past improper management of used oil (see "Environmental Damage From Used Oil" in today's docket and section VIII.A of today's notice). However, the newly available sampling and analysis data has caused the Agency to revise its analysis of the nature and toxicity of the waste and the human health and environmental risks posed.

When considering appendix VIII constituents, the nature of the toxicity of the constituent in the waste can be determined using the health-based numbers developed by EPA for the constituents in question. For the purposes of this evaluation, EPA has used the Maximum Contaminant Level

(MCL) most recently promulgated under the Safe Drinking Water Act. If an MCL was not available, the Risk Specific Dose (RSD), which corresponds to a specific level of risk (1×10^{-6}) to an individual of contracting cancer over a 70-year lifetime from the intake of contaminated drinking water, was employed. The health-based numbers (HBNs) for tetrachloroethanes and the three PAHs (benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene) are RSDs. The remaining HBNs are MCLs. In the case of lead, EPA is presenting evaluations of the MCL for lead (0.05 parts per million). A newly promulgated "action level" for lead (0.015 parts per million) was promulgated on June 7, 1991 (56 FR 26460) and constitutes the level at which treatment technologies must be undertaken by drinking water supply facilities. EPA has not decided whether to consider an amendment to the Toxicity Characteristic level of 5 ppm lead based on the action level, and so, for the listing evaluation below, we continue to rely on the 0.05 ppm MCL. Table III.C.4. presents the HBNs for the constituents of concern.

BILLING CODE 6560-50-M

TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS

AUTOMOTIVE CRANKCASE OIL (UNLEADED GASOLINE ENGINES)

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	12	12	0	0	0
Barium	1	12	10	2	0	0
Cadmium	0.01	12	5	3	4	0
Chromium	0.05	13	3	8	2	0
Lead	0.05	13	0	0	11	2
Benzene	0.005	12	5	0	2	5
Trichloroethylene	0.005	9	9	0	0	0
Perchloroethylene	0.005	9	9	0	0	0
Trichloroethane	0.2	9	8	0	1	0
Tetrachloroethanes	0.001	9	9	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	4	0	0	0	4
Benzo(k)fluoranthene ...	3.0E-06	2	0	0	0	2
Benzo(a)pyrene	3.0E-06	4	0	0	0	4
PCBs	5.0E-04	2	2	0	0	0

AUTOMOTIVE OILS/FLUIDS - STORAGE TANKS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	9	8	0	0	0
Barium	1	8	5	3	0	0
Cadmium	0.01	11	4	1	6	0
Chromium	0.05	11	8	3	0	0
Lead	0.05	11	0	0	6	5
Benzene	0.005	11	2	3	1	5
Trichloroethylene	0.005	6	6	0	0	0
Perchloroethylene	0.005	6	2	0	0	4
Trichloroethane	0.2	6	3	0	1	2
Tetrachloroethanes	0.001	6	6	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	0	0	0	3
Benzo(k)fluoranthene ...	3.0E-06	3	0	0	0	3
Benzo(a)pyrene	3.0E-06	3	0	0	0	3
PCBs	5.0E-04	3	3	0	0	0

DIESEL ENGINE CRANKCASE OIL - TRUCKS AND BUSES

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	10	9	1	0	0
Barium	1	10	10	0	0	0
Cadmium	0.01	10	8	1	1	0
Chromium	0.05	10	5	4	1	0
Lead	0.05	10	0	5	5	0
Benzene	0.005	4	4	0	0	0
Trichloroethylene	0.005	4	4	0	0	0
Perchloroethylene	0.005	4	4	0	0	0
Trichloroethane	0.2	4	4	0	0	0
Tetrachloroethanes	0.001	4	4	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	4	3	0	0	1
Benzo(k)fluoranthene ...	3.0E-06	4	3	0	0	1
Benzo(a)pyrene	3.0E-06	4	3	0	0	1
PCBs	5.0E-04	1	1	0	0	0

TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS
(continued)

DIESEL TRUCKS/BUSES - STORAGE TANKS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	10	9	1	0	0
Barium	1	10	8	2	0	0
Cadmium	0.01	10	4	4	2	0
Chromium	0.05	10	8	1	1	0
Lead	0.05	10	0	0	7	3
Benzene	0.005	3	0	0	1	2
Trichloroethylene	0.005	2	1	0	1	0
Perchloroethylene	0.005	2	1	0	0	1
Trichloroethane	0.2	2	1	0	1	0
Tetrachloroethanes	0.001	2	2	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	4	2	0	0	2
Benzo(k)fluoranthene ...	3.0E-06	3	2	0	0	1
Benzo(a)pyrene	3.0E-06	4	3	0	0	1
PCBs	5.0E-04	1	1	0	0	0

DIESEL ENGINE CRANKCASE OIL - HEAVY EQUIPMENT

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	10	10	0	0	0
Barium	1	10	10	0	0	0
Cadmium	0.01	10	4	4	2	0
Chromium	0.05	10	5	4	1	0
Lead	0.05	10	2	5	3	0
Benzene	0.005	0	0	0	0	0
Trichloroethylene	0.005	0	0	0	0	0
Perchloroethylene	0.005	0	0	0	0	0
Trichloroethane	0.2	0	0	0	0	0
Tetrachloroethanes	0.001	0	0	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	2	2	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	2	2	0	0	0
Benzo(a)pyrene	3.0E-06	2	2	0	0	0
PCBs	5.0E-04	0	0	0	0	0

HEAVY EQUIPMENT MAINTENANCE FACILITY - STORAGE TANKS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	4	0	4	0	0
Barium	1	4	4	0	0	0
Cadmium	0.01	4	0	3	1	0
Chromium	0.05	4	1	3	0	0
Lead	0.05	4	0	0	3	1
Benzene	0.005	0	0	0	0	0
Trichloroethylene	0.005	0	0	0	0	0
Perchloroethylene	0.005	0	0	0	0	0
Trichloroethane	0.2	0	0	0	0	0
Tetrachloroethanes	0.001	0	0	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(a)pyrene	3.0E-06	0	0	0	0	0
PCBs	5.0E-04	0	0	0	0	0

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TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS
(continued)

DIESEL ENGINE CRANCKCASE OIL - RAILROAD

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	11	11	0	0	0
Barium	1	11	11	0	0	0
Cadmium	0.01	11	10	0	1	1
Chromium	0.05	11	3	4	4	0
Lead	0.05	11	4	5	2	0
Benzene	0.005	2	2	0	0	0
Trichloroethylene	0.005	2	2	0	0	0
Perchloroethylene	0.005	2	2	0	0	0
Trichloroethane	0.2	2	2	0	0	0
Tetrachloroethanes	0.001	2	2	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(a)pyrene	3.0E-06	3	3	0	0	0
PCBs	5.0E-04	0	0	0	0	0

MARINE OIL - MARINA OIL STORAGE TANKS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	7	7	0	0	0
Barium	1	7	7	0	0	0
Cadmium	0.01	7	0	1	6	0
Chromium	0.05	7	0	4	3	0
Lead	0.05	7	0	0	0	7
Benzene	0.005	1	1	0	0	0
Trichloroethylene	0.005	1	1	0	0	0
Perchloroethylene	0.005	1	1	0	0	0
Trichloroethane	0.2	1	1	0	0	0
Tetrachloroethanes	0.001	1	1	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(a)pyrene	3.0E-06	0	0	0	0	0
PCBs	5.0E-04	0	0	0	0	0

MARINE OIL - FOREIGN CARGO SHIPS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	8	8	0	0	0
Barium	1	7	6	1	0	0
Cadmium	0.01	8	8	0	0	0
Chromium	0.05	9	3	6	0	0
Lead	0.05	9	1	5	3	0
Benzene	0.005	0	0	0	0	0
Trichloroethylene	0.005	0	0	0	0	0
Perchloroethylene	0.005	0	0	0	0	0
Trichloroethane	0.2	0	0	0	0	0
Tetrachloroethanes	0.001	0	0	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(a)pyrene	3.0E-06	0	0	0	0	0
PCBs	5.0E-04	0	0	0	0	0

TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS
(continued)

MISCELLANEOUS MARINE OILS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	3	3	0	0	0
Barium	1	3	3	0	0	0
Cadmium	0.01	3	2	0	1	0
Chromium	0.05	3	2	1	0	0
Lead	0.05	3	0	2	0	1
Benzene	0.005	0	1	0	0	0
Trichloroethylene	0.005	0	1	0	0	0
Perchloroethylene	0.005	0	1	0	0	0
Trichloroethane	0.2	0	1	0	0	0
Tetrachloroethanes	0.001	0	1	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	0	0	0	0	0
Benzo(a)pyrene	3.0E-06	0	0	0	0	0
PCBs	5.0E-04	0	0	0	0	0

HYDRAULIC OILS/FLUIDS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	12	11	1	0	0
Barium	1	12	10	1	1	0
Cadmium	0.01	12	8	0	5	1
Chromium	0.05	12	9	3	0	0
Lead	0.05	12	5	5	2	0
Benzene	0.005	6	5	1	0	0
Trichloroethylene	0.005	6	6	0	0	0
Perchloroethylene	0.005	6	6	0	0	0
Trichloroethane	0.2	6	6	0	0	0
Tetrachloroethanes	0.001	6	6	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(a)pyrene	3.0E-06	3	3	0	0	0
PCBs	5.0E-04	2	2	0	0	0

METALWORKING OILS/FLUIDS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	14	11	3	0	0
Barium	1	14	14	0	0	0
Cadmium	0.01	14	9	0	5	0
Chromium	0.05	14	11	2	1	0
Lead	0.05	14	5	5	3	1
Benzene	0.005	7	5	0	0	0
Trichloroethylene	0.005	7	5	0	0	0
Perchloroethylene	0.005	7	5	0	0	0
Trichloroethane	0.2	7	5	0	0	0
Tetrachloroethanes	0.001	7	5	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	2	0	0	1
Benzo(k)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(a)pyrene	3.0E-06	3	3	0	0	0
PCBs	5.0E-04	3	3	0	0	0

TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS
(continued)

NATURAL GAS-FIRED ENGINE OIL

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
				Arsenic	0.5	15
Barium	1	15	11	4	0	0
Cadmium	0.01	15	14	0	1	0
Chromium	0.05	15	15	0	0	0
Lead	0.05	15	7	4	4	0
Benzene	0.005	7	5	0	0	2
Trichloroethylene	0.005	7	7	0	0	0
Perchloroethylene	0.005	7	7	0	0	0
Trichloroethane	0.2	7	7	0	0	0
Tetrachloroethanes	0.001	7	7	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(a)pyrene	3.0E-06	3	3	0	0	0
PCBs	5.0E-04	3	3	0	0	0

AIRCRAFT ENGINE OIL

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
				Arsenic	0.5	10
Barium	1	10	10	0	0	0
Cadmium	0.01	10	5	0	4	1
Chromium	0.05	10	5	2	3	0
Lead	0.05	10	5	0	0	5
Benzene	0.005	4	3	1	0	0
Trichloroethylene	0.005	4	4	0	0	0
Perchloroethylene	0.005	4	4	0	0	0
Trichloroethane	0.2	4	4	0	0	0
Tetrachloroethanes	0.001	4	4	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	1	1	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	1	1	0	0	0
Benzo(a)pyrene	3.0E-06	1	1	0	0	0
PCBs	5.0E-04	0	0	0	0	0

AIRCRAFT OIL/FLUIDS - STORAGE TANKS

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
				Arsenic	0.5	7
Barium	1	7	6	1	0	0
Cadmium	0.01	7	1	1	4	1
Chromium	0.05	7	3	1	3	0
Lead	0.05	7	1	0	1	5
Benzene	0.005	3	2	1	0	0
Trichloroethylene	0.005	3	3	0	0	0
Perchloroethylene	0.005	3	3	0	0	0
Trichloroethane	0.2	3	1	0	0	2
Tetrachloroethanes	0.001	3	3	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	1	1	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	1	1	0	0	0
Benzo(a)pyrene	3.0E-06	1	1	0	0	0
PCBs	5.0E-04	0	0	0	0	0

TABLE III.C.4 - USED OIL CONSTITUENT CONCENTRATIONS AND HBNS
(continued)

ELECTRICAL INSULATING OIL

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	11	11	0	0	0
Barium	1	11	11	0	0	0
Cadmium	0.01	11	11	0	0	0
Chromium	0.05	11	11	0	0	0
Lead	0.05	11	10	1	0	0
Benzene	0.005	7	7	0	0	0
Trichloroethylene	0.005	7	7	0	0	0
Perchloroethylene	0.005	7	7	0	0	0
Trichloroethane	0.2	7	7	0	0	0
Tetrachloroethanes	0.001	7	7	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	3	3	0	0	0
Benzo(a)pyrene	3.0E-06	3	3	0	0	0
PCBs	5.0E-04	2	1	0	0	1

VIRGIN OIL SAMPLES

Constituent	Health Based Number (mg/L)	Total Number Samples Analyzed	Number Samples Constituent Not Detected	Number Samples With Positive Constituent Detection		
				#≤100x HBN	100x<#≤1,000x HBN	#>1,000x HBN
Arsenic	0.5	6	6	0	0	0
Barium	1	6	6	0	0	0
Cadmium	0.01	6	4	2	0	0
Chromium	0.05	6	6	0	0	0
Lead	0.05	6	5	1	0	0
Benzene	0.005	2	2	0	0	0
Trichloroethylene	0.005	2	2	0	0	0
Perchloroethylene	0.005	2	2	0	0	0
Trichloroethane	0.2	2	2	0	0	0
Tetrachloroethanes	0.001	2	2	0	0	0
Benzo(b)fluoranthene ...	3.0E-06	5	5	0	0	0
Benzo(k)fluoranthene ...	3.0E-06	5	5	0	0	0
Benzo(a)pyrene	3.0E-06	5	5	0	0	0
PCBs	5.0E-04	0	0	0	0	0

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Information regarding the concentration of the appendix VIII constituents in the waste is available from the extensive sampling and analysis effort undertaken by the Agency and is presented in Table III.C.3. To assess the threat posed by each of the categories of used oil, the Agency compared the compositional concentration of each constituent of concern to its corresponding health-based number.

Historically, EPA has evaluated toxic constituent concentrations in relation to the corresponding HBN. In making a determination to list a particular waste, EPA examines concentrations for the constituents of concern, assuming that some dilution and attenuation (D/A) will occur. EPA generally relies on D/A factors that encompass a broad range of possibilities, ranging from 100 to 10,000, which correspond to concentrations for each constituent of concern in the environment that are 1 percent and 0.01 percent, respectively, of their concentrations in the waste. In the past, EPA has determined that compositional concentrations exceeding 1,000 times HBN and leachate concentrations exceeding 100 times HBN are typically hazardous and pose a risk to human health or the environment. The reason for this differentiation lies in the fact that leachate concentrations already simulate some degree of environmental effect on the waste, while compositional concentrations do not.

EPA has evaluated compositional concentrations of the constituents of concern in used oils based upon the recently collected analytical data to determine (1) the number of samples in which the constituent was not detected

or for which the value was below detection limits; (2) the number of samples in which the reported concentration was less than 100 times greater than the HBN; (3) the number of samples in which the reported concentration was between 100 and 1,000 times greater than the HBN; and (4) the number of samples in which the reported concentration was greater than or equal to 1,000 times the HBN. These results are shown in Table III.C.4.

The data indicate that automotive crankcase oils generally contain high levels of polynuclear aromatic hydrocarbons (PAHs). Of the samples analyzed, 100 percent exceeded the health-based number for benzo(b)fluoranthene and benzo(a)pyrene by a factor of greater than 1,000. No other category of "as generated" used oil exhibited such consistently high levels of PAHs. Data for automotive oil/fluid from storage tanks correlate positively to the "as generated" data for PAHs in that similar concentrations of PAHs were detected in as generated automotive samples and in automotive storage tank samples. Like the data for as generated automotive crankcase samples, all automotive used oil storage tanks samples (100 percent) exceeded the health-based number for all PAHs by a factor of more than 1,000.

The constituent data also indicate that aircraft engine oils exceeded the MCL for lead by a factor of greater than 1,000 in 50 percent of the ten samples. In fact, those five samples contained concentrations of lead that were greater than 10,000 times the MCL. These five samples were obtained from piston-engine aircraft. Samples from turbo-prop

aircraft do not exhibit such high concentrations of lead. As with automotive crankcase oil, samples from aircraft oil/fluid storage tanks show lead levels that consistently exceed the MCL by a factor of greater than 1,000. All marine oil storage tank samples exceed the MCL for lead by a factor of greater than 1,000.

b. *Toxicity characteristic analysis.* As discussed previously, the Agency also believes that it is useful to evaluate the extent to which used oil exhibits the toxicity characteristic. To accomplish this evaluation, EPA determined the TCLP final analyte concentrations from the constituent concentrations found in the liquid phase of the sample after filtration. An assumption was made that the concentrations of contaminants was much higher in the filtrates than in the leachates. This assumption was based on analytical data that demonstrated that the two phases, filtrate and leachate, are different and, further, that the concentration of contaminants in filtrates was higher than in leachates. The concentration values were evaluated to determine the percent of used oil in each category that exhibits the TC.

Based on the Agency's evaluation of the used oil analytical data and the assumption that sample data are representative of similar used oils nationwide, it was determined that certain types of used oils exhibit the toxicity characteristic and contain other hazardous substances that are of regulatory concern to EPA. Table III.C.5 presents the percent of samples in each used oil category that exhibited the TC.

TABLE III.C.5.—PERCENT OF USED OILS EXHIBITING TC

Used oil category	No. of samples evaluated	Percent of samples exhibiting TC ¹	Confidence limits ²	
			Lower confidence limit ³ (percent)	Upper confidence limit ³ (percent)
Automotive Crankcase Oil—Unleaded Gasoline Engines.....	12	75	50	90
Automotive Oils/Fluids—Storage Tank Samples.....	8	100	75	100
Diesel Trucks and Buses—Crankcase Oil.....	10	10	1	35
Diesel Trucks/Buses—Storage Tank Samples.....	10	70	35	88
Diesel Heavy Equipment—Crankcase Oil.....	10	0	0	22
Diesel Railroad Engine—Crankcase Oil.....	10	20	6	50
Marine Oil—Marina Used Oil Storage Tank Samples *.....	7	86	50	99
Hydraulic Oils/Fluids.....	11	45	20	70
Metalworking Oils/Fluids.....	12	17	5	40
Electrical Insulating Oil.....	10	0	0	22
Natural Gas-Fired Engine Oil.....	15	20	4	33
Aircraft Engine Oil:				
—Turbojet aircraft.....	5	0	0	38
—Piston engine aircraft.....	4	100	50	100
Aircraft Oils/Fluids—Storage Tank Samples.....	7	86	50	99

¹ Based on estimated final analyte concentrations of one or more TC constituents. Majority of samples exhibited TC for lead; however, some exceeded TC levels for arsenic, cadmium, chromium, or organic constituents.

² Confidence limits for a proportion at the 90th percentile.

³ From Table A-22, Experimental Statistics, National Bureau of Standards Handbook 91, 1963.

⁴ Samples exhibited TC for lead only. Supplemental point-of-generation data indicate crankcase oils from gasoline powered marine engines are TC hazardous for lead.

Results of sample surveys in which a small number of samples are collected are subject to some uncertainty; therefore, the upper and lower confidence limits were determined and reported. The upper and lower confidence levels are shown in Table III.C.5 and reflect, respectively, the highest and lowest percentage of samples that could be expected to exhibit the TC. Confidence limits such as these provide a numerical basis for determining how often a given population of used oil will emulate the sample population. At the 90th percentile, it can be stated that for 9 of 10 sample collection/analysis events, the estimated percent of samples exhibiting the TC (*i.e.*, 90 percent) will fall somewhere within the upper and lower limits.

While EPA has considered the upper and lower boundaries, the Agency believes that the percent of samples exhibiting the TC shown in the table is the best approximation of the percentage of used oil in each category that can be expected to exhibit the TC. The Agency is not basing its determinations on the best approximation alone but EPA conducted statistical analysis of the concentration data and supported this conclusion (see statistical analysis procedure discussed in detail in the background document "Used Oil Characterization Sampling and Analysis Program"). The Agency is presenting confidence limits to show the variability in the degrees of precision of the percentage estimates and to provide the public with the broad data available on the statistical analyses.

Despite the phase-down of lead additives in gasoline, automotive crankcase oils from unleaded gasoline engines exhibited the TC in 75% of the samples, primarily for lead. The Agency is requesting comment on the source or sources of lead in automotive crankcase used oil, which may include gasoline blow-by, bearings and parts, or leaking seals. The Agency is interested not only in data on the sources of lead in auto crankcase used oil, but also in possible ways to eliminate or reduce the lead. All samples from used oil storage tanks at automotive maintenance facilities (100 percent) exhibited the TC for lead, as well as other constituents such as solvents. Although difficulties exist in analyzing the samples for TC organics, it is likely that automotive crankcase oils and oil from used oil storage tanks will exhibit the TC for benzene, since the compositional data indicate the

presence of benzene in elevated concentrations. The data also suggest that used oils from gasoline-powered marine craft exhibit the TC for lead and piston-engine aircraft exhibit the TC for cadmium and lead, respectively.

The EPA data suggest that used oils from turbojet/turbofan-type aircraft do not exhibit the TC (0 percent) while used oils from piston-engine aircraft do exhibit the TC, primarily for lead. Approximately 86% of oil from used oil storage tanks at aircraft maintenance facilities exhibit the TC for lead in very high concentrations and 86 percent of samples from marine oil storage tanks were TC hazardous. In part, the lead content in marine oil storage tanks may be attributable to mixing of otherwise non-hazardous marine oils with lead-contaminated used oils from gasoline-powered marine engines.

Of the remaining categories sampled, no electrical insulating oils exhibited the TC (0%) and only 17 percent of the metalworking oils exhibited the TC. Diesel engine crankcase oils from trucks, buses, heavy equipment, and railroad engines were not generally found to be TC hazardous for metals. However, adulteration of used oil with other materials or more contaminated oils was found by comparing samples taken at the point of generation to samples taken from on-site used oil storage tanks. Approximately 70% of used oils from diesel storage tanks exhibited the TC. This may be attributable to mixing of used diesel oil with lubricant cleaners in storage tanks.

D. Used Oil Stratification Based on Hazardousness and Listing Options

On November 29, 1985 (50 FR 9258), EPA proposed to list all used oils as hazardous waste, including petroleum-derived and synthetic oils, based on the presence of toxic constituents at levels of concern from adulteration during and subsequent to use. This proposal and the comments received in response are still under consideration by the Agency. The Agency continues to be concerned about the adulteration of used oil because the resulting used oil/hazardous waste mixtures may present a potential environmental and human health threat. It is appropriate to consider adulteration in deciding whether and how to regulate used oil. It may not be necessary to list used oil as hazardous waste to control adulteration. Further, an across the board listing would penalize generators of "clean" used oils who are careful not to mix other materials into the oil. The

Agency has, therefore, developed alternatives to an across the board listing of all used oil based on the adulteration concern.

Given the compositional and TC data for used oil provided by the 1989 sampling and analysis effort, the Agency has revised the tentative conclusion it reached based on the data collected for the 1985 proposal. EPA now recognizes the variability of constituent concentrations between different used oil streams and now believes that it may not be appropriate to list all used oils as a hazardous waste.

As discussed in the previous section, the results of TCLP analyses of used oil indicate that some categories of used oil (*i.e.*, automobile crankcase oil, piston-engine aircraft oil, and gasoline-powered marine craft oil) frequently exhibit the TC. The remaining categories of used oil occasionally exhibit the TC; however, they do not consistently fail the test.

EPA recognizes that those used oils that fail the TC clearly are hazardous, but also acknowledges that those used oils that do not exhibit the TC may be appropriate for listing.

The Agency closely evaluated the results of the compositional analyses of the various used oil categories in addition to TC analyses to ensure that any listing decision for the categories met the criteria for listing contained in 40 CFR 261.11. As shown earlier, compositional data, when compared to the corresponding health-based numbers, correlates very closely to the TC findings. That is, in samples where the constituent concentration exceeds the health based number by a factor of 1,000 or more, the sample generally exhibits the TC for that constituent. In addition to the TC constituents, automotive crankcase oils exceeded the health-based numbers for PAHs by a factor of more than 1,000, and piston-engine aircraft exceeded the health-based numbers for lead by a factor of greater than 10,000. In used oil categories that did not exhibit the TC, PAH analytes generally were not detected. This finding leads the Agency to tentatively conclude that used oil may be divided into segments for listing consideration. This is discussed next.

1. Listing Options Overview

Table III.D.1 presents three options for listing or identifying used oil as hazardous. First, EPA may continue to rely on the 1985 proposal to list all used oil based on adulteration concerns. The

November 1985 proposal to list used oil as hazardous has the advantage of clearly defining the scope of the listing (i.e., all used oils generated in the United States). Further, the 1985 proposal would capture used oils that are adulterated subsequent to use and would ensure regulation of used oils collected in storage tanks that become contaminated with solvents and other fluids. However, the 1985 proposal to list all used oil as hazardous may capture within the scope of the listing used oils that are not hazardous at the point of the generation and that may or may not be adulterated subsequent to use.

TABLE III.D.1.—LISTING OPTIONS

Option One: Adulteration Approach.	List all used oils as proposed on November 29, 1985 based on the potential for adulteration and environmental damage when mismanaged.
Option Two: As-Generated Approach.	List used oils from gasoline-powered engines (i.e., automotive crankcase, gasoline powered marine craft, and piston-engine aircraft) based on the presence of constituents of concern at >1,000 times the health based level and sampling data that show these used oils exhibit the TC in >50% of samples. Other used oils and mixtures remain subject to hazard determination for all characteristics and rebuttable presumption and mixture rule for hazardous wastes.
Option Three: No list; Rely on Management Standards.	List no used oils and rely on section 3014 management standards to regulate used oils and mixtures.

Alternately, EPA may decide to make a listing determination only on those categories of used oil that are typically and frequently hazardous based on their toxicity at the point of generation, and rely on other mechanisms such as the hazardous waste characteristics, the mixture rule, the rebuttable presumption, and the used oil management standards (all of which are discussed in detail in today's proposal) to regulate used oils that are not listed. Listing used oils at the point of generation may capture only those used oil categories that are typically and frequently hazardous. It would not list those that are typically and frequently non-hazardous, but non-listed used oils would continue to remain subject to the hazardous waste characteristics (e.g., ignitability, toxicity). Further, under the

mixture rule, any mixture of a listed hazardous waste (including listed used oil) and a solid waste becomes subject to regulation as a listed hazardous waste (unless specifically exempted from the rule). Thus, mixtures of non-listed used oil and hazardous waste would be regulated as hazardous waste. Also, the rebuttable presumption, as explained in today's proposal, would regulate as hazardous any used oil containing 1,000 ppm or more total halogens, based on the presumption that the oil has been mixed with a listed halogenated solvent. While generators of such mixtures may rebut the presumption by showing that the source of the halogens is not a listed solvent, the Agency believes that used oil that is adulterated with solvents subsequent to use will be captured by the rebuttable presumption. Finally, the used oil management standards contained in this and previous proposals will encourage good management practices for used oil, which the Agency believes will result in less adulteration of used oil subsequent to use.

2. Analysis of New Options

Option One was fully discussed in the 1985 proposal and is not discussed here. Two alternatives are discussed. Commenters should address these new options at this time.

Under Option Two, categories of used oil that were found to be "typically and frequently" hazardous would be listed as hazardous waste because of the presence of lead, PAHs, and other toxic constituents including arsenic, cadmium, chromium, and benzene (see § 261.11(a)(3) and (b) of the Agency's listing criteria). To define "typically and frequently," the Agency is proposing that when 50 percent of more of the samples in a used oil category exceed the levels of concern, the used oil category is deemed to be "typically and frequently" hazardous. Under Option Two, EPA is considering both TCLP data and compositional data in determining those "as generated" categories of used oil that are "typically and frequently" hazardous. Under this option, if greater than 50 percent of the samples in a given used oil category were found to exhibit the TC and, based on compositional analysis, exceed the health-based number for TC constituents or PAHs by a factor of greater than 1,000, the used oil category is deemed to be "typically and frequently" hazardous. The Agency requests comment on the 50 percent cutoff for determining if a waste is "typically and frequently" hazardous.

Under this approach, "used oil from gasoline powered engines", which

includes automotive crankcase, gasoline powered marine engine oils, and piston-engine aircraft oils may be listed as hazardous waste. Compositional data for these categories indicate they are high in PAHs. Furthermore, analytical data from 17 samples of these kinds of engine oils indicate that more than 75 percent of the samples exhibit the toxicity characteristic, primarily for lead. Table III.C.6 identifies the proposed hazardous waste code and waste description.

TABLE III.C.6.—USED OILS PROPOSED FOR LISTING

Waste description	Proposed hazardous waste code
Used oils from gasoline-powered engines (e.g., automotive crankcase, marine, and piston-engine aircraft).....	F030

Based on the Agency's data and data submitted by commenters, EPA believes the remaining used oils are not typically and frequently TC hazardous as generated and do not contain high levels of PAHs. Thus, under this option, they would not be listed as hazardous. Those used oils that are not listed would, of course, remain subject to the characteristics for the purpose of waste identification.

There are several advantages and disadvantages to this option. Listing of specific used oil categories may allow for easier implementation at generator sites and may increase certainty for industry and EPA as to the hazardousness of categories of used oil. Further, this option may institute a greater degree of national uniformity in the regulation of used oil. Some states currently regulate used oil as a hazardous waste, and EPA has become aware of cases where used oil has been shipped for disposal from States in which it is regulated as a hazardous waste into States in which it is not.

Further, this option may reduce the cost and time of analytical testing of the three categories of used oil listed and may present enforcement advantages in terms of testing and administration. As previously discussed, listing of the three used oil categories may capture those used oils that are typically and frequently hazardous; however, listings may capture individual used oils within each category that are not hazardous as generated (such as a single automotive used oil sample that does not contain high levels of lead or PAHs). Generators of a particular used oil that does not meet the criteria for listing as a

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hazardous waste may petition for delisting under 40 CFR 260.22, but we recognize this option is not very feasible for such a large, diverse universe as used oil generators.

A third option being proposed is a "No List" option for used oils, based on the technical criteria under 40 CFR 261.11(a)(3). 40 CFR 261.11(a)(3) provides that EPA may take a number of factors into account in making a listing decision. Those factors relate to the hazards posed by the waste in question. In some circumstances, even though a waste contains toxic constituents, it may not pose a substantial hazard if improperly managed.

Section 3014(a) allows the Agency to develop management standards under subtitle C independent of whether used oil is listed or identified as a hazardous waste. Section 3014(a) does not require EPA to list or identify used oils as hazardous wastes prior to setting management standards for recycled used oil, but it does authorize EPA to develop regulatory standards for recycling of all used oils, both hazardous and nonhazardous. The management standards proposed in 1985 and today control improper disposal such as road oiling, dumping, and land disposal. (See discussion in VIII.B of this notice.) Today's notice discusses changes to the 1985 proposal, including the possibility of adopting these standards without listing used oil.

If EPA does promulgate management standards for used oil under section 3014(a), then the Agency's consideration of the listing factors in 40 CFR 261.11(a)(3) would be significantly different than if no management standards were issued. Specifically, since the management standards address the types of mismanagement that historically have occurred with used oil (*i.e.*, adulteration with hazardous waste, road oiling with contaminated used oil, spillage, etc.) the need to list used oil to attain environmental control may be greatly reduced.

Of course, EPA must consider 40 CFR 261.11(a)(3) in its entirety. The other listing factors (i-vi and viii-x) may largely be unaffected by imposition of management standards. EPA would, however, give significant weight to the factors in 40 CFR 261.11(3)(vii) and (3)(x), since in this case, the standards would not only address typical mismanagement scenarios but, equally important, would be enforceable under RCRA Section 3008, to the same extent as if the material was listed as hazardous waste. EPA believes that the types of mismanagement historically associated with used oil may no longer

be plausible if subject to Federal enforcement. Furthermore, the regulation issued under RCRA 3014(a) must be "consistent with protection of human health and the environment," which parallels the standards for regulation issued under RCRA 3002-3004, to which hazardous used oil would be subject. Under this approach, EPA, considering 40 CFR 261.11(a)(3) as a whole, might find that listing used oil as hazardous waste is not necessary to achieve adequate control, given the implementation and enforcement of management standards for recycled oil, since the likelihood of mismanagement and resultant consequences greatly would be reduced. (See discussion in sections VIII and IX of the notice.) Therefore, listing or identification of used oil as hazardous waste may not be necessary to meet the statutory requirements of RCRA sections 3001 and 3014(b).

Should EPA decide to undertake this approach, used oil would not be listed as a hazardous waste, but generators of used oil would continue to be required to determine if the used oil exhibited any characteristics of hazardous waste if they chose to dispose of the used oil. Used oil that exhibits any characteristic and is recycled would be subject to the RCRA section 3014 management standards being proposed in lieu of regular subtitle C requirements, so a characteristic determination would not be required. However, used oil destined for disposal that exhibits any characteristic must be disposed in accordance with all applicable subtitle C requirements and this way generators would have to determine—as is presently the case—whether the used oil exhibits a characteristic. EPA requests comments on whether a specific test (using the TCLP) should be required every time used oil would be disposed or whether the generator knowledge would be adequate to make the disposal decision.

EPA recognizes that this option is not completely comprehensive because EPA lacks the authority to impose Federally-enforceable regulations on the disposal of nonhazardous used oil. Therefore, a suboption that the Agency is considering would combine aspects of Options Two and Three to list used gasoline-powered engine crankcase oil when disposed. This might be accomplished in one of two ways. First, the listing description in Table III.C.6 might be modified to refer only to crankcase oil "being disposed of". As an alternative, EPA might promulgate the listing description as shown in Table III.C.6, but would then exclude recycled oil from the definition of hazardous waste in 40 CFR 261.4(b).

As discussed below in this notice, the Agency is considering a presumption that used oil is to be recycled, so the listing would only come into effect if a person took some action, *i.e.*, placing used oil in a disposal unit, indicating intent of disposal. The listing would effectively control crankcase oil disposal, since it would be in compliance with subtitle C requirements. Comments are requested on both the general "No List" options and the sub-option of listing used oil when disposed, based on the factors discussed above.

EPA requests comments on the three options presented here. EPA specifically requests comment on the advantages and disadvantages of making a listing determination for those used oils that consistently fail the TC.

EPA particularly is interested in the views of States on the critical issue of whether used oil should be listed as hazardous waste. A number of States currently list used oil as hazardous waste or special waste, while most do not. EPA is very interested in having State governments comment on whether a national listing (of some or all used oils) may help or hinder effective implementation of existing State used oil regulatory programs and State or local DIY collection programs.

Over the past 10-12 years, those States who have regulated used oil as hazardous or special wastes, those with no specific used oil regulation but certain requirements (*e.g.*, recordkeeping, invoice, notification) for used oil recycling, and those with no State used oil regulation have collectively experienced positive impacts (increased recycling) and negative impacts (greater mismanagement) from used oil regulation. EPA believes the consideration of State experience is crucial in developing a national used oil regulation. In the interim between the 1985 proposal to list all used oils as hazardous and the 1986 decision not to list used oil, the Agency contacted various States to assess their perspectives on the proposal to list all used oils and its impact on used oil handlers within the respective States. Based on State comments at the time, EPA inferred that the listing could produce negative impacts on used oil recycling and increase mismanagement. The main reason cited was the lack of the availability of enforcement funds to implement and enforce State regulation. EPA is again interested in determining the impact of listing alternatives discussed in today's notice on local used oil markets in general.

IV. Oily Wastewaters

The Agency today is proposing to amend the mixture rule to exclude those non-hazardous wastewaters, at facilities subject to Section 402 or 307(b) of the Clean Water Act⁸, that are contaminated with very small quantities of listed used oil. In the November 29, 1985 rule, which proposed to list all used oil as hazardous waste, EPA considered exempting wastewaters contaminated with *de minimis* or very small quantities of used oil from the mixture rule (40 CFR 261.3) (see 50 FR 49263-49264). EPA continues to believe that the concentrations of hazardous constituents that may be present in such mixtures will be so small as to pose no significant hazard to human health and the environment. The following regulatory definition of the wastewater to be excluded from the mixture rule if mixed with *de minimis* quantities of used oil, as proposed in the November 29, 1985, has not changed and is repeated below for the convenience of the reader.

(F) Used oil caused by a *de minimis* loss of lubricating oil, hydraulic oil, metalworking fluids, or insulating fluid or coolant. For purposes of this paragraph, "*de minimis*" losses include small spills, leaks, or drippings from pumps, machinery, pipes, and other similar equipment during normal operations or when small amounts of oil are lost to the wastewater treatment system during washing or draining operations. This exception will not apply if the used oil is discarded as a result of abnormal manufacturing operations resulting in substantial leaks, spills, or other releases or to used oil recovered from wastewater.

The Agency recognizes that an exemption from the mixture rule will only remove from RCRA Subtitle C regulation non-hazardous wastewaters contaminated with very small, non-separable amounts of listed used oil. For example, oily wastewaters can be passed through an oil/water separator or other device to remove excess oil. Used oil that is recovered from wastewater will be subject to the section 3014 management standards for recycled oil as proposed in section IX.A.4 in today's notice. The remaining wastewater will contain minimal amounts of used oil, as described in the proposed definition. Since these mixtures present an insignificant hazard, EPA also is proposing to exempt such wastewater mixtures from RCRA section 3014 management standards.

⁸ Section 402 of the Clean Water Act requires a NPDES permit for direct discharges of pollutants to waters of the U.S. Section 307(b) of the Clean Water Act requires facilities discharging to Publicly Owned Treatment Works (POTWs) to comply with pre-treatment standards.

The exemption for mixtures of used oil and non-hazardous wastewaters would not apply if the used oil is discarded as a result of abnormal manufacturing operations (e.g., plant shutdowns or operation malfunctions resulting in substantial spills, leaks, or other releases). Such a mixture will be considered a used oil and would be subject to the RCRA section 3014 management standards. The exemption also would not apply to non-hazardous wastewaters contaminated with small amounts of used oil that are mixed with other hazardous waste. Such a mixture is already subject to full regulation under 40 CFR parts 262-265, and parts 268, 270, 271, and 124 via the 40 CFR 261.3 "mixture rule". This is discussed in more detail next.

The practical effect of this proposed exclusion for facilities discharging wastewaters under the Clean Water Act (CWA) will vary. If a facility discharges wastewater (including oily wastewater) to surface waters under section 402 of the CWA, such wastewaters when discharged are not solid wastes under RCRA, and are not subject to any subtitle C requirements (see 40 CFR 261.4(a)(2)). Similarly, wastewaters are generally not solid or hazardous wastes under RCRA when they are discharged through sewers to publicly owned treatment works (POTWs) under section 307(b) of the CWA (see 40 CFR 261.4(a)(1)).

Wastewaters discharged to surface waters or POTWs are considered to be solid wastes under RCRA before discharge, and are therefore, subject to the generator requirements of 40 CFR part 262 if they are listed or characteristic hazardous wastes. However, the wastewaters are not subject to the standards of 40 CFR part 264 (e.g., permitting) if they are treated in wastewater treatment tanks subject to section 402 or 307(b) (see 40 CFR part 264.1(g)(6) and 40 CFR 260.10). If wastewaters containing small amounts of used oil are exempt from the used oil mixture rule, the effect will therefore be that these facilities no longer have to comply with the generator requirements of 40 CFR part 262. In addition, facilities discharging to POTWs will no longer have to comply with the hazardous waste notification requirements of 40 CFR 403.12(p).

Facilities which discharge to surface waters or to POTWs and which employ surface impoundments rather than wastewater treatment tanks are currently subject to the standards of 40 CFR part 264 if their wastewater is hazardous. For these facilities, the effect of today's proposal would be to exempt them from these standards, the

generator requirements of 40 CFR part 262, and (for facilities discharging to POTWs), the notification requirements of 40 CFR 403.12(p).

The Agency believes that these exclusions are justified because the wastewaters exempted under today's proposal pose no significant threat to human health and the environment and because they are already subject to Clean Water Act controls. EPA notes that CWA pretreatment regulations prohibit facilities from discharging petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin to POTWs in amount that will cause pass through to surface water or interfere with POTW operation (see 40 CFR 403.5(b)(6)). Similarly, oily wastewaters discharged directly to surface waters may be subject to technology-based controls under Section 402 of the CWA and must always comply with water quality standards established under the State programs.

V. Used Oil Mixtures To Be Evaluated

A. Mixtures of All Used Oils and Hazardous Waste

Mixtures of used oil and hazardous waste are classified as hazardous waste under the mixture rule of 40 CFR 261.3 and are subject to the full subtitle C regulation for hazardous waste. Under 40 CFR 266.40(c), used oil to be burned for energy recovery that contains more than 1,000 ppm of total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in 40 CFR part 261, subpart D. Currently, the presumption may be rebutted by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in 40 CFR part 261, appendix VIII or that the constituents are only from hazardous waste generated by conditionally exempt small quantity generators subject to 40 CFR 261.5.

As proposed on November 29, 1985 as part of the used oil management standards (50 FR 49219), EPA is considering applying the "rebuttable presumption" for used oil fuels that may have been mixed with chlorinated hazardous wastes (found at 40 CFR 266.40(c)) to all used oil that is recycled, reused, or reclaimed. The only way to rebut this presumption would be to demonstrate and document that the halogenated compounds detected in the mixture are not listed solvents. Mixtures of used oil and hazardous waste, including mixtures of used oil and hazardous waste from conditionally exempt small quantity generators,

would be subject to recycling standards for hazardous waste rather than the proposed management standards for recycled used oil.

EPA is considering applying the rebuttable presumption applied when burning for energy recovery to used oils designated for recycling, disposal, or incineration. If a used oil contains more than 1,000 ppm halogens, then the used oil may be classified as a hazardous waste and be subject to all subtitle C regulations, including the land disposal restrictions, unless the presumption of mixing can be rebutted. The rationale for expanding the rebuttable presumption to all used oil that is recycled or disposed is based on EPA's finding that high halogen content indicates that hazardous waste mixing has probably occurred. (EPA discussed this rationale in the November 29, 1985 proposal (see 50 FR 49220) as well as the final burning and blending regulation at 50 FR 49176.) Therefore, there is no reason to limit the application of the rebuttable presumption only to used oils that are burned for energy recovery since the likelihood that mixing has occurred appears to be unrelated to the ultimate disposition of used oil. The Agency solicits comments on the expansion of the rebuttable presumption.

B. Mixtures of Listed Used Oil and Other Materials

1. Applicability to Listed and Characteristic Used Oils

EPA wishes to clarify for the regulated community the applicability of the mixture rule of 40 CFR 261.3 to used oil. EPA is not opening the mixture rule for comments, but is providing the following discussion for information purposes only. The mixture rule applies only to mixtures of listed hazardous waste and solid waste; that is, by virtue of mixing a listed hazardous waste with a solid waste, the solid waste automatically becomes a listed hazardous waste. Wastes that are characteristically hazardous (or listed solely because they exhibit one of the characteristics) are considered hazardous until they no longer exhibit any hazardous characteristics. This distinction becomes important when addressing used oil mixtures, some of which may contain a used oil proposed for listing in today's notice and some of which may contain non-listed used oils that exhibit one of the characteristics. Because of the regulatory scheme proposed today (*i.e.*, some oils may be listed), some used oil mixtures destined for disposal may be subject to regulation under hazardous waste regulations because they contain

used oil that is listed as a hazardous waste or because the mixture, though not containing a listed used oil, may itself exhibit a hazardous waste characteristic. By contrast, some mixtures destined for disposal may be subject to Subtitle D regulation because they contain nonhazardous used oil.

2. Applicability of the Mixture Rule to Specific Solid Wastes

In the November 29, 1985 proposal to list used oils as hazardous waste, the Agency requested comments on mixtures of used oil and industrial wipers⁹ that are contaminated with small amounts of used oil. Additionally, on March 10, 1986 (51 FR 8206), the Agency published a request for comments on a proposal to amend the mixture rule to exclude sorptive minerals¹⁰ that are placed on the floors of industrial establishments primarily to clean up spills of used oil resulting from incidental or routine drips, sprays, or seepages. Commenters submitted analytical data indicating that mixtures did not exhibit a hazardous characteristic. The Agency is not requesting additional comments on previously proposed exclusions, which are still under consideration, but welcomes comment on the commenter-submitted data as well as the issues regarding industrial wipers and sorptive minerals discussed below.

a. *Industrial wipers*: In the November 1985 proposal to list used oil as hazardous waste, EPA proposed an exemption from the mixture rule for industrial wipers, partly in response to a petition submitted by the Kimberly-Clark Corporation. Based on the comments received in response to that notice, EPA is considering promulgating this exemption, or a similar exemption in 40 CFR 261.4(b), with the stipulation that all free-flowing used oil has been removed from the industrial wiper (*i.e.*, by draining, squeezing, or other removal technique) to ensure that the amount of used oil disposed with the wiper is minimized. EPA believes that free-flowing used oil is removable and recyclable and would be covered under RCRA section 3014 used oil generator standards discussed in today's notice. (See discussion on recycling of used oil from used oil-contaminated absorbent materials in section IX.A.2.) EPA requests comment on using either a *de minimis* cutoff, as proposed in 1985, or the "one drop" approach, as discussed in section V.D. of today's notice, for

⁹ The term "industrial wipers" includes shop towels, rags, and disposable wipers.

¹⁰ The term "sorptive minerals" includes absorbent clay or absorbent diatomaceous earth.

determining whether used oil contaminated solid waste or used oil containers containing free-flowing used oil. From an enforcement point of view, the "one-drop" approach is preferred, since it does not require extensive quantitative testing. EPA believes that wipers, in filters, or sorptive materials containing insignificant quantities of oil is not likely to exhibit the characteristic of toxicity and could be regarded as non-hazardous solid waste. EPA requests comment on whether a *de minimis* quantity cutoff that could be used to determine the presence or absence of free-flowing oil in mixtures of used oil and solid waste or used oil containers (e.g., used oil filters). EPA will consider new comments submitted with respect to the 1985 proposed *de minimis* levels signifying a concentration cutoff.

EPA is proposing to conditionally grant an exemption to industrial wipers contaminated with used oil and discussed in the petition submitted by Kimberly-Clark and two other similar petitions submitted by the Scott Paper Company and the Alliance of Textile Care Associations.

A wiper not containing free-flowing used oil would not be considered a hazardous waste under this proposal, since it would contain insignificant quantities of used oil. EPA proposes to classify the act of removing used oil from the wiper for recycling as a recycling method rather than a regulated RCRA waste treatment process. EPA believes that processes (e.g., draining, squeezing, crushing, chopping, etc.) used to remove free-flowing used oil from used oil contaminated solid wastes are within the scope of what may be regulated under section 3014, but we are not certain if specific standards are necessary to protect human health and the environment from these activities. Therefore, EPA solicits comments on whether the act of removing free-flowing used oil from an industrial wiper should be regulated under section 3014 management standards. Only by using one of these methods one can remove free-flowing used oil from mixtures. Comments are requested on risks that these activities may pose, and controls that might be applied.

A wiper containing free-flowing used oil, and the used oil separated, however, would be subject to RCRA section 3014 management standards for generators in the majority of cases, and those for recyclers in certain other cases (*e.g.*, laundry services; brokers and recyclers involved in collecting intact used oil filters, industrial wipers, and sorbent materials; and product manufacturers.) As mentioned above, EPA does not

propose to regulate the used oil removal process itself, but does propose to require clean-up of any spills that occur during draining or collecting of used oil. The primary reason is that a possibility exists for used oil drips, releases, and/or spills while the free-flowing oil is removed (generated) and collected. By this Agency's action, such mishaps would be minimized and associated cleanups would be undertaken. Used oil removed from a solid waste must be collected into a unit (e.g., container or tank) regulated under section 3014. If the used oil is separated from wastewater, the used oil must be directed to a unit regulated under section 3014. This approach would exclude only the physical act of used oil removal.

Generators who failed to remove non-free flowing used oil from an industrial wiper may be required to dispose of the wiper as hazardous waste, if the used oil in the wiper were listed or if the wiper exhibited a hazardous characteristic. If recycled, the undrained wiper and oil may be subject to the section 3014 standards prior to removal of the oil and any used oil removed from an industrial wiper would be subject to any listings, characteristic determinations, or RCRA section 3014 management standards that may otherwise apply to used oil. While the drained wiper is no longer subject to the section 3014 standards, the removed oil would continue to be subject to section 3014 for recycling.

b. *Sorptive Minerals*: In comments submitted relative to the November 1985 proposal, the Sorptive Minerals Institute (SMI) provided information to support their contention that sorptive minerals (i.e., absorbent materials such as clays and diatomaceous earths) do not release hazardous constituents under pressure and that significant quantities of oil or hazardous constituents do not leach out of sorptive minerals. This is important in the determination as to whether mixtures of used oil and sorptive materials may be regulated under the "mixture rule" (40 CFR 261.3), if any used oils are listed. Results of SMI's study (a copy of which is in the docket for today's notice), using EPA's Liquid Release Test, showed that the typical sorptive material could hold more than 60 percent of its weight in oil, even at high pressures. To test the assumption that sorptive materials do not leach constituents of concern, SMI allowed several sorptive minerals to absorb a pooled used motor oil sample. The sample contained high levels of TC constituents. Testing using the TCLP showed that the constituents of concern did not leach when exposed to prolonged TCLP extraction, even at high

loading levels; thus, these mixtures are unlikely to pose a hazard when disposed. Based on the SMI data, EPA is proposing an exemption for sorptive minerals from the definition of hazardous waste in 40 CFR 261.4(b).

In order to provide a means for generators to qualify for the exemption, the Agency proposes that generators test sorptive minerals used to clean up oil spills by using EPA's Liquid Release Test (SW-846 proposed Method 9096) (55 FR 22543, June 1, 1990) to determine the minerals' ability to desorb used oils. The Liquid Release Test is designed to determine whether or not liquids will be released from sorbents when they are subjected to overburden pressures in a landfill.

Finally, the exemption is based on the premise that the sorptive minerals may be used, in appropriate amounts, only when spills or leaks occur, and that excess used oil may be removed from the sorptive mineral through pressing or squeezing. If the used oil so removed is recycled, these activities would not be subject to RCRA regulations for hazardous waste treatment but would be considered as used oil recycling activities. As with industrial wipers, EPA proposes not to regulate the removal of free-flowing used oil from the sorptive materials. However, any used oil so removed may be subject to the RCRA section 3014 management standards, listings, or characteristic determinations as appropriate. Any use of sorptive materials (or other materials) simply to dilute used oil prior to disposal may be considered treatment, potentially subject to hazardous waste regulation and permitting.

C. Oil Filters

Under current RCRA subtitle C regulations, if a generator is sending a used oil filter for disposal, the generator is required to determine whether the used oil filter is a hazardous waste. This can be accomplished either by use of the generator's knowledge of the waste or process that generated the waste or by testing. In the case of the TC, testing requires running the TCLP. EPA guidance on this issue has stated that the TCLP can be performed on oil filters by crushing, grinding, or cutting the filter and its contents until the pieces are smaller than one centimeter and will pass through a 9.5 mm standard sieve. If the oil filter exhibits the TC it is a hazardous waste subject to RCRA subtitle C regulations.

However, certain recycling activities generally are exempt from subtitle C regulation, and EPA encourages generators to recycle used oil filters. To accomplish this, generators or recycling

facilities may crush, dismantle, cut open, spin, centrifuge, or drain the oil filter to remove the used oil from the filter. The following exemptions can then be applied:

- If the used oil is recycled, then the draining/crushing is considered an unregulated used oil recycling activity, not regulated treatment. (See discussion in section V.B.2.a for EPA's rationale for not subjecting draining activities to the section 3014 management standards.)

- Used oil that is recycled is exempt from subtitle C regulation under the used oil recycling exemptions in 40 CFR 261.6 (a)(2)(iii) and (a)(3)(iii), but may be subject to RCRA section 3014 management standards when promulgated.

- Crushed or drained oil filters that are recycled are exempt from Subtitle C regulation under the hazardous scrap metal exemption in 40 CFR 261.6(a)(3)(iv).

As a best operating practice, based on the information available to EPA, the Agency recommends that the generator or recycling facility both drain and crush used oil filters to remove as much of the oil as possible.

The Iowa Waste Reduction Center at the University of Northern Iowa conducted a study of over 1,200 used automotive oil filters to determine methods to reduce the potential environmental damage from the filters. The Iowa study, which is included in the docket for today's notice, found that the environmental impact could be significantly reduced through draining used oil filters to remove the free-flowing used oil, which removed approximately one-half of the used oil. The amount of used oil recovered through draining was dependent upon the drainage time, ranging from 44 percent in 4 hours to 55 percent in 12 hours. The study further found that draining followed by compression in a hydraulic press removed 88 percent of the residual oil, with 12 percent (one ounce) of used oil remaining in the filter material.

Based on the results of the Iowa study, it appears that insignificant amounts of free-flowing used oil remain in filters after crushing; therefore, EPA is proposing an exclusion for used oil filters that have been drained and crushed from regulation as hazardous waste under 40 CFR 261.4(b), which defines those solid wastes that are not hazardous wastes. Such an exclusion would allow crushed and drained oil filters to be managed as solid waste

under RCRA subtitle D¹¹ by exempting them from any listings or characteristics of hazardous waste, including the TC. Oil drained from the filter would still be subject to any listings, characteristic determinations, or RCRA section 3014 management standards as otherwise applicable. (Refer to section IX.A.5 for similar discussion as Part of Phase I used oil management standards.) EPA specifically requests comment on the Iowa study and on what parameters, if any, may be set in determining what constitutes "crushing." EPA also requests comment and supporting analytical data on other methods that may be used to remove free-flowing used oil from spent oil filters.

D. Mixtures of Small Quantities of Listed Used Oil and Solid Waste

If any used oils are listed, the strict application of the mixture rule to mixtures of such oil with other materials can result in the classification of many materials as listed hazardous waste. As discussed above, EPA is considering specific exemptions for industrial wipers, sorptive minerals, and oil filters that have been drained of free-flowing used oil. There are a number of other such materials. The Agency believes that many of these materials may not pose a threat to human health and the environment because of the very small quantities of used oil involved. Because a quantitative limit is difficult to determine, the Agency sought a qualitative limit. Such a limitation could be qualitatively assessed by determining whether or not free flowing used oil is present in the mixture. If one drop of listed used oil is capable of flowing from the mixture, then the waste may be considered hazardous.

If promulgated, the "one-drop" philosophy may allow the disposal in subtitle D facilities of solid nonhazardous waste that does not contain free flowing used oil. Under this exemption, generators could drain scrap metal, contaminated soil, or other nonhazardous wastes of all free flowing used oil and then dispose of the drained material in accordance with subtitle D. If the used oil drained from the scrap metal is to be recycled, these activities would not be subject to RCRA regulations for hazardous waste treatment (see 40 CFR 261.6 (a)(2)(iii) and (a)(3)(iii)) or to the RCRA section 3014 management standards. (See

discussion in section V.B.2.a for EPA's rationale for not subjecting draining activities to the section 3014 management standards.) However, any used oil so removed may be subject to the RCRA section 3014 management standards, listings, or characteristic determinations as appropriate. EPA has already recommended this approach above, in the specific cases of industrial wipers, sorptive materials, and oil filters.

As previously discussed, the Agency proposes that generators of test sorptive minerals used to clean up oil spills test those minerals using EPA's Liquid Release Test (SW-846 proposed Method 9096) (55 FR 22543, June 1, 1990) to determine the minerals' ability to desorb used oils. The Liquid Release Test is designed to determine whether or not liquids will be released from sorbents when they are subjected to overburden pressures in a landfill. EPA also is proposing to require generators of other used oil/solid waste mixtures to test those mixtures using EPA's Paint Filter Test (SW-846 Method 9095) to determine that there is no additional free-flowing used oil in the mixture. These tests will verify that the used oil/solid waste mixture meets the "one-drop" philosophy criteria.

EPA also requests comment on other test methods that are being or could be used to determine whether all free-flowing oil has been removed from used oil laden solid waste. In addition, the Agency would like to receive data that would indicate the applicability of the Paint Filter Test or new test methods to used oil contaminated soils.

The Agency acknowledges the advantages of an easily identifiable mixture rule limit. Public comment is requested on the efficacy of the "one-drop" test in determining which mixtures of used oil and solid waste may be subject to subtitle C regulation under the mixture rule. In the alternative, EPA solicits comment on whether a quantifiable level could be established and what an appropriate level might be.

E. Mixtures of Non-listed, Hazardous Used Oil and Solid Waste

EPA is concerned that confusion may exist for the regulated community on the applicability of RCRA regulations to mixtures of non-listed used oil that exhibit one or more of the characteristics of hazardous waste and solid waste. The following discussion is provided as a guideline for the regulated community and responds to comments provided in response to the November 1985 and March 1986 notices. This

discussion would only apply if EPA chooses to list some used oils.

1. Shock Absorbers

Monroe Auto Equipment submitted detailed analytical data on used oils in shock absorbers, since, in their view, shock absorbers may be considered hazardous waste if the oil contained in them were listed as hazardous. Data were submitted from an independent laboratory that analyzed several samples of used shock absorber oil for the presence of CERCLA Listed Hazardous Substances (Table 302.4 of 40 CFR 302.4) and EP Toxic metals using SW-846 methods 8240 and 8270. The analyses demonstrated that the constituents were not present at concentrations of regulatory concern. Under today's proposal, EPA is considering listing only certain categories of used oil. Oil in shock absorbers is not among those proposed for listing, but all solid waste nonetheless remains subject to a hazard determination for the characteristics of hazardous waste. Spent shock absorbers that are disposed of remain subject to a characteristic determination, and any applicable subtitle C requirements when discarded. Generally, however, the oil in spent shock absorbers is not removed. Instead, the entire unit is recycled by manufacturers. Shock absorbers sent for recycling, and oil recovered from them that is recycled, would be exempt from hazardous waste regulation, but would still be subject to section 3014 management standards (as discussed below).

2. Request for Comment on Other Mixtures

Commenters on the November, 1985 and March, 1986 Federal Register notices suggested that additional mixture rule exemptions be considered by the Agency prior to promulgation. In particular, commenters sought clarification on the application of the mixture rule to several other mixtures, including soil contaminated with used oil and coal "treated" with used oil.

EPA requests comments on extending the proposed one-drop philosophy to all such mixtures. We note that facilities applying or using used oil for purposes such as coal treating are subject to part 266, subpart E, and would be subject to the section 3014 management standards discussed in today's notice since they are producing used oil fuel. EPA requests comment on whether coal treated with small amounts of used oil should be exempt from regulation, and what conditions might be placed on treated coal as part of an exemption.

¹¹ EPA recognizes that some States are considering banning used oil filters, even when crushed and drained filters, from municipal landfills. Individual States would, of course, retain authority for such controls even with the proposed exclusion.

VI. Derived-From Rule

The existing "derived from" rule contained in 40 CFR 261.3(c)(2) provides that "any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust, or leachate (but not including a precipitation run-off) is a hazardous waste." If any used oils are listed, residues from their handling and treatment may also be deemed listed hazardous waste. EPA is, as discussed below, separately proposing to list as hazardous certain waste residuals from used oil recycling and re-refining, making the derived-from rule moot for those particular residues.

A. Applicability to Used Oil Fuel Residuals

While EPA is concerned about the potential impacts of regulating burning residuals (e.g., ash) as hazardous waste, the Agency notes that the derived-from rule is an important part of the current hazardous waste definition. The rule, as explained May 19, 1980 (45 FR 33096) was instituted to ensure that toxic constituents that are likely to end up in treatment residuals are properly managed.

1. Residuals From the Burning of Off-Specification and Specification Used Oil Fuel

The Agency is contemplating the applicability of the derived-from rule of 40 CFR 261.3(c)(2) to ash or pollution control device-collected residuals from burning off-specification used oil as a fuel. Under the approach for listing only certain used oil and the planned management standards for all used oils discussed today, off-specification used oil fuel may or may not contain used oils that are listed as hazardous waste. However, under the derived-from rule as currently written, any ash (or pollution control residual, such as baghouse dust), from burning listed used oil may itself be hazardous waste. Thus, a determination as to whether the derived-from rule applies to a particular residual may be difficult to make and may tend to cause generators to treat all used oil fuel residuals as derived-from wastes. The regulation of burning residuals as hazardous waste may raise the expense involved in handling used oil fuel and may likely discourage this use.

EPA requests comment on the composition of used oil fuel residuals from burning of off-specification fuel. If EPA receives sufficient data on residuals generated by the burning of used oil to show that it is not hazardous,

the Agency will consider amending the derived-from rule to exclude residuals produced from the burning of used oil fuels. Under this approach, EPA may only exclude residuals from the derived-from rule. Residuals generated by the burning of off-specification used oil fuel may remain subject to the hazardous waste characteristics, and any residual exhibiting the characteristic of hazardous waste may be subject to the hazardous waste regulations. (Of course, this amendment would not affect the application of the derived-from rule to residuals from burning fuels constituting mixtures of used oil and hazardous waste regulated under 40 CFR part 266, subpart D.)

Further, EPA notes that under 40 CFR 266.43(b)(6)(i), provided all requirements are met, "specification used oil fuel is not subject to further regulation unless it is subsequently mixed with hazardous waste or unless it is mixed with used oil so that it no longer meets the specification." Thus, used oil fuel that meets the specification is not subject to the derived from rule if the appropriate notices and fuel analyses have been completed. In developing the specification for used oil fuel, EPA's rationale was to establish specification levels that limited the toxic constituents in the fuel. The specifications were set at levels that may present a lower risk in human exposure scenarios. When burned, the limited levels of toxic contaminants in specification used oil fuel either will be destroyed or remain in the burning residual. Ash and other residuals from the burning of specification used oil fuel are less likely to be contaminated. EPA is not proposing today to alter the used oil fuel specification established under 40 CFR part 266, subpart E.

2. Co-firing Specification Used Oil With Fossil Fuels or Virgin Fuel Oils

In the November 29, 1985 final rule addressing burning of waste fuel and used oil fuel in boilers and industrial furnaces, combustion residuals excluded from regulation under RCRA section 3001 were not subject to the burning rule (50 FR 49190). As stated in that rule, EPA has interpreted the RCRA section 3001 exclusions to include "fly ash, bottom ash, boiler slag and flue gas emission control waste resulting from (1) the combustion solely of coal, oil, or natural gas, (2) the combustion of any mixture of these fossil fuels, or (3) the combustion of any mixture of coal and other fuels, including hazardous wastes or used oil fuels, up to a 50 percent mixture of such other fuels." Further, residuals from the burning of these fossil fuels and mixtures, including ash and

emission control dust, are not subject to the hazardous waste characteristics. Today's proposal continues those exclusions for the combustion of any mixture of coal and up to 50 percent used oil that is subject to RCRA section 3014 management standards, as proposed.

EPA has received a request for guidance on the co-firing of specification used oils with virgin oils at facilities eligible for the exclusion noted above because they burn virgin fuel oil only. EPA believes that such a practice is consistent with the intent of RCRA to encourage the recycling and reuse of used oils in an environmentally sound manner. EPA, however, notes that under the current regulatory provisions and interpretations (as discussed above), this particular mix of materials to be burned for energy recovery may cause the burning facility to lose their exclusion under EPA's interpretation of RCRA section 3001. Because of EPA's desire not to discourage legitimate and beneficial recycling practices, EPA is proposing to consider specification used oil fuel to be equivalent to a fossil fuel for the purpose of the interpretation discussed above. The effect of this interpretation is to allow the burning of a mix of virgin and specification used oil fuels in utility boilers.

B. Applicability to Used Oil Reintroduced in Petroleum Refinery Processes

The Agency is considering exempting petroleum-based products that include listed used oil as a raw material from the requirements of 40 CFR parts 262 through 266 and parts 268, 270, and 124, as well as the notification requirements of RCRA section 3010. The Agency has already excluded fuels produced from the refining of oily hazardous wastes and oils reclaimed from hazardous waste, both resulting from normal petroleum refining practices, under 40 CFR 261.6(a)(3), (v) and (vi). The Agency is today proposing to extend those exclusions to fuels produced and oil reclaimed from used oil.

It may be possible that, when incorporated into a product that will undergo extensive processing prior to being offered for sale, the constituents of concern in a used oil will be removed. The Agency is considering exempting used oil that is mixed with crude oil or other oily materials and later used as a raw material in a refining process from subtitle C requirements by adding listed used oil to the recyclable materials contained in 40 CFR 261.6(a)(3). EPA solicits data that may support such an exemption. As discussed when EPA first

promulgated the exclusions under 40 CFR 261.6(a)(3) (v) and (vi), (see 50 FR 49169, November 29, 1985), the hazardous wastes that fall under these exclusions must be introduced into the process prior to distillation or catalytic cracking. It was the Agency's determination at the time of promulgation of the exclusions that these steps were essential to the removal of contaminants in the refinery process (see 50 FR 49169, November 29, 1985). EPA today proposes that the same requirements apply to used oil; that is, used oil must be introduced into the process or pipeline prior to distillation or catalytic cracking.

Because processes that involve only cursory removal of constituents should not be excluded from the derived-from rule, the Agency requests comment on requiring introduction of used oil prior to distillation or catalytic cracking, on other refining processes that may be included in the exemption, and on defining those activities that involve only cursory removal of contaminants. Further, the Agency requests information on the efficacy of introducing used oils into the process prior to catalytic cracking.

VII. Reprocessing and Re-refining Residuals

A. Residuals as Related to Used Oil

In the 1985 proposal to list used oil as hazardous, EPA stated that used oil residues or sludges resulting from the re-refining or reprocessing of used oils may be included in the definition of used oil, even though these residuals are not specifically mentioned in the statutory definition of used oil. Over the past several years, EPA has gathered information on residuals from the re-refining and reprocessing of used oil. Between 1986 and 1988, EPA conducted three separate sampling and analysis studies to determine the composition and characterization of re-refining and reprocessing residuals. The results of these studies are summarized below.

As a result of the studies conducted, EPA has now concluded that residuals from the reprocessing and re-refining of used oil constitute a waste stream separate from used oil.¹² The residuals from reprocessing and re-refining are distinctly different from used oil in physical state, constituent concentration, and potential hazard to human health and the environment. The residuals generally contain higher levels of toxic constituents than their source

oils, primarily due to concentration of contaminants in the reprocessing and re-refining process. Such concentration of contaminants, even when constituents are present at low concentration in used oil, can generate a waste more hazardous than its source. Thus, independent of whether the source oil is hazardous or nonhazardous, it is the Agency's belief that residuals from the reprocessing and re-refining of used oil are inherently hazardous.

For the reasons enumerated above, the Agency is considering promulgating separate listings for used oil residuals based on our 1985 proposal to list all used oil (and residuals) and the data presented later in this section. Further, EPA is interpreting the congressional definition of used oil as laid out in UORA and HSWA to include residuals from the reprocessing and re-refining of used oil, meaning that any residual listing would be under HSWA and, thus, would become effective in authorized and non-authorized states at the same time. EPA believes that HSWA provides the authority to EPA to consider whether to list or identify all used oils as hazardous. If EPA were to list all used oils, the residuals from the reprocessing and re-refining of used oil automatically would be HSWA-listed hazardous waste pursuant to the derived-from rule. Even if the Agency may elect to list or identify portions of the used oil universe, or not to list any used oils, EPA believes that HSWA authority extends to the residuals.

Among the used oil processing and re-refining residuals proposed to be listed as hazardous waste in this notice, distillation bottoms designated as RCRA Waste Code No. K154, may be regulated under the section 3014 management standards when recycled as feedstock to manufacture asphalt products (e.g., road paving and roofing material) rather than as a listed hazardous waste. EPA believes that distillation bottoms are not substantially different from the virgin raw material generally used to produce asphalt products (e.g., road-paving material or asphalt shingles). EPA requests comment and supporting data that may demonstrate that distillation bottoms are or are not significantly different than the virgin feedstock used in asphalt products. In 1985, EPA proposed to exempt from the hazardous waste regulations the use of used oil processing residues in asphalt products. EPA may grant such an exemption if the commenter-submitted data or EPA-collected data supports the exemption. (See discussion in IX.H. and X.C.4. for distillation bottoms management

standards and cost analysis, respectively.)

B. Re-refining and Reprocessing Waste Streams

The specific waste products resulting from re-refining and reprocessing procedures are dependent upon the specific steps used by the re-refiner or reprocessor; however there are several general waste types that are generated within these industries. Unless specifically noted, these wastes can be generated at several points in the process.

Gravity and Mechanical Separation Waste Streams include filter residues, tank bottoms, and pretreatment sludges that may be generated by processes in which solids, oil, and water are separated at ambient temperature. Tank Bottoms are thick, tar-like layers that accumulate over time at the bottom of storage tanks. Centrifuge sludges are generated during centrifuge separation of used oil fractions.

Lube Polishing Media usually contains heavy metals, phenols, oil, and other compounds. Polishing media usually consists of clay compounds or activated carbon used as adsorbents to improve the color, odor, and stability of re-refined lube oils.

Distillation Bottoms constitute the heavy fraction produced by vacuum distillation of filtered and dehydrated used oil. Composition of still bottoms varies with column operation and feedstock.

Wastewater and Treatment Residues may be generated from the separation of water contamination in storage tanks, from run-off that contains oil from spills and process leakage, from process cooling water, and as a byproduct resulting from distillation procedures. Wastewater sludges may be generated as residues from the wastewater treatment procedures.

Each of these wastes has been further characterized below and additional background information is available in the docket.

C. Re-refining and Reprocessing Data Availability

Due to the distinct nature of these residuals, the Agency has undertaken specific steps to gather and develop up-to-date data that adequately characterize the wastes generated by these processes. Agency efforts continued following publication of the 1985 proposal, with independent efforts by the Office of Water (OW) and the Office of Solid Waste (OSW). Data and site-specific information were obtained from sampling activities and site visits

¹² Distillation bottoms from the re-refining and reprocessing of used oil used to produce asphalt products would be regulated under the proposed RCRA section 3014 management standards.

conducted by OSW in 1986-1987, sampling activities conducted by OW in 1986-1987, and RCRA 3007 questionnaires for the reprocessing/re-refining industry completed in 1987.

From November 1986 to January 1987, 11 facilities, including three re-refiners, six reprocessors, and two collectors, were visited by OSW to determine current waste generation practices in the industry. At four of these facilities, including one re-refiner and three reprocessors, a composite sample representing all solid wastes generated by the plant was collected and analyzed. The feedstock for the facilities comprised mixed used oil (crankcase and industrial) at two facilities, industrial oils only at one facility, and fuel oils at the remaining facility. Each of these four samples were analyzed for total constituent content and Toxicity Characteristic (TC) leachable levels of volatile organic compounds, PCBs, semivolatile organic compounds, and metals. This data can be found in the docket and is presented at this time for public comment.

Four re-refiners were visited by OW between September 1986 and January 1987. These facilities used a feedstock of mixed crankcase and industrial oils. The results of the sampling efforts, in which a total of 48 samples were collected,

were published in a preliminary data summary (EPA 440/1-89/014). The data include analysis results of the following samples obtained from two reprocessing and two re-refining facilities:

Sample description	No. of samples
<i>Gravitation and Mechanical Separation:</i>	
Filter cake	4
<i>Lube Polishing Media:</i>	
Spent clay	5
Spent activated carbon	3
<i>Distillation Bottoms:</i>	
Still bottoms	7
<i>Wastewater Treatment Residues:</i>	
Process wastewater	13
Final effluent	11
DAF sludge	5

Samples were analyzed for total constituent levels of the TC metals; dioxins, and PCBs, as well as priority, conventional, and nonconventional pollutants (as defined by the Clean Water Act); RCRA 3007 questionnaires were sent to 80 facilities in the used oil reprocessing and re-refining industry in Fall 1987. Twelve facilities responding to the questionnaires provided data on six distinct waste streams. Data from 14 streams are available. In 1987, additional sampling and analysis activities were conducted at seven

facilities. A total of 17 samples were collected, including seven samples of untreated process wastewater, five samples of filter solids, and one sample each of filter clay, spent catalyst, caked residue, storage tank bottoms, and wastewater treatment sludge. The used oil feedstock at these facilities was either unspecified or a mix of crankcase, lube oil, and industrial oil.

Data from all of the sampling and analysis activities as well as the RCRA 3007 questionnaire data collection activity are summarized in Table VII.C.1. While several TC organic constituents were detected, only those TC organic constituents exceeding the TC threshold are shown. In addition, the data reflected high concentrations of polynuclear aromatic hydrocarbons (PAHs) in many of the samples, particularly benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and phenanthrene. As discussed in the background document for these wastes, PAHs may present a significant danger to human health if present in high enough quantities. In many cases, one or more of the PAHs were present at or above the quantities that may present a hazard to human health and the environment.

BILLING CODE 6560-50-M

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Constituent	Gravity/Mechanical Separations - Filter Residues			Gravity/Mechanical Separations - Tank Bottoms			Gravity/Mechanical Separations - Centrifuge Sludge			Lube Polishing - Spent Clay			Lube Polishing - Spent Catalyst and Spent Carbon		
	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)
	Analyzed	Con-taminant detected		Analyzed	Con-taminant detected		Analyzed	Con-taminant detected		Analyzed	Con-taminant detected		Analyzed	Con-taminant detected	
Arsenic	11	11	0.005 - 42	9	3	0.013 - 5	10	4	5 - 150	12	6	0.4 - 24	3	1	600
Barium	11	11	0.086 - 2215	23	20	0.21 - 1300	10	9	21 - 3610	12	9	.56 - 794	3	3	14 - 155
Cadmium	12	10	0.037 - 110	10	8	0.02 - 50	10	4	11 - 216	12	12	0.5 - 155	3	3	1.1 - 11
Chromium	9	9	0.094 - 235	19	17	1.2 - 735	10	8	19 - 638	12	12	3 - 746	3	3	3.5 - 170
Lead	11	11	0.29 - 71538	20	20	0.02 - 2370	11	9	1 - 11000	12	8	0.4 - 1200	3	3	6.89 - 643
Nickel	8	8	7.6 - 260	2	2	25 - 130	6	5	6 - 367	4	4	2 - 138	2	2	2.4 - 13500
Benzene	1/5	1	35	1	1	6.5	0	0	NA	1/4	1	0.812	0/2	0	NA
Trichloroethylene	1/5	1	590	11/12	9	2.2 - 13090	3	2	100 - 1100	1/4	1	8.871	0/2	0	NA
Tetrachloroethylene	6	6	0.15 - 1700	15	12	70 - 1900	3	3	100 - 7000	1/4	1	2.114	0/2	0	NA

Constituent	Distillation Residues - Still Bottoms			Distillation Residues - Coked Residue			Wastewater/Treatment Sludge - Process Wastewater			Wastewater/Treatment Sludge - Treatment Sludge		
	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)	Number of Samples		Concentration Range (ppm)
	Analyzed	Con-taminant detected		Analyzed	Con-taminant detected		Analyzed	Con-taminant detected		Analyzed	Con-taminant detected	
Arsenic	11	6	1 - 5	1	1	18	25/27	15	0.0064 - 0.2	5	3	2.2 - 6.3
Barium	12	11	6 - 1400	1	1	390	29/30	18	0.041 - 14	5	5	264 - 1030
Cadmium	13	11	0.7 - 29	1	1	62	25/30	10	0.001 - 0.32	5	5	1.81 - 71
Chromium	13	12	3 - 160	1	1	510	29	17	0.004 - 2	5	5	63.9 - 2060
Lead	13	13	366 - 15000	1	1	8150	29/30	22	0.1 - 30	6	6	0.15 - 2040
Nickel	5	4	1 - 97	1	1	220	14/15	12	0.43 - 6.6	4	3	36.5 - 870
Benzene	1/4	1	239	1	1	0.054	20/24	18	0.47 - 73	3	3	2.6 - 628
Trichloroethylene	0/4	0	NA	0/1	0	NA	17 - 26	11	0.12 - 3.4	2/3	2	2.6 - 61.6
Tetrachloroethylene	0/4	0	NA	1	1	0.041	13 - 26	10	3.29	2/3	2	50.5 - 1453

Number of samples analyzed uncertain for some constituents. Number shown (e.g., xy) shows the total known samples analyzed, either x or y. BILLING CODE 6550-50-C

Data submitted by Reynolds Metals Company (see discussion in section III.C.4 of today's notice) may indicate that vacuum distillation of rolling oils used in aluminum manufacturing may not produce a hazardous sludge similar to that proposed for listing today. As discussed earlier in today's notice, the data submitted by Reynolds for the sludge was incomplete and sufficient information was not provided to enable EPA to identify the point in the process where the waste was generated. As stated previously, EPA encourages Reynolds and other commenters with similar processes to submit data on the sludges generated.

D. Listing of Residuals

While analysis of these residuals by TCLP may capture a large portion of the wastes as hazardous, the Agency views the high concentrations of lead and chromium in these waste streams, (which are 100-3,000 times the health based number) as an indication that the wastes are typically and frequently hazardous. In addition, the TC does not take into consideration the presence of PAHs, which were found at levels exceeding regulatory concern. Thus, the Agency is considering adding four wastes from the reprocessing and re-refining of used oil to the list of hazardous wastes from specific sources (40 CFR 261.31). The four wastes are:

- K152—Process residuals from the gravitational or mechanical separation of solids, water, and oil for the reprocessing or re-refining of used oil, including filter residues, tank bottoms, pretreatment sludges, and centrifuge sludges.
- K153—Spent polishing media from the finishing of used oil in the reprocessing or re-refining process, including spent clay compounds and spent catalysts.
- K154—Distillation bottoms from the reprocessing or re-refining of used oil.
- K155—Treatment residues from oil/water/solids separation in the primary treatment of wastewaters from the reprocessing and re-refining of used oil.

1. Constituents of Concern

The primary basis for listing these residuals from used oil reprocessing and re-refining as a hazardous waste concerns the presence of certain toxic constituents. As previously discussed, reprocessing and re-refining residuals typically contain a number of toxicants listed in appendix VIII, including arsenic, barium, cadmium, chromium, lead, nickel, benzene, tetrachloroethylene, trichloroethylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and fluoranthene.

Of the toxicants detected in reprocessing and re-refining residuals, three metals (lead, chromium, and cadmium) consistently were found at sufficiently high concentrations in all four waste streams to warrant inclusion in appendix VII as the basis for listing for these wastes. In addition, K152 contains benzo(a)anthracene, benzo(a)pyrene, benzo(b) and (k)fluoranthene, chrysene, dibenz(a,h)anthracene, and fluoranthene at sufficiently high levels to warrant their inclusion in appendix VII also as the basis for listing this waste.

In relation to the residuals from re-refining and reprocessing of used oil, the Agency has evaluated the criteria for listing a waste as hazardous that are contained in 40 CFR 261.11(a)(3) and that were presented earlier in this notice in regard to used oil. EPA has found that these wastes typically and frequently contain toxic constituents, including some that are carcinogenic, that, when mismanaged, pose a substantial threat to human health and the environment and may, therefore, be listed. Further discussion on the constituents of concern and the potential hazards posed by these wastes can be found in the background document for today's notice.

2. Fate and Transport of Toxic Constituents in the Environment

The Agency is evaluating the mobility and persistence in the environment of the constituents of concern present in residuals from the reprocessing and re-refining of used oil. Because some of the constituents of concern are water soluble to some extent, they can (1) leach out of the wastes in a water-soluble form, (2) be transported through the subsurface environment from the waste, (3) eventually reach ground-water bodies, and (4) contaminate drinking-water wells.

In order to conduct a qualitative evaluation of fate and transport of re-refining and reprocessing residuals, the Agency is evaluating potential risks to human health posed by exposure to a drinking water/waste mixture. EPA examined hypothetical ground-water concentrations by assuming that, through subsurface transport, dilution and attenuation (DA) processes will reduce the concentrations of the hazardous constituents of concern by a given factor. The Agency evaluated three DA factors: 100, 1,000, and 10,000. These three values correspond to drinking well water contaminant concentrations a 1, 0.1, and 0.01 percent of the contaminant's original concentration in the waste.

The three DA factors used in this analysis are intended to encompass a broad range of possibilities. While the DA factors were not selected to represent any particular environmental condition or range of environmental conditions, they represent assumptions varying from a moderate amount of dilution and attenuation to a high degree of dilution and attenuation. As shown in Tables VII.C.2 through VII.C.5, the wastes examined pose a potential threat to human health and the environment across this wide range of assumptions.

TABLE VII.C.2.—BASIS FOR LISTING: HEALTH EFFECTS OF THE CONSTITUENTS OF CONCERN IN K152

Hazardous constituent	Average waste conc. detected (ppm)	Health-based water concentration limit (ppm)	Basis	Estimated drinking well concentrations			Calculated concentration to health-based limit ratios		
				DA 100	DA 1,000	DA 10,000	DA 100	DA 1,000	DA 10,000
Cadmium	25	0.01	MCL	0.25	0.025	2.5x10 ⁻³	25	2.5	0.25
Chromium	150	0.05	MCL	1.5	0.15	0.015	30	3.0	0.30
Lead	1570	0.05	MCL	15.70	1.57	0.157	314	31.4	3.14
<i>PAHs:</i>									
Benz(a)anthracene	115	1x10 ⁻⁵	RSD (Class B ₂)	1.15	0.115	0.0115	100000	10000	1000
Benzo(a)pyrene	150	3x10 ⁻⁶	RSD (Class B ₂)	1.5	0.15	0.015	500000	50000	5000
Benzo(b and k)fluoranthene	270	2x10 ⁻⁵	RSD (Class B ₂)	2.7	0.27	0.027	100000	10000	1000
Chrysene	150	2x10 ⁻⁴	RSD (Class C)	1.5	0.15	0.015	8000	800	80
Dibenz(a,h)anthracene	33	7x10 ⁻⁷	RSD (Class B ₂)	0.33	0.033	3.3x10 ⁻³	500000	50000	5000
Fluoranthene	490	1	Rfd	4.9	0.49	0.049	5	0.5	0.05

Calculated for three dilution/attenuation (DA) levels.

² Average concentrations calculated from process residuals or process sludge data.
³ Ratio obtained by dividing assumed drinking well concentration column by health-based water concentration limit column, for all three dilution/attenuation (DA) levels.
⁴ Reference Dose (RfD), Risk Specific Dose (RSD), and Maximum Contaminant Level (MCL) are explained in the report, as are the classes of RSDs. Class A, B, and C carcinogens are based on exposure limits at a 10⁻⁶ risk level.

TABLE VII.C.3.—BASIS FOR LISTING: HEALTH EFFECTS OF THE CONSTITUENTS OF CONCERN IN K153

Hazardous constituent	Average waste conc. detected ² (ppm)	Health-based water concentration limit (ppm)	Basis ⁴	Estimated drinking well concentrations ¹ (ppm)			Calculated concentration to health-based limit ratios ³		
				DA 100	DA 1,000	DA 10,000	DA 100	DA 1,000	DA 10,000
Cadmium	45	0.01	MCL	0.45	0.045	4.5 × 10 ⁻³	45	4.5	0.45
Chromium	160	0.05	MCL	1.60	0.16	0.016	32	3.2	0.32
Lead	200	0.05	MCL	2.0	0.2	0.02	40	4.0	0.40

¹ Calculated for three dilution/attenuation (DA) levels.
² Average concentrations calculated from process residuals or process sludge data.
³ Ratio obtained by dividing assumed drinking well concentration column by health-based water concentration limit column, for all three dilution/attenuation (DA) levels.
⁴ Reference Dose (RfD), Risk Specific Dose (RSD), and Maximum Contaminant Level (MCL) are explained in the report, as are the classes of RSDs. Class A, B, and C carcinogens are based on exposure limits at a 10⁻⁶ risk level.

TABLE VII.C.4.—BASIS FOR LISTING: HEALTH EFFECTS OF THE CONSTITUENTS OF CONCERN IN K154

Hazardous constituent	Average waste conc. detected ² (ppm)	Health-based water concentration limit (ppm)	Basis ⁴	Estimated drinking well concentrations ¹ (ppm)			Calculated concentration to health-based limit ratios		
				DA 100	DA 1,000	DA 10,000	DA 100	DA 1,000	DA 10,000
Cadmium	3.5	0.01	MCL	0.035	3.5 × 10 ⁻³	3.5 × 10 ⁻⁴	3.5	0.35	0.35
Chromium	15	0.05	MCL	0.150	0.015	1.5 × 10 ⁻³	3.0	0.3	0.03
Lead	500	0.05	MCL	5	0.5	0.058	100	10	1

¹ Calculated for three dilution/attenuation (DA) levels.
² Average concentrations calculated from process residuals or process sludge data.
³ Ratio obtained by dividing assumed drinking well concentration column by health-based water concentration limit column, for all three dilution/attenuation (DA) levels.
⁴ Reference Dose (RfD), Risk Specific Dose (RSD), and Maximum Contaminant Level (MCL) are explained in the report, as are the classes of RSDs. Class A, B, and C carcinogens are based on exposure limits at a 10⁻⁶ risk level.

TABLE VII.C.5.—BASIS FOR LISTING: HEALTH EFFECTS OF THE CONSTITUENTS OF CONCERN IN K155

Hazardous constituent	Average waste conc. detected ² (ppm)	Health-based water concentration limit (ppm)	Basis ⁴	Estimated drinking well concentrations ¹ (ppm)			Calculated concentration to health-based limit ratios ³		
				DA 100	DA 1,000	DA 10,000	DA 100	DA 1,000	DA 10,000
Cadmium	43	0.01	NCL	0.43	0.043	4.3 × 10 ⁻³	43	4.3	0.43
Chromium	1070	0.05	MCL	10.7	1.07	0.107	214	21.4	2.14
Lead	1400	0.05	MCL	14.0	14.0	0.14	280	28	2.8

¹ Calculated for three dilution/attenuation (DA) levels.
² Average concentrations calculated from process residuals or process sludge data.
³ Ratio obtained by dividing assumed drinking well concentration column by health-based water concentration limit column, for all three dilution/attenuation (DA) levels.
⁴ Reference Dose (RfD), Risk Specific Dose (RSD), and Maximum Contaminant Level (MCL) are explained in the report, as are the classes of RSDs. Class A, B, and C carcinogens are based on exposure limits at a 10⁻⁶ risk level.

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The Agency believes that the DA factors used in assessing the potential migration of the constituents of concern in re-refining and reprocessing residuals are not unrealistic. In developing listings for wood preserving wastes, which are oily and can be expected to behave similarly to used oil, EPA assessed the impact of these wastes on land. To assess the effectiveness of the hypothetical concentrations (by assuming a set of three DA factors) in representing the real-life leaching and migration processes, the Agency compared average concentration of

certain constituents (chromium, fluoranthene, pyrene, anthracene, and naphthalene) in wood preserving wastes (oil-based) and the ground-water contamination data from the damage cases related to the wood preserving industry. The Agency assumed that, in the past, wood preserving wastes containing high concentrations (higher than averages calculated for the rulemaking activity) were disposed of on land, which resulted in contaminated ground water as evidenced by the damage cases. The comparison provided the Agency with a mechanism to

determine the potential migration of toxic and hazardous constituents from oily wastes in soil.

The results of the comparison suggested that metals such as chromium and semivolatile compounds such as anthracene, fluoranthene, chrysene, and pyrene are released from the oily wastes and, hence, are capable of contaminating ground water. The calculated DA factors for these semivolatile compounds in oily waste range from 10 to 100,000. Based on this preliminary comparison, the Agency concludes that the constituents of

concern in oily wastes can be carried over to receptor points as aqueous leachate at concentrations ranging from 10 to 0.001 percent and 1 to 0.01 percent of the original concentration of semivolatile compounds and metals, respectively, in the oily wastes.

As shown in Tables VII.C.2 through VII.C.5, the ratio of the drinking water well concentrations to health based levels is greater than 1 in most of the cases. The Agency, therefore, believes that the potential for human exposure is significant and provides a basis for listing these wastes as hazardous.

3. Potential for Environmental Hazard

The potential hazards of used oil are presented later in today's notice. (See discussion in section VIII.A of this notice.) In addition, environmental damage incidents from used oil mismanagement are discussed in "Environmental Damage From Used Oil," which is included in the docket for today's notice. EPA has identified five Superfund sites and other environmental damage incidents directly attributable to the mismanagement of residuals from used oil reprocessing and re-refining. These damages include contamination of ground water, surface water, and soils as well as damage to fish and water fowl in the surrounding area. The clean up costs associated with the five Superfund sites total well over \$61 million.

VIII. The Agency's General Approach to Used Oil Management Standards

In addition to the new data and issues discussed above, EPA has been evaluating used oil management standards. On November 29, 1985 (50 FR 49212), EPA proposed a comprehensive set of management standards for generators, transporters and recycling facilities that handle and recycle used oil. EPA received substantial public comment on the proposed requirements. The Agency has been re-evaluating the proposed management standards in light of public comments. EPA is now looking at several potential approaches to the management standards. EPA is considering finalizing certain 1985 proposed management standards, but the Agency is also considering modifying some of the proposed standards and dropping other standards in light of public comment, additional data, and/or additional regulatory actions the Agency has taken since the 1985 proposal.

The intent of the management standards alternatives identified and discussed in this notice is not to replace or withdraw the 1985 proposed standards but to set forth options to (a)

clarify or modify certain 1985 proposed standards, (b) defer selected standards (e.g., financial responsibility), and (c) add new requirements (e.g., recordkeeping and reporting requirements for certain generators and transporters). The Agency is requesting comments on specific approaches that are under consideration and that are discussed in this notice. EPA is not seeking any additional comments on the 1985 proposal itself.

This notice outlines the basic approach EPA is proposing for used oil management standards. The following sections describe in detail the need to ensure the safe management of all used oils, whether or not they are determined to be hazardous and whether or not they are recycled. The Agency is considering an approach, described below, under which one set of management standards (with certain exemptions for used oil mixtures that contain de minimis quantities of used oil) may control recycling and disposal of used oils and therefore mitigate potential hazards from all used oils (hazardous and nonhazardous, and recyclable and nonrecyclable). EPA has also considered an approach under which only used oils that are deemed hazardous waste may be regulated under the management standards. EPA is concerned that this sort of approach, while focusing on the most hazardous used oils, may be very difficult to implement. For example, adulteration of used oil with hazardous waste has been a very serious problem, and any used oil may be adulterated. A system that regulated only certain used oils may not effectively control adulteration. EPA also believes that irrespective of a listing determination, all used oils pose some threat to human health and the environment and therefore all used oils need to be handled in a safe manner. EPA requests comment on this issue. Commenters may also want to qualify comments on specific management standards under discussion by indicating whether the standard should apply to all used oils, or only to hazardous used oils, as appropriate.

The Agency believes that the mismanagement of used oil may pose hazards to human health and the environment. EPA believes that the primary sources of used oil mismanagement and potential hazards include:

- Ground-water contamination from disposal or storage in unlined impoundments or landfills;
- Air emissions from improper burning or the burning of used oil mixed with other hazardous wastes;

- Soil, surface water and ground-water contamination from improper disposal of DIY-generated used oil (e.g., landfill, yard or sewer disposal);

- Contamination from improper storage practices at used oil generator sites, transfer facilities and recycling facilities; and

- Environmental contamination from road oiling.

The Agency is considering implementing these management standards in a two-phased approach. The approach is designed to reduce the risks posed by used oil mismanagement while imposing regulatory burdens upon used oil recycling in a gradual, considered manner.

The Phase I requirements proposed today are designed to address the potential hazards associated with improper storage and disposal of used oil by establishing basic requirements applicable to used oil generators, transporters, recyclers, and disposal facilities. These requirements consist of "basic" management standards, including detection and cleanup of used oil releases associated with storage and transportation, recordkeeping requirements (used oil tracking), and reporting of used oil recycling and disposal activities. The Phase I requirements also address hazards associated with road oiling and improper disposal of some or all used oils. The Agency is considering a ban on road oiling of used oils given the potential hazards to human health and the environment from direct application of used oil to land and given the fact that used oils used for road oiling are often mixed with hazardous wastes. The Agency is also proposing a recycling presumption, testing requirements for non-recyclable used oils, and is considering developing disposal guidelines for non-hazardous used oils to protect against potential hazards from land disposal of used oils. These provisions are discussed in more detail below.¹³

The standards proposed in November, 1985 as revised and/or supplemented today address each of the risks and potential types of mismanagement listed above, with the exception of air emissions from improper or uncontrolled burning of used oil fuels. Currently, the 40 CFR part 266 subpart E regulations restrict residential burners from burning used oils that do not meet the used oil

¹³ Used oils that are non-recyclable and hazardous (i.e., listed or characteristic hazardous) will have to be disposed in compliance with the current subtitle C requirements for disposal of hazardous wastes.

fuel specification. However, air emissions from used oil industrial burners are not yet controlled under RCRA. EPA is still studying the need for emissions standards for used oil burners and the proper level of controls necessary for used oil burning units. EPA plans to address emissions standards for used oil burners at a later date, possibly in "Phase II" of the management standards.

As part of a comprehensive approach to addressing used oil, EPA also wants to promote the recycling of DIY-generated used oil (including household-generated used oils that may fall under the household hazardous waste exclusion). Currently, DIY-generated used oils (approximately 193 million gallons annually) are not widely recycled and in fact, are often improperly disposed. Today's notice discusses several options for regulatory incentives, that may be included in Phase II or developed under a separate schedule. These options would be developed to promote the recycling of DIY-generated used oils. As discussed earlier in this notice, several non-regulatory approaches are also under consideration for increasing the quantities of DIY-generated used oils that are collected and recycled.

EPA has also undertaken several efforts to provide outreach information and develop non-regulatory incentives for used oil recycling. Several of these efforts focus on the collection and recycling of DIY-generated used oil. EPA has developed and distributed publications educating households and individuals on the hazards associated with improper dumping of used oil and encouraging DIY oil changers to recycle used oil. EPA has published specific step-by-step instructions on how to change automobile crankcase oil and how to dispose of the oil properly so that it enters the used oil recycling system. The Agency has also published information on how to establish local used oil recycling programs and how service stations and other facilities can establish used oil recycling programs.

At a later date, EPA may develop additional regulatory and/or non-regulatory incentives for encouraging the collection and recycling of DIY-generated used oils should the Agency determine that additional incentives are necessary. The need to establish additional incentives will be based in part on how effective today's approaches (or those promulgated after review and comment on this proposal) are in promoting used oil recycling and ensuring that such recycling is conducted in a manner protective of

human health and the environment. If significant quantities of DIY oil are still not entering the used oil recycling system and DIY oil management practices have not altered, then additional incentives may be appropriate.

Under today's notice, EPA is considering, as one option for used oil generator standards, a revision to the 1985 proposed management standards which would eliminate the small quantity used oil generator category, while also reducing the requirements applicable to all used oil generators. Under the approach discussed today, all used oil generators may be subject to a single, minimum set of requirements. By eliminating the distinction between categories of used oil generators, used oil generators may be less reluctant to collect DIY used oil since the collection of these used oils will not subject the generator to more stringent management standards. Similarly, imposing minimum, "good housekeeping", standards creates the most conducive regulatory environment possible for recycling given EPA's mandate, by ensuring protection of human health and the environment, but taking into account the impacts on recycling when devising the regulatory schemes. If EPA determines that the section 3014 management standards that are promulgated in Phase I are adequately implemented and enforced across the board, then additional standards may not be necessary.

The following section describes EPA's proposed phased approach for the used oil management standards. As mentioned above, Phase I would contain "basic" management standards, including detection and cleanup of used oil releases or leaks associated with storage and transportation, recordkeeping (used oil tracking) requirements, and reporting of used oil recycling and disposal activities. EPA has also considered an alternative approach in which no management standards would be issued until the Agency has developed a comprehensive, risk-based management scheme for used oil, which would address DIY-generated oil, used oil burning by industrial burners, etc. This approach may have the advantage of avoiding piecemeal regulation of the industry. However, factors in favor of a phased approach include providing, in the short term, at least a minimum level of protection to human health and the environment from potential hazards from used oil and the possibility of changing regulatory provisions in Phase II based on feedback from the implementation of Phase I. In addition, much uncertainty

exists concerning certain key components (e.g., to what extent current participants in used oil recycling will remain in the system under a regulatory regime), and that actual implementation of limited controls may be the best manner of data collection. EPA believes the phased approach described below is flexible and may allow for adjustments as problems of over- or under-regulation are identified. EPA requests comment on a phased versus a delayed/comprehensive approach.

As explained in more detail below, EPA believes that all used oils may require some level of control to protect human health and the environment. Various authorities are available to the Agency to effect this control. RCRA section 3014 provides EPA with the authority to regulate generators, transporters and recycling facilities that handle recycled used oil or used oils that are to be recycled, regardless of whether or not the used oils are identified as hazardous waste. Section 3014 does not, however, provide the Agency with regulatory authority over used oils that are not recycled. Other RCRA authorities, however, are available and can be applied to used oils that may be treated and/or disposed in municipal solid waste landfills or other facilities.

The next section briefly discusses the potential hazards associated with used oil. This is followed by a discussion of the basic approach EPA is considering for used oil management standards to ensure the safe management of all used oils, whether or not they are recycled. The notice then describes the phased regulatory approach that the Agency is considering for used oil management standards at this time. If the Agency is convinced that only used oils determined to be hazardous should be regulated, EPA may draw on the 1985 proposal, as well as ideas described here, to finalize management standards for those hazardous used oils.

A. Potential Hazards of Used Oils

Past practices for used oil storage, transportation, and disposal have resulted in documented damages to human health and the environment. Human health and environmental hazards associated with used oil stem from both the potential uncontrolled management of used oils that are mixed with hazardous substances or wastes such as PCBs and chlorinated solvents, and the release of used oil itself to the environment. Past mismanagement of used oils has resulted in significant environmental damage, which the Agency has documented extensively. Of

the 445 National Priorities List (NPL) facilities having documented Records of Decision, 185 (42%) have had used oils co-disposed with other hazardous or industrial solid waste. These oils include used motor oil, cooling/cutting oil, and transformer oil. Of the 185 facilities, 30 are used oil recyclers (6.7% of the total number of facilities). At several of these recycler sites, contaminants other than those expected to be in used oil were found, indicating that mixing occurred either prior to receipt of the used oil or at the facility.

In addition, the 1981 Report to Congress on used oil includes damage incidents and examples of severe threats to human health and the environment. As explained in that Report, used oil mixed with hazardous wastes has been shown to have toxic or carcinogenic effects on humans. Also, used oil that is mixed with solvents or other hazardous wastes when burned creates products of incomplete combustion (PICs). These PICs are of particular concern due to their carcinogenic nature.

EPA has prepared a compilation of information on the environmental damages caused by improper management activities (see Used Oil Background Document, "Environmental Damage from Used Oil Mismanagement" draft report). This effort was undertaken to provide more recent data than was available in November, 1985. The hazardous constituents found in used oil damage cases are those that are discussed in the listing proposal above and in the November 1985 proposal.

EPA believes that the used oil management standards may need to include provisions to ensure mixtures of used oil and hazardous waste are identified and properly managed. Even used oils that have not been mixed or co-disposed with hazardous waste may contain toxic constituents that may be released during improper management. If used oil that is not classified as hazardous is managed improperly, it can reach and contaminate environmental receptors such as surface water and drinking water wells. Typically, an oily sheen is formed on top of the water surface making the water nonpotable for human consumption and resulting in a reduction of oxygen necessary to sustain aquatic life.

Several potential pathways exist for used oil to cause damage to the environment. Used oil can be spilled or leaked onto soil or entrained in airborne dust particles. Further, ground and surface waters can be contaminated by run-off, leakage, or seepage of used oil. Some activities that may release

constituents and pose potential threats to human health and the environment include land disposal in non-secured units, improper or mismanaged storage or over accumulation, and road oiling for dust suppression. Potential hazards are increased when other hazardous substances are added to the oil, and existing data show this has historically been a common practice.¹⁴

Improper management and landfill disposal of both used oils and materials contaminated with used oils creates multiple hazards to human health and the environment. Used oil that enters a landfill has a potential to migrate away from the source and has the potential to form an oil plume that can directly reach the ground water, float on the surface of the water, and/or be carried in a plume over the ground-water table, making the ground water nonpotable. In addition, used oil that enters a landfill in a solid form or adsorbed to a solid may leach and eventually contaminate ground water.

Storage of used oil can also lead to environmental damage, particularly due to accidental releases. Used oils generally are stored in underground storage tanks (USTs), aboveground storage tanks, and drums (containers). The major risks associated with storage and accumulation of used oil are fires and loss of stored used oil through surface run-off and seepage into the soil. Both aboveground and underground storage tanks can develop leaks in the bottom of the tank that can go unnoticed. Underground storage tank leaks generally will go unnoticed until visually apparent or until detected by monitoring equipment (if the UST is so equipped). A severe UST failure or the rupture of an aboveground storage tank can result in rapid ground-water contamination, generally occurring in less than an hour in sandy soil and just over a week in silty soil.^{15, 16} The storage of used oils in drums and containers can lead to environmental damage through catastrophic spills or repeated small spills to the surrounding area.¹⁷

Used oils used for road oiling present four pathways for contamination. Evaporation, seepage, run-off, and dust transport occur concurrently. The rate of vaporization depends upon the

individual vapor pressure for the components of the used oils, the ambient temperature, and atmospheric wind conditions. Seepage depends upon the composition of the soil and may occur very quickly in sandy or silty soils. A portion of the used oil will remain in the upper level of the soil and will be subject to removal by dust transport. Assuming an average daily traffic flow of 100 vehicles, it has been estimated that 100 tons of dust per mile per year will be deposited along a 1,000-foot wide area surrounding the road.¹⁸ Finally, oils may be washed from the road surface and carried with the rainfall runoff as a surface film or colloid or be removed by erosion.

An investigation of 25 Superfund sites that involved the mismanagement of used oil found used oil contamination of surface and ground waters, soils, and surrounding lands and crops. In several cases wildlife damage or wildlife death has been documented. Further, over 60 damage incident summaries indicate contamination of surface water, while over 30 incidents involve soil contamination, and a few contain evidence of air contamination.¹⁹

Used oil released to surface waters produces a harmful effect on aquatic organisms not only by physically coating them but also by causing adverse chemical changes within the organism. Such damage includes the inability of ducks to swim or dive for food in the presence of oil films, loss of insulating ability of feathers contaminated with oil, reduced viability of duck eggs due to the inability of oil-soaked feathers to insulate the eggs, and pneumonia and gastrointestinal irritations in waterfowl following preening of oil-coated feathers.²⁰ Other harmful effects upon aquatic habitats include the inhibition of marsh grass growth, increased susceptibility of sea grasses to parasites, abnormal development of herring larvae, and the killing of various organisms, including copepods, shrimp and white mullet.

In addition, contaminants in used oil that is disposed on land often migrate to surface water, ground water or soil where they are taken up by plant roots and have been shown to damage vegetation.²¹ These contaminants pose

¹⁴ Background Document: "Regulatory Support for Used Oil Characterization."

¹⁵ Franklin Associates and PEDCo Environmental, Inc., "Waste Oil Storage: Final Draft Report," January, 1984, p. 3-16.

¹⁶ Since the promulgation and implementation of the UST regulations (40 CFR part 280), these hazards are controlled through effective monitoring and leak detection procedures.

¹⁷ Ibid., p. 3-17.

¹⁸ Franklin Associates and PEDCo Environmental, Inc., "Evaluation of Health and Environmental Problems Associated With the Use of Waste Oil as a Dust Suppressant," February 1984, page 3-8.

¹⁹ Environmental Damage From Used Oil Mismanagement, EPA used oil background document.

²⁰ Listing Waste Oil as a Hazardous Waste: Report to Congress. U.S. EPA, 1981. Pp. 16-20.

²¹ Ibid., pp. 63-71.

a hazard to animals ingesting the plants and to humans consuming crops that have accumulated sufficient quantities of these contaminants. Used oil contaminants that volatilize or are suspended in dust also can contaminate and harm vegetation and enter the food chain. EPA notes that many of the potential risks to human health and the environment from the mismanagement of used oil, as documented above, are present regardless of the type of used oil that is released to the environment, particularly the contamination of ground water and effects on plant and animal life.

B. The Basic Approach

This section describes the basic approach EPA is now considering to ensure safe used oil management. Comments are requested on the overall approach as well as on specific issues described below.

1. Some Level of Control May Be Necessary for All Used Oils, Whether They Are Identified as Hazardous Waste or Not

Under the 1985 proposed listing determination, EPA would have been able to control the management (both recycling and disposal) of all used oils. Disposal would have been regulated under 40 CFR parts 264, 265, and 270, since all used oils were proposed to be listed as hazardous waste. Recycling would have been regulated under special standards (40 CFR part 266, subpart E) developed under § 3014 authority.

As noted in earlier sections covering the listing approach, data collected by EPA show that certain used oils are characteristically hazardous and/or contain appreciable quantities of 40 CFR part 261, appendix VIII toxic constituents. Further, as stated in section VIII.A, the presence of small quantities of oil in surface water may cause fish kills; can cause toxicological effects in aquatic organisms, and can make drinking water nonpotable for human consumption. Finally, effective implementation and enforcement of a used oil program may require control over all used oils, for example to control adulteration of used oil with hazardous waste. EPA, therefore, believes that basic management standards may be necessary for all used oils whether or not EPA decides to list them as hazardous wastes.

RCRA section 3014(a) does not require EPA to list or identify used oils as hazardous wastes prior to setting management standards for recycled

used oil.^{22,23} RCRA section 3014 was created under the authority defined by the Used Oil Recycling Act of 1980 and amended by the Hazardous and Solid Waste Amendments of 1984 (HSWA). The HSWA amendments require that the section 3014 standards be consistent with RCRA's mandate of protection of human health and the environment. Legislative history indicates that Congress anticipated EPA's potential use of section 3014(a) to control both hazardous and nonhazardous used oil (House Conference Report No. 98-1133, p. 113, October 3, 1984). The House Conference Report states that "EPA retains authority under section 3014 to regulate all used oil that is not identified or listed as a hazardous waste." EPA therefore believes that it is consistent with both the goals of the statute and with the Congressional intent for section 3014 that all used oils be regulated under a single set of management standards. The following RCRA authorities can be used to control recycling and disposal of used oil:

- Under RCRA sections 3001 through 3005, EPA has the authority to regulate the disposal of used oils that are hazardous (listed, characteristic, and used oils mixed with hazardous waste).
- Section 3014(a) of RCRA authorizes EPA to develop regulatory standards for recycling of all used oils, both hazardous and nonhazardous.
- The information and enforcement authorities provided under RCRA section 3007 and section 3013 can be used to a limited extent by the Agency to control used oil disposal through inspection and monitoring.
- Under RCRA section 1008 and section 4005, EPA has statutory authority to develop subtitle D disposal guidelines to prevent releases of used oil from the site of disposal. Any disposal of solid waste in a solid waste disposal facility that is not in compliance with part 257 criteria for solid waste facilities constitutes "open dumping" of solid wastes.

EPA requests comment on the potential hazards of used oil, the need to control all used oils, whether they are determined to be hazardous waste or not, and the use of section 3014(a) to control the recycling of "nonhazardous" used oils. Comments are also requested on alternative approaches, such as regulating used oil that is identified as hazardous waste under one set of

²² Although section 3014(b) does direct EPA to propose whether to list or identify used oils as hazardous wastes, this mandate is independent of the mandate to develop management standards for recycled used oils in section 3014(a).

²³ Under RCRA section 3001, as implemented in 40 CFR part 261, EPA can (a) identify any solid

requirements, and "nonhazardous" used oils under different standards. EPA requests comment on what specific differences in such standards may be appropriate. For example, for all used oils, EPA could promulgate minimum requirements (e.g., tracking, recordkeeping, the rebuttable presumption, analytical plans, etc.), which may control adulteration of used oils. For hazardous used oils, however, EPA could also regulate storage and spill cleanup. Under this kind of approach, road oiling might be allowed for nonhazardous used oils.

2. Used Oil Handlers Should Be Regulated Under One Set of Management Standards to the Extent Possible

Data available to the Agency on used oil generation practices suggest that many used oil handlers (generators, collectors, transporters, and some recyclers including blenders, marketers, and re-refiners) are small businesses. In particular, EPA estimates that over 650,000 establishments, such as privately owned and operated service stations, automotive repair shops, and metalworking shops, generate used oil.²⁴ Used oil collectors and processors typically service a wide range of generators. The generators themselves are often unfamiliar with RCRA and, in fact, are not extensively regulated under Federal environmental programs.

One way to implement regulations over such a vast and diverse universe of used oil handlers may be to devise one set of comprehensive management standards designed to address all aspects of used oil management. This approach would cover all used oil handlers under one set of requirements and may incorporate provisions from various RCRA authorities including sections 1008, 3001 through 3005, 3007, 3013, 3014, and 4005. It may also minimize regulation of the same parties under numerous different regulatory programs (e.g., some used oils under subtitle C, some not, etc). In addition, this may facilitate compliance, minimize confusion within the used oil recycling industry, and minimize cross-referencing within different regulatory requirements covered under 40 CFR parts 257, 264, 265, 270, and 280. An integrated approach would also minimize the possibility of adulteration and other

waste as hazardous if the waste exhibits a characteristic of corrosivity, ignitability, reactivity, or toxicity and (b) list any solid waste as hazardous if the Agency can demonstrate that the solid waste of concern may pose significant health and environmental hazards.

²⁴ Temple, Barker, and Sloane, "Used Oil RIA Briefing: Status Report," May 18, 1988.

mismanagement, particularly of non-hazardous used oil.

EPA is, in fact, considering establishing in title 40 of the Code of Federal Regulations (CFR) a separate part, part 279, for all of the used oil standards. Various subparts or sections in part 279 may be promulgated under the different RCRA authorities. EPA usually places regulatory provisions from different statutory authorities in different CFR parts, (e.g. subtitle C rules are in parts 260-270, subtitle I rules are in part 280, etc.) To aid implementation of the used oil rules, however, part 279 would contain most or all applicable RCRA provisions related to used oil management.

3. Used Oil Standards Should Be Developed and Applied in a Manner That Allows for Full Consideration of Recycling Impacts

In enacting section 3014 of RCRA, Congress recognized that certain used oil recycling practices may pose significant risks to human health and the environment. Congress also recognized that used oil, when properly recycled, can be a valuable resource. As a result, section 3014 requires EPA to develop used oil regulations that protect public health and the environment from the hazards associated with used oil, yet do not discourage the recovery or recycling of used oil. Specifically, RCRA states that "the Administrator shall promulgate performance standards and other requirements as may be necessary to protect the public health and the environment from hazards associated with recycled oil * * * conduct an analysis of the economic impact of the regulations on the oil recycling industry * * * ensure the regulations do not discourage the recovery or recycling of used oil, consistent with the protection of human health and the environment." The legislative history of HSWA indicates that Congress' paramount interest in regulating used oil was to ensure protection of human health and the environment. Where such protection is assured, however, "the Administrator should make every effort not to discourage the recycling of used oil."²⁵ Today's proposed rule attempts to balance the interests of protective regulation and the need to promote recycling. EPA recognizes that properly conducted used oil recycling reduces the risks posed by mismanagement and disposal of used oil, while conserving a valuable non-renewable resource. The Agency is attempting to impose standards upon the used oil recycling

industry that will ensure adequate protection, while at the same time create an overall framework that establishes incentives for used oil recycling. This approach is premised on EPA's recognition of both objectives of section 3014, environmental protection and resource conservation/recycling and its belief that promotion of recycling will be the most effective way of eliminating improper disposal and thus protecting human health and the environment.

EPA could attempt to assess impacts and balance the competing interest of requirements now being considered through detailed studies of various regulatory approaches without implementing any of the controls. We note, however, that much uncertainty exists concerning certain key components (e.g., to what extent current participants in the used oil recycling market will remain in the market after the management standards are promulgated), and that actual implementation of limited controls may be the best manner of data collection. The approach described below is iterative (in that EPA may propose the management standards in two phases) and may allow for adjustments as problems of over- or under-regulation are identified by EPA. EPA requests comment on the basic approach for the used oil management standards described above and presented in detail below.

C. Phased Regulatory Approach

EPA thinks that a sound way to achieve the Congressional objectives of section 3014 may be to develop used oil management standards under a phased regulatory approach. To do so, the Agency initially may promulgate a basic set of management standards ("Phase I"), and then, at a later date, consider additional management standards (e.g., emission standards for burning of certain used oils, financial responsibility, etc.) that may have greater impacts on the used oil recycling industry.

EPA believes that a two-phased regulatory approach may allow the Agency to assess the level of protection provided by the Phase I standards and the impacts of the Phase I program on the used oil recycling market before imposing more stringent controls. Also, EPA would have additional time to consider non-regulatory approaches or market incentives for encouraging the recycling of non-regulated used oil (e.g., do-it-yourself generated used crankcase oils), that might reduce the need for additional regulatory controls.

The Phase I standards, as envisaged here, would cover all used oils, whether

they are a hazardous waste or not. The premise is that fairly simple "good housekeeping" requirements can be implemented by used oil recyclers that will alleviate potential used oil releases without major capital expenditures. The Phase I standards, by themselves, may not prevent all hazards associated with used oil. As discussed below, EPA may select Phase I requirements (choosing from the 1985 proposal and today's notice) by taking into account the potential impacts of the requirements on used oil recycling as well as their potential to protect human health and the environment. This would mean that certain requirements (e.g., financial responsibility) that may well provide a secondary measure of protection are deferred to a later date, when additional studies are completed to help the Agency determine the appropriate balance between protectiveness and mitigating impacts on recycling. Certain standards (e.g., standards for used oil burners) that provide protection against the releases of air toxics are deferred to a later date, since data currently available to the Agency are not adequate to develop such standards at this time.

Should the Agency adopt this phased approach, EPA would issue the Phase I controls, and then at a later date, evaluate the protective nature of the initial set of requirements and the effects these standards will have had upon the recycling market. EPA might review data received from biennial reports on used oil recycling and disposal activities. In addition, if enforcement activities suggest that substantial mismanagement is still occurring and that releases have contaminated ground and/or surface water, EPA may impose additional requirements. Furthermore, if releases from storage tanks remain unattended and uncontrolled, additional requirements may be necessary to ensure protection of human health and the environment. These additional standards (Phase II) may not apply to all used oils, but rather may only apply to used oils with high levels of toxic constituents or used oils that otherwise are found to pose high potential risk. EPA may need to do additional studies to determine which oils should be subject to additional controls. (We may subject oils that are listed or exhibit the toxicity characteristic to additional controls, or use other indicators of higher toxicity or hazard.) EPA will also carefully weigh the increase in potential environmental benefits against economic impacts that may result from imposing these additional requirements

²⁵ House Report 98-198, Part I, p.59.

prior to proposing any additional standards, as required by RCRA section 3014(a). In addition, as discussed above, EPA may consider non-regulatory options or economic incentives to maximize recycling of all used oils, particularly DIY-generated used oils. These nonregulatory controls might mitigate the need for further regulatory controls.

Section D. 3014(o) Used Oil Management Standards Based on a Presumption of Recycling

1. Use of Section 3014(a) Standards To Control Used Oil Management

In 1980, Congress took steps to facilitate the recycling and reuse of used oil by enacting the Used Oil Recycling Act. The intent of this Act was not only to conserve energy and reduce virgin oil demands through recycling of used oil, but also to limit "improper" disposal of the recyclable resource (Pub.L. 96-463, October 15, 1980). Further, used oil recycling will assist the country in compensating for a fluctuating virgin oil supply and in minimizing the nation's dependence on virgin oil imports.²⁶ Given this national policy, EPA is considering disposal controls for both hazardous and nonhazardous used oils partly as a means to further promote increased recycling of used oils.

Section 3014 of RCRA gives EPA authority to develop management standards for "recycled oil".²⁷ The Agency interprets section 3014(c) authority to cover all used oil management practices preceding the recycling of the used oil (50 FR 49216, November 29, 1985). At a recycling facility or on the way to a transfer or recycling facility, used oil could be disposed improperly, either unintentionally or intentionally. Health and environmental hazards associated with used oil in storage, in transit prior to recycling, or being managed prior to its ultimate management (treatment or disposal) are similar to the hazards associated with the used oil when it is handled at the recycling facility and therefore also should be minimized. Hence, management of used oil from the point of generation through recycling

²⁶ One estimate suggests that in the U.S., if all "as generated" used oil (1.3 billion gallons per year) is recycled then approximately 0.5 percent (representing 30,000,000 barrels of the petroleum supply) of the nation's petroleum need could be met. (Source: Nolan J.J., C. Harris, and P.O. Cavanaugh, 1990. *Used Oil: Disposal Options, Management Practices and Potential Liability*. Third Edition, Published by Government Institutes, Inc. Rockville, MD, pg. 3.)

²⁷ RCRA section 3014 does not provide EPA with explicit authority to regulate the disposal of used oils that are not listed as hazardous wastes.

and distribution to end users may need to be regulated to protect human health and the environment from potential hazards.

Because RCRA does not provide EPA with explicit authority to regulate the disposal of used oil outside of a hazardous waste listing, and due to the fact that EPA wants to discourage disposal and meet RCRA's mandate to protect human health and the environment, EPA is considering an approach whereby all used oils would be presumed to be destined for recycling, and therefore subject to section 3014 management standards, unless the generator or handler can show otherwise. This means that all used oils would be presumptively subject to the standards issued under section 3014 for recycled used oils, from the time the used oil is generated until it is recycled or reused. If a person can show that the used oil cannot be recycled (discussed below), then the section 3014 standards would not apply. The Agency assumes that if used oil cannot be recycled then it would be disposed and disposal will be controlled using other authorities, i.e., either subtitle C or subtitle D, depending on whether the used oil is hazardous waste or not.

2. Basis for Presumption

EPA's current data on used oil support the recycling presumption.²⁸ In 1988, approximately 57% of the total amount of used oil generated was collected for recycling. An additional 12% was recycled on-site.²⁹ As shown in Table II.B.1, at least nine types of used oils are generated by various industrial and nonindustrial sectors around the country. The vast majority of these oils are recycled as fuel oil but some of these oils can also be recycled to manufacture high quality lubricants. EPA recognizes that at the generator level, especially in the do-it-yourself (DIY) segment, some used oil is not recycled, but rather disposed. However, this used oil is mainly automotive oil that can be recycled.³⁰ EPA believes that the

²⁸ In 1988, EPA collected information to revise the used oil flow estimates used to support the 1985 proposed standards and to determine the information needs for an RIA. The revised information suggests that, at the generator level, 150 million gallons of used oil were recycled in 1988 as fuel. In addition, of the 770 million gallons collected, approximately 650 million gallons were recycled or re-refined in 1988. (Source: Memo to F. Smith, EPA/OSW from K. Dietly, P. Voorhees, and J. Hayde, Temple, Barker, & Sloane, July 18, 1989.)

²⁹ Of the used oil generated by non-DIY generators, in 1988, 86% was recycled off-site and an additional 13% was recycled on-site at non-DIY generator sites.

³⁰ EPA believes that through public education and awareness programs developed by EPA (e.g.,

recycling presumption is well founded in that a majority of used oils can be recycled, and most currently are recycled.

EPA requests comments on the concept and basis of the recycling presumption.

3. Rebuttal of Recycling Presumption

EPA is aware of certain categories of used oils (e.g., watery metalworking oils; oily bilge water) that may not be recyclable. EPA, therefore, may provide an opportunity for used oil handlers to rebut the used oil recycling presumption by showing that their used oil can not be recycled. Under the approach being considered, handlers of used oils could rebut the recycling presumption by showing that their used oil is not recyclable in any manner. These used oils may not be subject to the section 3014(a) standards upon a demonstration of "nonrecyclability". Under this approach, EPA is considering requiring documentation of "nonrecyclability" and records supporting the reasons for disposal. The documentation may include a demonstration that:

- The BTU content of the used oil is less than 5,000 BTU/lb. (5,000 BTU is the minimum value for legitimate energy recovery, as discussed in the final burning and blending rule, 50 FR 49106),
- The used oil has such a high moisture content (>90% water) that it would not be accepted by a processor or re-refiner,
- The used oil is an emulsion and the oil and water are inseparable,
- Technologies to treat such oils are either not commercially or regionally available, or
- The used oil does not fall within the acceptable range for viscosity (1 to 250 centipoises at 50 C).

According to industry sources,³¹ the standard for "recyclability" of used oil is universal, and most used oils can be processed and treated to manufacture either burner fuel, lube oil base stock, or feedstock for refining. The extent of used oil processing required and the cost of processing are dependent upon

EPA publication: *Used Oil Bulletin*); local governments, voluntary organizations (e.g., Project R.O.S.E.), and others (e.g., Amoco and Mobil have instituted DIY oil collection programs at selected gas stations in certain parts of the country). DIY recycling could be significantly increased.

³¹ EPA contacted used oil recyclers and re-refiners. They indicated that any used oil is recyclable and the presence of water is not a limiting factor. Recyclers and re-refiners are capable of handling used oil containing any amount of water, and the cost to used oil generators is a function of water content. If used oil has low water content (2-5%), under the "ideal" market conditions, recyclers/re-refiners tend to pay used oil generators for a batch of oil.

the customer's needs. However, available processing technologies are capable of removing water, distilling volatile solvents, modifying the viscosity of used oil, and fractionating components of used oil.

EPA may require the above-mentioned documentation information to be submitted to the Agency, or instead may simply require handlers of used oil claiming a rebuttal to maintain records on-site for a period of time (e.g., 3 years) with a subsequent survey of a sample of facilities.

EPA requests comments on the suggested procedures for rebutting the recycling presumption and the associated recordkeeping requirements. EPA's proposed controls for the disposal of (nonrecyclable) used oil are discussed below.

E. Controls on the Disposal of Used Oil

When used oils must be disposed, EPA wants to ensure that they are disposed in an environmentally safe manner (i.e., in a facility whereby potential release and migration of the used oil will be minimal and non-threatening to the environment). The disposal of hazardous used oils, either listed or characteristic, is regulated under the RCRA hazardous waste regulations. Currently, used oil handlers disposing of used oil must determine whether the oil is hazardous (i.e., exhibits a characteristic) prior to disposal. EPA is now considering, as discussed earlier in this notice, listing certain used oils as hazardous waste. Further, EPA is considering imposing an explicit testing requirement on used oil handlers disposing of non-listed used oil to determine whether or not the used oil exhibits any of the characteristics. Non-recyclable, hazardous used oils must be disposed of in accordance with subtitle C disposal standards. For the disposal of nonhazardous used oils, EPA is considering using RCRA sections 1008 and 4005 authorities to promulgate used oil disposal guidelines. The specific requirements that EPA is currently considering are described in more detail below. Even if EPA does not develop additional sections 1008 and 4005 guidelines, the disposal of bulk or non-containerized liquid hazardous waste (those that fail the paint filter liquids test) in any landfill is currently prohibited under RCRA section 3004(c).

EPA is considering controlling the disposal of used oil for three reasons. First, as discussed above, small quantities of even nonhazardous used oil, when disposed in proximity to a water body, can make that water nonpotable for human consumption, can reduce the oxygen content of water, and

can reduce light penetration in water by forming an oily sheen on top of the water. Second, there is evidence that States that stringently regulate the disposal of used oil have higher used oil recycling rates than the national average. Thus, such regulation is consistent with the express objective of section 3014 to promote used oil recycling. Third, as shown in Table III.C.5, significant fractions of used oil are likely to exhibit the Toxicity Characteristic (TC) and therefore, must be handled as hazardous waste, if disposed. Some used oils may also exhibit the characteristic of ignitability and therefore, must be managed as hazardous waste, if disposed. As discussed in previous FR notices (50 FR 49260 to 49267 and 50 FR 49176, November 29, 1985), used oil often contains toxic constituents that may indicate that the oil was mixed with halogenated solvents. Therefore, EPA is considering using, in addition to sections 1008 and 4005, its information gathering authorities (RCRA section 3007) and monitoring authorities (RCRA section 3013) to promulgate one or all of the following regulatory options for used oil disposal.³²

EPA believes that certain used oils may require disposal because they can not be recycled. In cases where the used oil is not recyclable and the disposal of the used oil is not controlled under the current subtitle C regulations, EPA wants to ensure that disposal occurs in an environmentally safe manner.³³ Therefore, EPA is considering the following three alternative regulatory approaches to control the disposal of nonrecyclable, nonhazardous used oil:

- Allow disposal of non-hazardous used oil (in a Subtitle D permitted disposal facility) only after a demonstration that the used oil being disposed is not hazardous and is not recyclable; or
- Allow disposal of nonhazardous used oil only if the disposal facility is in compliance with disposal guidelines that will be developed at a later date under section 1008 authority; or

³² EPA notes that sections 3007 and 3013 authorities have been traditionally used on a case-by-case basis for individual facilities. Today, however, EPA is considering using these authorities for the broad class of persons who dispose of used oil, and therefore, we are considering promulgating national regulations to ensure information is collected concerning used oil disposal.

³³ EPA notes that should the Agency go forward with the 1985 proposal to list all used oils as hazardous waste, this discussion would be moot. However, as discussed earlier in this notice, listing all used oils is not the only option the Agency is currently considering.

- Ban disposal of nonhazardous used oil using the open dumping prohibition of RCRA section 4005.

1. Demonstration Before Disposal

a. *Testing for hazardousness.* To ensure that used oils that are disposed of in Subtitle D facilities, either industrial solid waste management facilities covered under 40 CFR part 257 or municipal solid waste landfills, are not hazardous waste, EPA is considering requiring used oil generators, transporters, or recycling facilities that are directing used oil toward subtitle D disposal to comply with the section 3014 management standards prior to disposal, and demonstrate that the used oil is not a hazardous waste by testing the used oil for halogen content, and the hazardous waste characteristics. EPA does not normally require parties to demonstrate that solid wastes are not hazardous, but used oil has a long history of being a conduit for disposal of hazardous waste via mixing, and available data show that used oils in storage tanks contain significant amounts of hazardous constituents, presumably due to mixing.³⁴ Therefore, EPA is considering requiring a demonstration (testing and recordkeeping) that used oil being disposed either on- or off-site is not hazardous because it:

- Is not a listed used oil (if any used oils are listed),
- Does not exhibit a characteristic of hazardous waste, and
- Is not a mixture of used oil and hazardous waste (i.e., it meets the rebuttable presumption requirements).

b. *Control of nonhazardous used oil disposal.* Under the approach described above, used oil would be subject to all section 3014 standards unless a person rebuts the presumption of recycling. Once a party rebuts the presumption of recycling, the party must comply with all applicable section 3014 standards until the used oil is shipped off-site for disposal. To prevent environmental harm that may result from used oil being disposed (e.g., ground-water contamination by oil itself), and given the need to conserve petroleum resources, EPA is considering imposing recordkeeping and reporting requirements to monitor the disposal of nonrecyclable, nonhazardous used oil. As described below, EPA is also considering banning the disposal of used oil for these same reasons.

EPA may use RCRA section 3007 authority to require used oil generators

³⁴ See *Used Oil Characterization Sampling and Analysis Program*, EPA, February, 1991.

who are disposing of used oil on-site or shipping the used oil off-site for disposal to keep records, and possibly report, the quantities of nonhazardous used oil disposed, the mode of disposal, the location of disposal, and the date of disposal. The generator may also be required to keep records of the analyses performed to demonstrate that the used oil being disposed is not hazardous. In addition, any used oil handler who successfully rebuts the recycling presumption outlined in section D above may be required to maintain the necessary documentation.

EPA believes that such information gathering and recordkeeping would supplement the recycling presumption discussed above. Current data shows that most used oils are in fact recyclable. The Agency may require information from any person disposing of used oil documenting that it is not recyclable, and therefore not subject to the section 3014 management standards. In addition, EPA believes these requirements may promote increased recycling of used oils by increasing the cost of disposal. EPA is considering requiring parties wishing to dispose of non-hazardous used oil to demonstrate that the used oil is not hazardous and not recyclable each time the party disposes of used oil, or requiring a one-time demonstration only. EPA requests comment on the approach described above for controlling the disposal of used oils. EPA also requests comment on the appropriate frequency for making the demonstration (testing and recordkeeping) that used oil is not hazardous and not recyclable prior to sending used oil for disposal.

Disposal Guidelines

As another alternative, EPA may allow disposal of nonhazardous used oil provided that owner/operators of disposal facilities follow specific disposal guidelines that may be developed at a later date under RCRA section 1008 authority. RCRA authorizes EPA to provide technical descriptions of the level of performance that provides protection of human health and the environment and to provide minimum criteria defining those practices which constitute open dumping. Under RCRA, States can prohibit disposal of solid waste that is not in compliance with the Federal technical guidelines if the disposal method is determined to be a form of open dumping. The disposal guidelines developed by EPA could establish design and operation steps for:

- Controlling down-gradient migration of used oil or generation of oil volumes that could reach drinking water sources;

- Locating certain sites or designating/dedicating other sites as acceptable used oil disposal sites based on:

- Simple site-specific factors such as soil type, annual rainfall, proximity to surface water and/or ground water sources, proximity to the nearest human population, and proximity to ecologically sensitive habitats (aquatic and terrestrial); or
- Other site-specific prevention and detection measures.

Until such time that EPA develops and publishes § 1008 disposal criteria, parties disposing of non-hazardous used oils will have to comply with the current part 257 and part 258 disposal criteria.

EPA requests comment on the appropriateness of developing disposal guidelines specifically for used oil.

3. Banning All Used Oil Disposal on Land

EPA has received comments suggesting a total ban on the disposal of used oil. EPA believes, however, that this may not be feasible since some kinds of nonrecyclable used oil must be disposed. In addition, a total ban may not be necessary because EPA is currently developing part 258 criteria for municipal solid waste landfills. These criteria may set forth minimum requirements governing facility location, design, operation, ground water monitoring, corrective action requirements, financial assurance, and closure and post-closure care. In addition, a ban may be unnecessary because the disposal of bulk or non-containerized liquid hazardous wastes (those that fail the paint filter liquids test) in any landfill is prohibited by RCRA section 3004(c).

Many states, in an effort to promote recycling and to preserve landfill capacity, have already banned disposal of used oil in municipal landfills. The current Federal guidelines for disposal facilities do not specifically address used oil. However, as with any solid waste, disposal of used oil in facilities that do not meet the 40 CFR part 257 criteria constitutes "open dumping" and is prohibited (See RCRA section 4005(a)). Therefore, nonhazardous used oil may have to be disposed only in permitted municipal landfills that meet the revised criteria, or in other solid waste disposal facilities that meet the part 257 criteria. EPA may place regulatory language in the used oil standards to reiterate this prohibition.

EPA requests comment on the feasibility and desirability of a total ban on disposal of all used oil.

F. Other General Changes from the 1985 Proposed Rule

The following sections describe some of the other aspects of the proposed rule that EPA is considering revising. The final section of this notice describes the specific requirements applicable to used oil generators, transporters, recyclers, burners, marketers, and disposal facilities.

1. Modification of Current Exemption for Characteristic Used Oil to be Recycled

Section 261.6(a)(2)(iii) of 40 CFR exempts from full subtitle C regulation used oils that exhibit one or more of the characteristics of hazardous waste and that are recycled by burning for energy recovery in boilers and industrial furnaces. Instead, used oils that are burned for energy recovery in boilers and industrial furnaces are regulated under 40 CFR part 266, subpart E. (regulations for used oil burned for energy recovery). Additionally, 40 CFR 261.6(a)(3)(iii) exempts used oils exhibiting one or more of the characteristics and recycled in a manner other than burning from regulation under RCRA subtitle C.

If EPA determines that any used oils are to be listed as hazardous waste, EPA may revise the current part 261 exemptions to include in the exemptions any used oils that are listed as hazardous wastes and recycled. The effect of revising the current exemptions to include listed used oils will be to subject all hazardous (either listed or characteristic) used oils that are recycled to the same set of recycling requirements as nonhazardous used oils under a separate part (i.e., part 279). These requirements will be protective, but different from those required for most other hazardous wastes, as provided by section 3014 (see the discussion in the November 29, 1985 proposal, 50 FR 49218, footnote 17).

EPA requests comments on expanding the 40 CFR 261.6(a) exemptions to include listed used oils, if any used oils are listed as hazardous wastes.

2. Application of the 1,000 ppm Halogen Rebuttable Presumption to All Used Oils

As proposed in 1985, EPA is considering applying the 1,000 ppm halogen rebuttable presumption, currently required for used oils that are recycled to recover energy (50 FR 49176, November 29, 1985), to all used oils that are recycled in any manner. EPA believes that used oils failing the 1,000 ppm halogen limit are probably hazardous wastes due to the fact that they may be mixed with chlorinated solvents. These used oils must be

managed as hazardous wastes (and not as hazardous used oils) unless the mixing presumption can be successfully rebutted (50 FR 49205, November 29, 1985). EPA stated in the proposal and reiterates here that a mixture of used oil and hazardous waste must be managed as a hazardous waste under subtitle C, regardless of whether it exceeds the 1000 ppm halogen limit. EPA is considering requiring recyclers to test, using the EPA approved SW-846 test method 8010, every incoming shipment of used oil to determine whether it exceeds the 1000 ppm halogen limit, and further, whether it contains listed solvents. EPA may require documentation that used oil has not been mixed with listed solvents F001-F005. Likewise, to successfully rebut the presumption, if the used oil exceeds the 1,000 ppm halogens level, the generator may be required to provide documentation that the source of the halogens is not a listed hazardous waste.

EPA believes that the testing of used oils for halogen content can be performed either by a collector when picking up a used oil shipment or by a recycler when accepting used oil for recycling. In some cases, testing may not be necessary if, based upon the generator's knowledge, the generator certifies that the used oil shipment does not contain any solvents. Both the transporter and recycler would remain responsible for ensuring that this certification is correct.

EPA requests comment on whether it is appropriate to require recyclers to test used oil. Comments are also solicited on the frequency of testing suggested above.

3. Options for Regulation of Used Oil Generators

Available data show that more than 600,000 generators of used oil generate between 0 and 1,000 kg/month of used oil; these generators collectively generate more than 430 million gallons of used oil annually.³⁵ They account for approximately 40 percent of the total used oil generated annually and account for more than 90 percent of all used oil generators (653,000 generators). On-site used oil management practices of generators generating less than 1000 kg per month would have been essentially uncontrolled under the 1985 proposal, while generators of more than 1000 kg per month of used oil would have been more stringently regulated (50 FR 49251-49254).

By exempting the small quantity generators who recycle used oil from most substantive standards proposed in 1985, the Agency was trying to account for both the economic impact and protectiveness standards as mandated by section 3014. EPA believed that the generators producing over 1,000 kg per month may be in a better position to absorb the regulatory costs associated with the rather complex regulatory scheme proposed in 1985 (50 FR 49225). As indicated in section X of today's notice, the annual cost of complying with the management standards is likely to range between \$100 and \$650 per used oil generator. The economic analysis performed to support this notice indicates that a small fraction of the small businesses and small used oil generators may face incremental costs as great as \$477 per year (see the discussion in section XI of today's notice).

EPA is now considering two alternatives to the approach proposed in 1985. Under the first option, EPA is considering eliminating the distinction between small quantity (less than 1,000 kg/month) and large quantity generators of used oil that was proposed in 1985 (50 FR 49222 through 49226, November 29, 1985). EPA believes that this option may facilitate both the recycling of all used oils (irrespective of who generates the used oil and how it is generated) and the implementation of one set of management standards for all used oil generators. Other reasons for eliminating this distinction include: (a) It minimizes complexity by placing all used oil generators under uniform regulatory requirements; (b) it eliminates the need for measuring quantities of hazardous used oils collected and stored each month; (c) it eliminates the concerns that generators could be bumped into a more stringent regulatory category if they collect DIY-generated crankcase oil, and (d) above all, it allows for a system whereby all used oil is collected, recycled, and managed in an environmentally sound manner, thus reducing hazards to human health and the environment. The single set of used oil management standards would capture all used oil generators and require them to comply with used oil storage and inspection requirements, cleanup requirements for releases, tracking and recordkeeping requirements, and limited reporting (e.g., reporting of used oil disposal). As discussed below in section IX.B., this single set of standards for all generators may be less stringent than the standards proposed for large quantity generators in 1985 (50 FR 49227-49331).

In addition to the advantages already enumerated today for regulating all generators, this option would enable all "service station dealers," as defined in CERCLA section 101(37), to avail themselves of an exemption from CERCLA liability. As discussed later in section IX.B.2.b. of this notice, (a) once service station dealers comply with the management standards promulgated under section 3014 of RCRA, including corrective action (i.e., spill response and cleanup), and (b) they accept DIY-generated used oil for the purpose of recycling, these generators would be exempt from CERCLA liability for off-site releases of used oil. Under the approach proposed in 1985, however, service stations that are exempt SQGs would not qualify for this exemption from CERCLA liability.

Alternatively, EPA is considering preserving some distinction between small and large generators of used oil, with certain conditions. EPA is considering exempting small quantity generators of used oil from the proposed management standards if these generators recycle the used oil they generate. Under this second option, the Agency is considering using the SPCC aboveground storage capacity exemption limit and the UST regulations underground storage capacity exemption limit as the regulatory definition of a small quantity used oil generator. Generators with total aboveground storage capacity less than or equal to 1,320 gallons or underground storage capacity less than 110 gallons may be considered a small quantity used oil generator and exempt from the used oil management standards if they recycle the used oil that they generate. EPA estimates that approximately 95 percent of the estimated 650,000 used oil generators would be exempted if the Agency decides to exempt small generators using the facility storage capacity as a discriminator. Industry contacts suggest that all non-industrial generators of used oil are likely to have an aboveground storage capacity of less than 1,320 gallons and all industrial generators are likely to have an aboveground storage capacity of greater than 1,320 gallons per facility. EPA requests comment on the number of generators that may be exempted under the used oil regulations (i.e., those generators storing used oil in aboveground tanks or containers with a total storage capacity less than or equal to 1,320 gallons and/or storing in underground tanks of a capacity less than 110 gallons) if the Agency establishes such a definition of small quantity used oil generators. As

³⁵Table 3 at 50 FR 49224, November 29, 1985.

discussed below, generators storing used oil in underground storage tanks may remain subject to the UST standards in part 280, except for those generators who may have underground storage tanks of a capacity less than 110 gallons. The UST regulations do not apply to UST systems whose capacity is 110 gallons or less (40 CFR 280.10(b)(4)), and EPA is considering not regulating generators with underground used oil tanks of such a small capacity. Again, EPA is only providing this small quantity generator exemption to those generators who meet the storage capacity limits and who recycle the used oil that they generate. If, in the future, EPA assesses that SQG-generated used oil is not recycled to the maximum capacity, EPA may revisit this exemption decision.

The advantages of basing the small quantity used oil generator exemption on the facility's total storage capacity are the following:

- In many cases, a storage capacity-based approach will allow small businesses to accumulate a quantity of used oil equivalent to their full storage capacity (if less than 1,320 gallons) and therefore may meet any similar required minimum limit for used oil pickup set by used oil collectors, without subjecting the generator to section 3014 standards.

- Will not discourage used oil generators from collecting DIY-generated used oil. For example, with a 1,000 kg per month or 300 gallon per month cutoff, EPA believes that a small business may be reluctant to accept DIY-generated oil.

- May address the concerns raised in public comments related to the small quantity used oil generator limit proposed in 1985. Some commenters were concerned that many small businesses would be pushed into the large quantity generator category due to the relatively low generation rate proposed for the small quantity used oil generator exclusion and felt that some small businesses, to avoid regulation, may mismanage their used oil (e.g., throw it in the trash, dump it on the ground or in the sewer).

The Agency requests comment on the two options under consideration for regulating used oil generators. However, the Agency is not soliciting further comments on the 1985 proposed exemption for generators of less than 1,000 kg/month at this time.

If the Agency decides to exempt small businesses as discussed above, small businesses meeting the exemption, many of whom can be classified as the "service station dealers" (SSDs) as defined under CERCLA section 114(c), would not be eligible for the CERCLA

section 114(c) liability exemptions for SSDs. To be eligible for the exemption; service stations are required to (a) comply with the section 3014 used oil management standards and (b) accept do-it-yourself generated used oil. The small used oil generator exemption under the section 3014 management standards would be available to those who recycle used oil, either on site or send to the authorized used oil recyclers for recycling. EPA is not considering any notification requirement to ensure that small businesses recycle used oil. If, a "service station" meeting the small generator exemption wants to be eligible for the CERCLA section 114(c) liability exemption then, at a minimum, EPA may require the generator to (a) certify that used oil is being recycled on-site in compliance with the section 3014 used oil management standards and 40 CFR part 266, subpart E, and/or (b) have a used oil recycling contract with an authorized recycler stating that it would be recycled as burner fuel or as lube oil feedstock. The proposed paperwork would have to be maintained at generator's location and updated as necessary (e.g., if a new recycling contract is signed). These generators would be exempted from section 3014 management standards such as, corrective action (e.g., inspection and used oil release/spill cleanup), used oil tracking, and other requirements, that are currently under consideration for all regulated used oil generators. EPA requests comment on the minimal paperwork (recordkeeping) requirement that may allow otherwise section 3014-exempted small businesses to obtain the CERCLA liability exemption. In particular, is it appropriate not to impose corrective action requirements on small generators? (See CERCLA section 114(c)(4)).

4. Dust Suppression/Road Oiling

On November 29, 1985 (50 FR 49239), EPA proposed to ban the use of used oil as a dust suppressant (road oiling). On that date, EPA also proposed to list all used oils as hazardous waste (see 50 FR 49258). Both RCRA section 3004(1) and 40 CFR 266.23(b) prohibit using "a waste or used oil * * * mixed with hazardous waste" as a dust suppressant. EPA interprets this prohibition to apply to all solid wastes, including used oils, that are themselves hazardous wastes, whether mixed with other hazardous wastes or not.³⁶ Thus, by proposing to

³⁶ Except for wastes that are hazardous solely because of ignitability; see RCRA Section 3004 (1) and 40 CFR 266.23 (b).

list all used oils as hazardous waste, EPA was also proposing to ban the practice of using used oils as dust suppressants. Even if EPA elects to list only certain used oils as hazardous waste or does not list any used oils as hazardous waste, EPA may elect to apply the dust suppression prohibition to all used oils.

As discussed earlier in this notice, EPA may determine that it is not appropriate to list any or all used oils as hazardous waste. However, given the ability of all used oils, when applied to the land for disposal or recycling, to contaminate water and make it non-potable, and given that used oil often contains toxic constituents from a variety of sources, the Agency is currently considering a ban on using any used oil as a dust suppressant, regardless of whether the used oil is a hazardous waste by definition. Additionally, considering the fact that it may be difficult to differentiate between non-listed used oils and listed used oils, that mixing of various types of used oils is common and difficult to control, and that mixing of hazardous waste into used oil has occurred commonly prior to land application as a dust suppressant (causing serious damage at Times Beach and other locations), EPA believes it may be necessary to ban the use of used oil for road oiling. EPA recognizes that mixtures of used oil and hazardous waste are currently brought under regulation as hazardous waste via the "mixture rule". However, used oils have historically come to be contaminated with toxic constituents that may or may not originate with listed wastes. A ban will effectively eliminate the potential environmental damages that may result from the migration of used oil and/or hazardous constituents after road oiling.

Since road oiling is, in fact, a type of "recycling," RCRA section 3014 provides EPA the authority to control (or ban) road oiling of all used oils. The use of used oil for road oiling or dust suppression may not be protective of human health and the environment. The Agency solicits comments on whether any used oils may be used as a dust suppressant without posing potential environmental and human health risks. As discussed in section IX.G., the Agency may allow some level of road oiling on a case-by-case basis. For that purpose, however, the party intending to apply used oil for dust suppression may have to demonstrate through analysis that the used oil is nonhazardous and that the land area on which it is to be used meets certain site-specific criteria. Commenters who favor allowing road oiling should specify how EPA can

ensure that hazardous wastes are not mixed with nonhazardous used oil, and how the Agency can prevent the contamination of ground waters and surface waters from used oils that have not been mixed with hazardous wastes. The Agency also solicits comment on environmentally safe alternatives to applying used oil for dust suppression.

5. Proposed Exemption for Primary Oil Refiners

In the November 29, 1985 final rule regulating hazardous wastes burned in industrial furnaces and boilers, EPA exempted from regulation hazardous waste fuels derived from the refining of oil-bearing hazardous wastes along with normal process streams. EPA also exempted oil reclaimed from hazardous waste generated in normal petroleum refining, production, and transportation, if the oil was to be refined with the normal process stream. These exemptions were provided because most hazardous waste constituents are thought to be either removed in the normal refining process or to contribute insubstantial quantities of contaminants to the final product (see the discussion at 50 FR 49168). EPA is considering extending the exclusion to fuels derived from used oils that are reinserted as feedstocks at primary petroleum refineries. This exclusion would effectively exempt the fuel from the derived-from provision in section 261.3(c)(2). As with the existing exclusion however, management standards would apply to the waste materials prior to reinsertion. Therefore, EPA may apply the section 3014 management standards to the used oil collected and stored prior to reinsertion in the crude oil pipeline or directly into the refining process. EPA requests comment on the exclusion for fuels derived from used oils that are used as feedstocks at primary petroleum refineries.

6. Underground Storage Tanks

Technical requirements for underground storage tanks (USTs) storing petroleum products and certain hazardous substances have been promulgated under RCRA subtitle I (see 40 CFR part 280) since the 1985 used oil proposal. EPA included underground storage tanks containing used oils in the universe of tanks covered by the UST standards promulgated in 1988. As the Agency stated in the preamble to the 1988 final rule for the UST technical requirements (53 FR 37112; September 23, 1988), EPA believes that used oil, when stored in underground storage tanks, presents risks similar to other petroleum products stored in USTs. EPA

stated in 1988, and the Agency reiterates here, that releases from both used oil USTs and other petroleum product USTs can be prevented through the implementation of sound management practices. As a result, the Agency determined that used oil USTs must comply with the tank upgrading, operation and maintenance, corrosion protection, corrective action, closure requirements, and financial responsibility requirements promulgated for other petroleum product USTs. EPA believes that the subtitle I standards are sufficient to protect human health and the environment from potential releases of used oil from underground storage tanks (see Table VIII.F.2). EPA believes it is also important to continue to regulate used oils that are stored in underground tanks under the subtitle I regulations to avoid confusion on the part of the regulated community and to avoid dual enforcement and compliance monitoring responsibilities at the same generator or facility site.

Although not all underground tanks are currently regulated under subtitle I (i.e., those with a capacity of less than 110 gallons are exempt),³⁷ the majority of the used oil tanks that are underground are currently regulated under the RCRA 40 CFR part 280 regulations.

It was not clearly stated in the final rule for the UST technical standards (53 FR 37082, September 23, 1988) whether EPA intended to include USTs containing hazardous used oil under the part 280 regulations. Although the preamble discussion (53 FR 37112) indicates that all used oils in USTs fall within the purview of the subtitle I program, § 280.10(b) excludes any UST system holding hazardous waste listed or identified under subtitle C from part 280 requirements. At this time, EPA wishes to clarify that all USTs of a capacity greater than 110 gallons containing used oil (regardless of whether the used oil is listed or identified as hazardous waste), are regulated under 40 CFR part 280 standards for underground storage tanks. EPA may further clarify this point when the Agency promulgates section 3014 used oil management standards. The clarification could be codified in the new part 279, or in 40 CFR 280.10(b). Again, the Agency is making this

³⁷The Agency chose under subtitle I to regulate all USTs of a capacity greater than 110 gallons because 110-gallon level coincides with DOT's definition for minimum portable tank for the transportation of hazardous materials. In the preamble to the final UST requirements EPA notes that this tank size is probably below the smallest petroleum tank routinely mass produced (275 gallons) and this level probably only excludes small sumps and other "atypical" tanks.

clarification to avoid confusion on the part of the regulated community and avoid the administrative burden of having two regulating agencies responsible for enforcement and compliance monitoring at a single generator site or facility.

EPA has determined that since it is not necessary to incorporate the part 280 UST standards verbatim into the section 3014 used oil management standards regulations. Therefore, underground tanks storing used oil will continue to be regulated under the UST program (40 CFR part 280). Nonetheless, EPA proposes to clarify that compliance with part 280 will constitute compliance with section 3014, and that part 280 may be co-enforced against used oil USTs under both RCRA section 3008 and RCRA section 9006. EPA believes that a compliance with the UST requirements for the storage of used oil in underground storage tanks would be adequate to receive the CERCLA liability exemption available to service station dealers as defined in CERCLA section 114(c). (See further discussion of the CERCLA section 114(c) requirements in IX.B.2.b of the notice.) EPA requests comment on whether the compliance with the UST requirements would be adequate to activate the applicability of CERCLA liability exemption. Further, EPA believes it is important to minimize disruption in the current UST program, and section 3014 standards would be duplicative of those promulgated as part 280 requirements. Comments are requested on the proposal to continue to regulate the storage of used oil stored in underground tanks under 40 CFR part 280.

Under the federal UST program, states have the authority to implement and enforce the UST regulations. In some states used oil is a state-listed hazardous waste, while in other states used oil is regulated as a "special waste". EPA has no knowledge of (a) how these states apply the part 280 UST requirements to underground tanks used for the storage of used oil, or (b) whether the part 264, subpart J requirements are implemented and enforced for these underground tanks. EPA requests comment on this issue from states with used oil regulations. EPA also wants to know what difficulties may be encountered in the states that regulate used oil but do not enforce the part 280 UST requirements for underground used oil storage tanks.

7. Applicability of SPCC Requirements

In 1985, EPA proposed to require used oil handlers who were otherwise subject to the Spill Prevention, Control and

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Countermeasure requirements (SPCC) also to comply with the proposed section 3014 used oil management standards (50 FR 49245). Since 1985, EPA has further evaluated the SPCC regulations as they apply to used oil storage tanks, and the Agency reiterates here that the SPCC requirements would continue to apply to facilities meeting the SPCC applicability criteria, in addition to the section 3014 management standards. SPCC requirements apply to owners or operators of non-transportation-related onshore and offshore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, or consuming oil and oil products, and which, due to their location, could reasonably be expected to discharge oil in harmful quantities into or upon the navigable waters of the United States or adjoining shorelines (40 CFR 112.1(b)). More specifically, part 112 applies to facilities with underground storage capacity greater than 42,000 gallons and aboveground storage capacity greater than 1,320 gallons of oil.

EPA is currently developing revisions to the Federal SPCC requirements pursuant to the Oil Pollution Act of 1990, enacted in response to the 1988 Ashland oil spill. In addition, a number of states

(e.g., ME, NY, NJ, FL) have programs similar to the SPCC program while some others (e.g., OR, AL, WA) are developing similar regulations. EPA believes that many of the large used oil handlers are already in compliance with the SPCC regulations. These used oil handlers currently maintain approved SPCC plans and are equipped to execute specific requirements in the plan if used oil is discharged in harmful quantities, as defined in 40 CFR part 110. EPA is considering requiring used oil handlers who are subject to SPCC standards to comply with both the SPCC requirements and the used oil management standards since the focus of both sets of requirements, although related, is different.

The section 3014 standards discussed in today's notice cover routine operating practices rather than the response and countermeasure activities required by the SPCC regulations. Some of the differences between the SPCC requirements and the aboveground storage tank requirements under consideration for used oil handlers as discussed in this notice are the following:

- Today's requirements would be promulgated under RCRA rather than the Clean Water Act authority,

- The tank standards and the associated inspection and cleanup requirements that are under consideration would cover a wide variety of tank sizes and visible releases, leaks, or drips. The SPCC program, on the other hand, primarily covers large size tanks and the associated spills that could reach navigable waters, and

- The basic requirements to be promulgated for aboveground tanks used to store used oil would focus on routine inspections and cleanup of spills. The SPCC requirements identify additional containment and countermeasure guidelines such as secondary containment (curbing and diking), monitoring controls, integrity testing and certification, and corrosion protection.

Table VIII.F.1. summarizes in detail the requirements of 40 CFR 112.7 and 40 CFR 264.193 and 265.193. The SPCC requirements must be implemented in the event of a spill or a massive release of oils to navigable waters, while RCRA's aboveground storage tank regulations address standards for operating, maintaining, and closing tanks used to store hazardous wastes.

TABLE VIII.F.1.—COMPARISON OF SPCC REQUIREMENTS AND SUBTITLE C TANK REQUIREMENTS

	SPCC requirements	Subtitle tank requirements
Authority	The Clean Water Act and the Oil Pollution Control Act authorizes EPA to regulate activities that may harm navigable surface waters.	The Resource Conservation and Recovery Act authorizes EPA to develop management standards that are protective of human health and the environment.
Objectives	The SPCC requirements in 40 CFR part 112 are designed to protect surface water from oil contamination. Each facility must keep the SPCC plan on file to be implemented in response to a spill or leak that threatens to contaminate navigable waters.	RCRA requirements in 40 CFR parts 264 and 265, subpart J are applicable to tanks storing or treating hazardous waste and are designed to prevent ground-water contamination and other releases to the environment. Each facility must comply with minimum management standards for the containment and detection of hazardous wastes or constituents to prevent leaks and spills.
Applicability	Non-transportation-related onshore and off-shore facilities engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, or consuming oil and oil products which, due to their location, could potentially discharge oil into or upon navigable U.S. waters or adjoining shorelines. Facilities with underground storage capacity less than or equal to 42,000 gallons and aboveground capacity less than or equal to 1,320 gallons, provided no single container has a capacity in excess of 660 gallons.	Owners or operators of facilities that use tank systems for treating or storing hazardous waste.
Conditions	Must develop and maintain a Spill Prevention Control and Countermeasure Plan for oil spills, which includes: appropriate containment or diversionary structures to prevent discharged oil from reaching navigable surface waters. Provides alternative minimum containment systems that should be used, rather than requiring specific management standards. Containment options for onshore facilities include: dikes, berms or retaining walls; curbing; culverting, gutters or drainage systems; weirs, booms or other barriers; spill diversion ponds; retention ponds; and sorbent materials. Options for off-shore facilities include: curbing, drip pan; and sumps and collection systems.	Assess the integrity of existing tanks. If leaking remove from service, empty, stop flow, contain visible releases, certify repair if applicable, and report releases to the environment. Perform daily inspections of the tank system including: Monitoring leak detection equipment, secondary containment system, and external area, and documenting the inspection. Secondary containment must be provided, and must: Prevent migration; detect and collect wastes or accumulated liquids until removal; meet all design requirements; include at least an external liner or double walled tank or vault or an equivalent device; and meet all minimum management standards. An external liner or vault system must be designed to contain 100 percent of the capacity of the largest tank within its boundary. Double walled tanks must be capable of containing any release from the inner tank.

TABLE VIII.F.1.—COMPARISON OF SPCC REQUIREMENTS AND SUBTITLE C TANK REQUIREMENTS—Continued

	SPCC requirements	Subtitle tank requirements
Enforcement	Failure to prepare a SPCC plan, report discharges of over 1,000 gallons of oil, or revise a Plan as required is punishable by a civil penalty of not more than \$5,000 per day of violation. Failure to implement a Plan may result in the discharge of oil to navigable waters, which is prohibited under section 110.	In order for a facility to operate, it must meet the minimum management standard. Compliance is mandatory and facilities are subject to strict enforcement penalties for violation of subtitle C provisions.

EPA is considering requiring the SPCC-recommended secondary containment options for controlling releases and spills of used oil from aboveground storage tanks at used oil recycling facilities. EPA believes that the majority of these facilities that store used oil in aboveground tanks currently have these areas designed and constructed in a manner that would meet the SPCC guidelines.³⁸ Figure

³⁸ The cost calculations presented in section IX of today's notice are based on the assumption that the majority of used oil recycling facilities would currently be in compliance with the SPCC

VIII.F.1 illustrates secondary containment options that are available under RCRA subtitle C and under the SPCC regulations. As shown in the Figure, berms, dikes, or retaining walls along with an oil-impervious floor appears to be protective against sudden releases or accidental spills to contain

requirements (even those not close to navigable waterways) and those that would not be in compliance would be required to comply with the SPCC secondary containment requirements, since EPA may consider these standards as acceptable section 3014 used oil management standards for aboveground storage tanks.

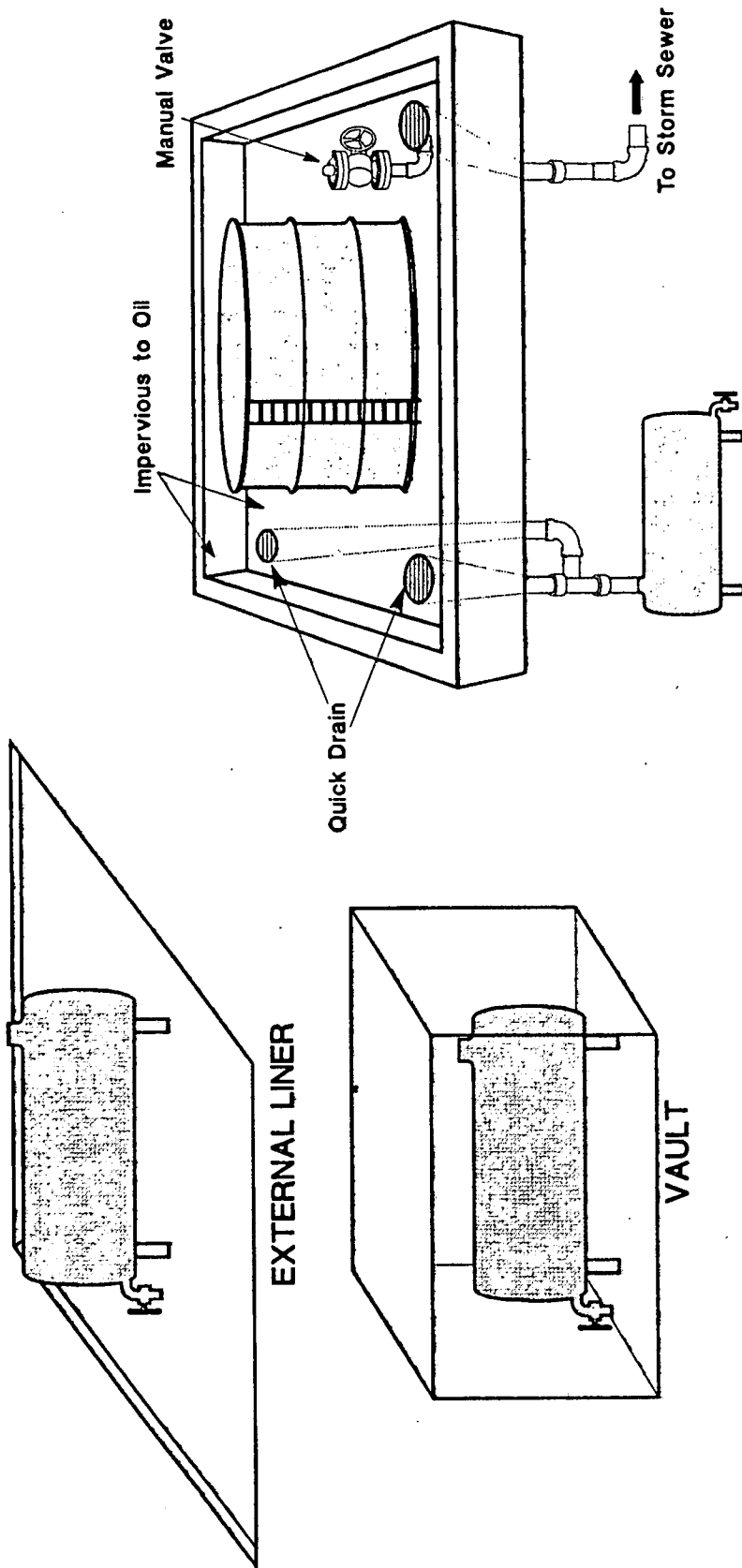
used oil and to avoid significant contamination of nearby surface and ground water resources. EPA requests comments on the assumption that the majority of used oil facilities are currently in compliance with the SPCC aboveground tank requirements. EPA also requests comments on the adequacy of the SPCC secondary containment requirements for controlling used oil releases, and on the type of material that can be used to make storage area floors impervious to used oil.

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Figure VIII.F.1 Secondary Containment Options

SUBTITLE C

Spill Prevention Containment and Counter-Measures (SPCC)*



DIKES, BERMS, OR RETAINING WALLS
(Quick Drain is typically used for off-shore facilities, urban facilities, loading and unloading)

*EPA is developing a proposal that would strengthen the SPCC guidelines as required under the Oil Pollution Act of 1990 enacted following the Ashland Oil Spill of 1988.

As a result of the Oil Pollution Act (OPA) of 1990, EPA is developing a proposed rule that would strengthen the existing 40 CFR part 112 requirements and would require additional prevention, containment, and control measures at SPCC-regulated facilities. EPA expects to publish the proposed rule before the end of the year. The OPA-mandated requirements, when promulgated, would be independently

applicable to used oil facilities that store used oil in aboveground tanks and are located near navigable waterways (i.e., meet the applicable definition of a SPCC-regulated facility).

8. Accumulation Limit for Used Oil Storage

Table VIII.F.2. summarizes the main components of the storage requirements for all regulated used oil handlers that

are discussed in today's notice. EPA believes that the storage requirements discussed in this notice are adequate to provide a level of protection necessary to minimize risks associated with used oil leaks and releases that may occur during storage at generator sites, transfer facilities, and used oil recycling facilities including used oil burners.

TABLE VIII.F.2.—PROPOSED CONTAINER AND TANK STORAGE STANDARDS FOR USED OIL

Container storage	Aboveground tank storage	Underground tank storage
<p>Generators and burners.</p> <p>§ 265.171 (condition of containers), § 265.173 (management of containers), § 265.174 (inspections), § 265.176 (special requirements for ignitable wastes) and § 262.31 (labeling).</p> <p>Accumulation period limited to 90 days.</p> <p>Transporters</p> <p>§ 30 days: 40 CFR 262.30 Packaging Standards; DOT packaging and transport requirements in 49 CFR parts 173, 178, and 179.</p> <p>§ 30 days: 40 CFR 265 Subpart 1.</p> <p>Recycling facilities</p> <p>40 CFR part 264 subpart 1.</p> <p>Essentially same as for generators, plus § 264.177 (container/waste compatibility requirements) and § 264.175 (containment).</p> <p>May limit accumulation period to 35 days in lieu of secondary containment.</p>	<p>Labeling; § 265.194 (freeboard and overflow controls), § 265.195 (daily inspections), § 265.196 (response to leaks), and § 265.197 (closure requirements).</p> <p>Accumulation period limited to 180 days.</p> <p>Part 265, Subpart J (minus secondary containment).</p> <p>Must ship used oil from generator to recycling facility within 35 days of pickup.</p> <p>Part 264, subpart J.</p> <p>Subject to speculative accumulation provisions defined at 40 CFR 261.1(c)(8).</p>	<p>40 CFR part 280.</p> <p>40 CFR part 280.</p> <p>40 CFR part 280.</p>

In the 1985 proposed rule, EPA proposed the accumulation period for used oil at regulated generator sites³⁹ to 90 days (same as for hazardous waste generators). EPA received many comments requesting a longer accumulation period for used oil generators. Commenters said that a longer accumulation period is needed to allow for sufficient quantities of used oil to be accumulated to meet transporter minimum pickup requirements (e.g., some transporters will only pickup after the generator's storage tank or container is full) or to allow for fluctuating market conditions and seasonal changes in the demand for the used oil. EPA is therefore considering limiting the accumulation period for used oil generators to 180 days. EPA believes that a 180-day accumulation period will provide an adequate amount of time for used oil generators to collect and accumulate sufficient quantities of used oil to meet any restrictions on minimum collection quantities imposed by used oil transporters (i.e., some transporters may require that the generator accumulate a minimum quantity of used oil prior to collection or may set a fixed price for picking up a shipment of used oil on a

minimum quantity) and will provide a sufficient amount of time to account for seasonal variations in used oil markets. If a used oil generator accumulates used oil on-site for a period exceeding 180 days, the generator becomes subject to the permit-by-rule requirements proposed for used oil storage in tanks and containers at recycling facilities.

EPA is not proposing a specific limitation on the accumulation of used oils stored at transfer facilities that are in compliance with the permit-by-rule provisions as proposed in 1985. However, EPA may require transporters to deliver a shipment of used oil to a recycling facility within 35 days of accepting the shipment from the generator. If the transporter fails to deliver a shipment of used oil to a recycler within 35 days of its pickup, then he may be required to submit an exception report (see discussion in section IX.C.4 of today's notice). In addition, thirty-five days may be allowed for storage and/or transport of the used oil from the generator to the recycler. A 35-day limit on used oil storage will ensure against over accumulation of used oil at transfer facilities, decrease the likelihood of releases of used oil to the environment, and will provide used oil generators with a level of assurance that their used oil is reaching a recycling facility in a

timely manner. Storage of used oil for a period longer than 35 days at a transfer facility may require secondary containment for tanks and containers as discussed for used oil recycling facilities (see discussion in IX.D.1 of today's notice).

EPA is not proposing to limit the storage of used oil at used oil recycling facilities and used oil burners that are in compliance with the permit-by-rule provisions (as proposed in 1985) beyond the current speculative accumulation provision of 40 CFR 261.1(c)(8) that is applicable to all solid waste recycling facilities.⁴⁰

EPA requests comments on a 180-day accumulation period for used oil generators. EPA also requests comment on the proposed 35-day limit on the shipment period for used oil transporters.

⁴⁰ 40 CFR 261.1(c)(8) defines a material as being accumulated speculatively when it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and that, during the calendar year, the amount of material that is recycled, or sent off-site for recycling, equals at least 75% by weight or volume of the amount of that material accumulated at the beginning of the period.

³⁹ EPA is considering regulating only used oil generators that store used oil in underground tanks or have a total aboveground capacity greater than 1,320 gallons.

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IX. Other Specific Phase I Management Standards

The standards and alternatives that EPA is considering for the first phase of the contemplated phased approach include some of those proposed in 1985 and some new requirements that EPA may deem to be necessary in light of the analysis of used oil characterization data, review of the 1985 proposed management standards and public comments specific to the 1985 proposal, and the promulgation of other EPA regulations, particularly the underground storage tank (UST) regulations. The management standards proposed in 1985 applied to all used oils; as discussed above, EPA is considering options that may apply the Phase I standards to all recycled used oils or only to used oils that are determined to be hazardous. Commenters are asked to clarify whether they believe the standards discussed below should apply to all used oils or only to a subset of the universe.

EPA solicits comments on the specific management practices and alternatives discussed in greater detail below. The reader should note that requirements proposed in 1985 but not discussed in this notice remain under active consideration. A table listing each proposed regulatory provision and its status as of today's notice (whether the same as the proposal, modified from the proposal, or a new provision) is provided in appendix A of today's notice. The table in appendix A is an easy-reference guide that summarizes the relationship between the requirements proposed in today's notice and the management standards proposed in 1985.

A. Applicability

1. Rebuttable Presumption

EPA is considering applying the rebuttable presumption for used oil fuels (266.40(c)) to all used oils. The application of the 1,000 ppm halogen limit helps ensure that used oil has not been mixed with hazardous waste (see discussion in VIII.F.2 of today's notice).

2. Mixtures of Used Oil and Absorbent Materials

As discussed above, absorbent materials (e.g., sawdust, kitty litter, baled hay, absorbent socks, rags and rippers, and sorptive minerals) are often used in the cleanup of small releases and leaks. Mixing TC hazardous used oil with absorbent materials for the sole purpose of evading RCRA regulation will be considered to be impermissible dilution under the land disposal restrictions, once treatment standards

have been set for the TC wastes (40 CFR 268.3(a)).

The Agency is interested in knowing whether (a) used oil can be drained or separated from a saturated mixture of absorbent material or (b) whether a mixture of used oil and absorbents can be safely burned. In addition, EPA requests information on whether the used oil recovered from such mixtures can be recycled. Recently, EPA received information from an entrepreneur indicating that a procedure for recovering used oil from used oil-contaminated materials or mixtures of used oil and other solid waste has been developed and a patent application is being processed. Based on this information, EPA is considering requiring used oil handlers that mix used oils with absorbents to comply with RCRA section 3014 management standards when the used oil recovered from mixtures is recycled. Other mixtures are discussed in the section on mixtures in the listing portion of this notice.

Any disposal of mixtures of used oil and absorbents may have to be done in accordance with the final disposal standards chosen from the options discussed in this notice. The spent absorbent materials would have to be managed as any other solid waste. If the material is mixed with a listed hazardous waste or if the mixture exhibits one of the hazardous waste characteristics, it is subject to subtitle C management (treatment and disposal) requirements.

EPA requests comment on these requirements for recycling used oil recovered from mixtures.

3. Reclamation of Used Oils Containing CFCs

EPA recently published an interim final rule exempting from the Toxicity Characteristic (TC) chlorofluorocarbon (CFC) refrigerants that are reclaimed (see discussion in 56 FR 5910, February 13, 1991). This exclusion was provided after EPA received information indicating that application of the TC may promote venting, rather than recycling, of the CFCs, which are ozone-depleting substances. EPA has received additional information indicating that lubricating oils in refrigeration units often contain CFCs. EPA is currently considering two options for the regulation of used oils containing CFCs that are to be reclaimed at CFC-reclaiming facilities. The first option is to regulate the used oil as generated (and incidentally contaminated with CFCs) under the section 3014 management standards. This option does not provide any special exclusion

or exemption for used oils containing CFCs. The second option is to apply section 3014 standards to the used oil only after the CFCs have been reclaimed. This option may allow CFC reclamation facilities to continue their operations without becoming subject to additional regulation, except for the used oil generator standards for accumulation of the "cleaned" used oil prior to shipment off-site for used oil recycling. EPA believes this option will encourage the reclamation of CFCs, preventing further releases into the atmosphere. EPA requests comments on the options presented for used oils from which CFCs can be reclaimed.

EPA is aware of a research and development effort underway to formulate CFC substitutes for refrigeration units. EPA believes that used oils collected from refrigeration units need to be managed in an environmentally sound manner. EPA requests comments on the types and quantities of used oils that may be associated with refrigeration units that contain CFC substitutes in the future.

The lubricating oils generated while servicing Heating, Ventilation, and Air Conditioning (HVAC) systems are covered under today's notice as well. EPA believes that some of these oils are likely to be processed to reclaim CFCs and following the CFC recovery they are recycled as burner fuel. In the case of lubricating oils generated when servicing refrigeration units located at small commercial establishments and homes, the used lubricating oils are drained from refrigeration units by the service company staff and the servicing establishment, therefore, is the generator of the used oil. Following the collection of the used oil, the servicing establishment, as a generator of used oil, must comply with all applicable standards when the used oil management standards are promulgated. EPA solicits comment on whether HVAC trucks carry sufficient quantities of used oils that may be mixed with CFCs that the trucks should be regulated as used oil containers or whether EPA should only regulate the used oil after the CFCs (or CFC substitutes) are reclaimed from the mixture.

4. Oil/Water Mixtures

In 1985, EPA proposed to exempt oily wastewaters containing *de minimis* losses of used oils from the mixture rule (50 FR 49269). EPA is still considering excluding such mixtures from the mixture rule and the section 3014 management standards.

EPA is aware, however, that bilge waters generated on ships may contain

significant quantities of oil and hazardous constituents. EPA is, therefore, considering applying section 3014 management standards to bilge waters prior to discharge to a publicly-owned treatment works (POTW). EPA is also considering an exemption for bilge waters that have been treated in an oil/water separator. Under MARPOL 73/78 provisions, ocean-going ships are required to maintain oil/water separators on board. Under this scheme, bilge water upstream of an oil/water separator may be subject to section 3014; bilge water downstream may be exempt. The oil recovered in the oil/water separator may be subject to section 3014 standards. The generator of the bilge water may also be allowed to demonstrate that the quantity of oil in the bilge is insignificant and that the oil cannot be practicably separated. The Agency requests comments on the regulation of bilge waters containing used oil. In addition, the Agency requests analytical data on the composition of bilge waters.

EPA is also aware of certain petroleum refineries that manage used oil/water mixtures on-site prior to the disposal/treatment of the water portion of the mixture in wastewater treatment plants. EPA's understanding of the treatment of used oil/water mixtures is as follows: The mixture is passed through an oil/water separator to remove oil. The "oil-free" water is then sent to a wastewater treatment system for further treatment prior to its discharge. The used oil that is recovered and the used oil/water mixture upstream of an oil/water separator may be subject to section 3014 management standards. The refinery, in this case, may demonstrate that the quantities of used oil in the mixture are such that oil is not recoverable and hence adequately treated and discharged at the on-site wastewater treatment facility. EPA requests comment on the used oil/water mixtures handled by petroleum refineries, on other used oil/petroleum handling facilities, and on the oil content of used oil/water mixtures.

5. Used Oil Filters

As explained above in the listing section, EPA is considering exempting

from regulation as a hazardous waste under § 261.4(b), used oil filters containing a listed used oil that have been drained and crushed (see section V.C). EPA is not proposing to regulate the act of draining and crushing oil filters. However, the used oil drained from the filters will be subject to the section 3014 management standards. If a drained filter casing exhibiting a hazardous waste characteristic is sent for scrap metal reclamation, it is exempt from regulation, per § 261.6(a)(3)(iv). Drained or crushed filters that are not recycled can only be disposed of in landfills that are in compliance with state regulations governing solid waste landfills. The generator of the used filters must demonstrate that the drained and/or crushed filters do not exhibit the toxicity characteristic (using generator knowledge or filter analysis data). Used filters not going for recycling that exhibit the TC must be handled as hazardous wastes.

6. Used Oil Used as a Fuel in Incinerators and Municipal Solid Waste Combustors

Currently, the management or burning of any material or solid waste in a unit meeting the definition of an incinerator in 40 CFR 260.10 is not considered to be recycling. Also, hazardous wastes, including hazardous used oils, destined for incineration (not burning for energy recovery) must go to a permitted facility meeting the requirements of 40 CFR part 264 subpart O. Materials and solid wastes that are not hazardous wastes can be burned in any solid waste combustor or incinerator that is in compliance with the municipal combustor standards.

EPA is considering allowing the use of used oil to enhance the combustion of either hazardous wastes in a permitted hazardous waste incinerator or of municipal waste in a municipal waste combustor. EPA may allow this use of used oil (whether it is determined to be hazardous or not) to be considered recycling (*i.e.*, a form of burning for energy recovery) and therefore be subject to the proposed section 3014 tracking and storage standards, rather than the hazardous waste manifesting and storage requirements. EPA requests

comments on whether used oil sent to a permitted hazardous waste incinerator to enhance combustion should be subject to the hazardous waste storage and manifesting requirements or subject to the proposed section 3014 requirements. EPA also requests comments on whether or not the Agency should permit the burning of used oils that may be listed or used oils that exhibit one or more of the hazardous waste characteristics in municipal waste combustors to enhance combustion. Also, if the Agency determines that this practice is indeed a form of recycling, the Agency requests comments on whether the used oil should be subject to the proposed section 3014 used oil tracking and storage standards. The Agency believes that the section 3014 standards may provide an adequate level of protection in this case because the used oil would be transported and stored prior to recycling, much as it would be at a recycling facility that would be subject only to section 3014 and permit-by-rule standards.

EPA requests comment on the use of used oil as a fuel to enhance waste combustion at permitted hazardous waste incinerators and the regulation of this activity as a form of recycling, subject to the section 3014 standards.

B. Generator Requirements

Table IX.B.1. provides a brief summary of the proposed used oil generator requirements under the heading "all generators", that EPA is considering adopting under Phase I of the used oil management standards. Table IX.B.1. also compares the requirements that the Agency is now considering with those proposed in 1985. A more detailed discussion of the generator requirements is provided below. EPA believes that if the Phase I management standards are fully implemented and practiced by generators, then additional generator standards may not be necessary since the Phase I standards may both foster recycling and minimize human health and environmental hazards.

TABLE IX.B.1.—PROPOSED USED OIL GENERATOR STANDARDS

1985		Today—all generators ¹
SQG's	LQG's	
Storage <1,000 kg accumulated on-site in tanks; corrosion protection; tank material compatibility requirements.	Containers; labeling; § 265.171 (condition of containers), § 265.173 (management of containers, § 265.174 (inspections), § 265.176 (requirements for ignitable wastes). Tanks: freeboard and overflow controls; daily inspections; labeling; response to leaks; and closure requirements. Secondary containment for new tanks	Containers: 40 CFR 265.171 (condition of containers), 265.173 (management of containers), 265.174 (inspections), and 265.176 (ignitable and reactive wastes). Aboveground tanks: 40 CFR 265.195 (daily inspections), 265.196 (response to leaks), 265.197 (closure). USTs: 40 CFR Part 280. Also see Table VIII.F.2.
Corrective Action None	Containment of visible releases	Containers: 40 CFR 265.171. Aboveground tanks: 40 CFR 265.196 and 265.15(c). USTs: 40 CFR Part 280, Subpart E & F.
Closure None	Removal of oil and residues from tanks and discharge control equipment.	Aboveground tanks: 40 CFR 265.197. USTs: 40 CFR Part 280, Subpart G & H.

TABLE IX.B.1.—PROPOSED USED OIL GENERATOR STANDARDS

1985		Today—all generators ¹
SQG's	LQG's	
Preparedness and Prevention None	Telephone, fire extinguishers, absorbents. Requirements for emergency coordinator and arrangements with local authorities; personnel training and emergency procedures.	Same as proposed for LQGs.
Tracking None	§ 265, Subpart B (hazardous waste manifest) and § 262.42 (exception reporting) or recycling contract with authorized recycling facility. Also pretransport requirements: § 262.30 (packaging), § 262.31 (labeling), § 262.32 (marking), § 262.33 (placarding).	Collection log signed by generator and transporter, regardless of the existence of a recycling agreement. (Two additional options under consideration).
Recordkeeping None	Operating record for each shipment, including: name, address, and EPA ID number of transporter; quantity of used oil shipped; and date of shipment.	Same as proposed for LQGs.
Reporting None	No requirements	Reporting required only for disposal.

¹ The requirements shown under the "All Generators" column will be applicable either to all used oil generators or to all generators with underground tanks or aboveground storage capacity greater than 1,320 gallons (or one aboveground tank of capacity less than 660 gallons), depending upon the regulatory option that EPA promulgates.

As discussed previously in VIII.F.7 and VIII.F.8, EPA is considering exempting used oil generators that have a total aboveground storage capacity less than 1,320 gallons from the used oil generator standards. EPA believes that this is one way to exempt only the smallest businesses from the used oil management standards. If EPA promulgates the proposed definition of small quantity used oil generator discussed above, generators meeting the definition of a small quantity used oil generator will be exempt from the generator standards discussed below and presented in Table IX.B.1. All exempted generators, however, would have to recycle the used oil they generate, either by burning the used oil on-site for energy recovery or by shipping it off-site for recycling. The proposed exemption for small quantity generators of used oil will not be applicable if used oil is not recycled.

1. Storage in Containers and Tanks

As evident throughout today's notice, the storage standards that EPA is considering for the different segments of the used oil industry are customized to fit the potential risks associated with used oil handling. EPA believes that the storage standards address the potential hazards associated with used oil. They are developed such that used oil storage and associated leaks and spills are monitored on an on-going basis (i.e., daily or weekly inspections) and releases are cleaned up. EPA believes that the specific requirements discussed below for different categories of used oil handlers are environmentally protective and are very similar to those that are currently practiced by reputable used oil handlers.

Note that the Spill Prevention, Control, and Countermeasure (SPCC) requirements in 40 CFR part 112 and the

underground storage tank (UST) standards in 40 CFR part 280 also apply to used oil handlers meeting the applicability criteria for these regulations. Also, regardless of whether EPA promulgates a definition of small quantity used oil generator, all used oil generators storing used oil in underground tanks with a capacity of 110 gallons or greater must comply with the Part 280 UST standards. The following section discusses the storage requirements that EPA is currently considering for used oil generators. Specific storage requirements for other types of used oil handlers are discussed in later sections of today's notice.

a. *Storage in Containers.* Under the 1985 proposal, large quantity generators would be required to comply with selected 40 CFR part 265, subpart I standards (50 FR 49252, November 29, 1985) for used oil container storage. EPA may require all used oil generators to

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comply with the same container standards proposed in 1985 for large generators (see Table IX.B.1). These basic "minimum technical" requirements would ensure that containers (a) remain closed and are not damaged or leaking, (b) are properly labeled, (c) are inspected for leaks and releases on a routine basis (preferably daily), and (d) immediate cleanup is undertaken when a release occurs.

As discussed previously in sections VIII.F.7 and VIII.F.8, EPA is considering exempting used oil generators that have a total aboveground storage capacity of less than 1,320 gallons from the used oil management standards. EPA believes that this approach may exempt the smallest businesses from the used oil generator standards. EPA is considering including the capacity of any containers storing used oil on-site in the 1,320 gallon capacity limit for small quantity used oil generators. For example, if a generator has five containers with a total capacity of 275 gallons (5x55 gallons) on-site and a single aboveground tank with a capacity of 660 gallons, then the total storage capacity at the site meets the exemption limit since the total aboveground storage capacity is less than 1,320 gallons. EPA requests comment on whether container storage capacity should be included as part of the total aboveground storage capacity for defining the small quantity used oil generator exemption.

As discussed above, the Agency presumes that all used oils are destined for recycling, unless the presumption of recycling can be rebutted. Therefore, EPA will presume that any container of used oil at a generator site is subject to the proposed regulations as discussed here.

EPA requests comment on the container standards proposed for used oil generators. EPA also requests comment on the proposed exemption for small quantity used oil generators and on whether small quantity used oil generators should be exempt from the proposed container standards.

b. *Storage in Aboveground Tanks.* On November 29, 1985, EPA proposed a set of standards for all tanks used to store used oil (50 FR 49251 through 49254 and 49256). At the time, EPA proposed to pattern the tank requirements after the (then proposed) hazardous waste tank standards. The storage requirements outlined in the 1985 proposal are summarized below. Since 1985, additional technical requirements (including design, installation, operating, release response and detection, secondary containment, closure, and corrective action requirements) have been promulgated for tanks used to

store hazardous waste under 40 CFR parts 264 and 265, subpart J. The 1985 proposal specified the following tank storage standards:

- Small quantity generators (less than 1,000 kg/month of used oil) must store used oil in tanks that meet the Subtitle I "interim prohibition" on installing unprotected tanks;
- Large quantity generators, owners and operators of transfer facilities, and owners and operators of recycling facilities (including used oil burning facilities) had to comply with the then existing 40 CFR part 265, subpart J standards.⁴¹

The 1985 proposal requested comment on secondary containment requirements for new aboveground tanks located at large quantity generators, and at transfer and recycling facilities. The 1985 proposed aboveground tank storage requirements were based on the fact that all used oils would have been designated as listed hazardous wastes.

The used oil management standards that are being considered at present are for all recycled used oils, only a portion of which may or may not be listed or identified as hazardous waste. With this in mind, EPA re-evaluated the 1985-proposed used oil storage standards and concluded that the then proposed storage requirements for large quantity generators may be excessive and may need to be modified or replaced with requirements that are compatible with a broad universe of used oil handlers. EPA is therefore considering the following approach for used oil storage requirements.

First, EPA is considering the deferral of any secondary containment requirements for used oil storage tanks at generator sites. Comments received on the 1985 proposal indicate that the costs of upgrading generators' tanks may seriously affect used oil recycling (i.e., API and NORA indicated that secondary containment was too expensive and does not provide significant additional environmental benefit). In addition, only a limited number of used oil handlers have used oil that may be identified or listed as hazardous, and full secondary containment may not be necessary for the diverse universe of used oil generators, particularly since EPA is considering requiring daily inspection of tanks and immediate cleanup of releases. In addition, used oils are

generally not corrosive and thus waste/tank compatibility problems do not arise.

Therefore, EPA may finalize selected 1985-proposed tank standards (minus secondary containment) for aboveground tank storage for used oil generators (50 FR 49251). These are:

- Inspection of all tanks for tank damage, tank rupture, tank condition, and leaks;
- Cleanup of visible releases, leaks, or drips around the storage units;
- Requirements for storage of ignitable used oil;
- Labeling requirements for aboveground tanks demonstrating "used oil" storage;
- Freeboard controls for open tanks;
- Overflow controls (e.g., automatic cut-off) for continuously-fed tanks; and
- Closure (remove all used oil from tanks, discharge control equipment, and discharge confinement structures, if present).

These requirements take into account that many or most used oil generators are small businesses and therefore, may experience an undue economic burden. The storage requirements under consideration are similar to those applicable to generators of between 100 and 1,000 kg/month accumulating hazardous waste in tanks (40 CFR 265.201, 51 FR 25479, July 14, 1986). EPA believes that the requirements listed above provide adequate control against health and environmental hazards associated with used oil storage. The requirements identified above ensure against releases and spills that may occur during used oil handling and storage in aboveground tanks. These requirements are designed to minimize potential risks to human health and the environment.

The proposed requirements are similar to some of the controls many facilities may have in place under the Spill Prevention, Control, and Countermeasure (SPCC) program (40 CFR part 112, 38 FR 34165, December 11, 1973). It is important to note that the SPCC standards are applicable only to facilities with a total underground storage capacity of greater than 42,000 gallons, or an aboveground storage capacity of greater than 1,320 gallons. Furthermore, the SPCC requirements are applicable only to those facilities which reasonably have the potential to discharge oil into or upon the navigable waters of the United States and adjoining shorelines.

When used oil management standards are promulgated, both the SPCC and the used oil tank standards will apply independently. EPA does not believe the

⁴¹ Part 265, Subpart J has been amended since the 1985 proposal by the addition of secondary containment and other requirements (See 51 FR 25479, July 14, 1986). The pre-existing tank standards, however, remain in Section 265.201 for generators of 100-1000 kg/mo of hazardous waste.

two programs contain conflicting provisions. While the proposed requirements in today's notice for aboveground used oil storage tanks are similar to those of the SPCC program, some differences do exist as shown in section VIII.F.7.

The special requirements proposed in 1985 for aboveground tank systems that are leaking or otherwise unfit for use (50 FR 49253) may be promulgated as proposed. New or replacement tanks would be subject to the same standards discussed above.

The Agency believes that the requirements being considered for Phase I can adequately minimize human health and environmental risks associated with routine storage procedures without excessive economic burden on small businesses at this time. These requirements should be sufficient to protect against spills and releases associated with normal operations. They may not, however, be adequate to ensure against unforeseen events. However, the probability of the occurrence of such events is very minimal. If, as discussed above, used oil management standards are implemented in two phases, and after the Phase I requirements are in place, experience suggests that additional controls (e.g., secondary containment, integrity testing and certification, and monitoring controls) are necessary to prevent spills and releases of used oil into the environment, then EPA may consider such controls for all aboveground tanks used to store used oil.

Comments are requested on the approach discussed here for managing used oils stored in aboveground tanks.

c. *Storage in Underground Tanks.* As explained above, generators storing used oil in underground storage tanks must continue to comply with the 40 CFR Part 280 standards for underground tanks as they were promulgated in 1988.

2. Release Detection and Cleanup Response

a. *Detection and Cleanup of Releases and Leaks During Storage and Transfer.* Based on the potential for small quantities of used oil to contaminate water supplies, EPA believes that it is necessary to control releases or leaks (in addition to surface spills) that may occur during routine used oil collection, storage, and transfer operations. Through inspection and cleanup requirements, EPA believes that the potential contamination associated with storage and transfer could be effectively controlled and mitigated.

The proposed requirements for containers and tanks discussed above specify inspection requirements for

detecting releases of used oil around the storage units. In the case of containers and aboveground tanks, these requirements implicitly require cleanup of releases. Spills and leaks not cleaned up could be viewed as illegal disposal of solid (or hazardous) waste. EPA believes that specific, explicit requirements for the detection and cleanup of releases of used oil may be appropriate, since they:

- Are likely to occur during normal operation (i.e., pouring of used oil into containers and tanks, transferring used oil to collection trucks or to storage tanks at recycling facilities), and
- May remain undetected and uncontrolled if tanks and containers are not inspected regularly.

In addition, EPA believes that inspections for detecting visible releases, drips, and leaks and cleanup using absorbent materials are "good housekeeping" practices and is proposing that all used oil generators comply with these requirements. Many large generators have instituted them as part of employee training and site maintenance programs. EPA believes that such "good housekeeping" measures are critical for employee health and safety as well as public health and environmental protection.

EPA requests comments on the requirements under consideration to address releases in areas around the storage units. EPA also requests comment on whether facility-based employee training programs for detection and cleanup of leaks and small releases are needed and should be required in the regulations.

b. *Generator Spill Clean-up Requirements and CERCLA Liability.* A separate issue that is related to the used oil storage requirements is the issue of off-site liability under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for generators of used oil. Under CERCLA section 114, "service station dealers" ⁴² who manage used oil in accordance with conditions in CERCLA section 114(c) are not liable, under CERCLA section 107 (a)(3) or (a)(4), for response costs or damages resulting from threatened or actual off-site used oil releases. One of the conditions for relief from liability in

⁴²Section 114 of CERCLA (as amended by SARA) defines a "service station dealer" as "any person . . . where a significant percentage of the gross revenue of the establishment is derived from the fueling, repairing, or servicing of motor vehicles" and accepts DIY generated used oil. Section 114 also includes within the definition of service station dealer, "any government agency that establishes a facility solely for the purpose of accepting recycled oil" from households and other DIY generators.

CERCLA section 114(c) is that the service station dealer comply with RCRA section 3014 management standards, including "corrective action" (which EPA interprets, in this context, to mean simply release response and remediation) requirements. The CERCLA section 114(c) exemption will be effective when the RCRA section 3014 regulations that include RCRA Subtitle C or I requirements to conduct corrective actions are promulgated. EPA has concluded that the RCRA section 3014 generator standards must include release cleanup requirements to activate the CERCLA section 114(c) provision. Generators storing in underground tanks are subject to part 280 cleanup requirements. Since EPA is today considering in relying on the part 280 standards as being sufficiently protective against the human health and environment threats in lieu of different standards under section 3014, EPA believes that the 1988 promulgation of the part 280 requirements should be considered to have activated CERCLA section 114(c) for generators with USTs and no other tanks, containers, or other storage units. EPA requests comment on this point particularly whether the section 114(c) exemption only should take effect prospectively when the Phase I management standards take effect.

EPA is now considering what requirements will activate the provisions for used oil generators (and "service stations") that store used oil in either containers or aboveground tanks. EPA is considering applying the basic spill cleanup requirements proposed on November 29, 1985 (50 FR 49253) to used oil generators that store used oil in containers and tanks. These requirements are essentially the same as the cleanup requirements provided in § 265.196 and include removal of used oil from the tank system, removal of the tank from use, and containment of visible releases. Such standards would require generators, in the event of a spill, to contain the flow of oil to the extent possible and, as soon as practical, to clean up the oil and any contaminated materials, soils, ground waters, and surface waters (see proposed 40 CFR 266.41(c)(6)(v), 50 FR 49253, November 29, 1985).

Other provisions proposed for used oil generators in November 1985 entailed routine inspection of containers and tanks, and mitigation of any problems discovered (e.g., leaking containers) (50 FR 49227 and 49229). Taken together, EPA believes that, if promulgated, these cleanup requirements may be adequate to activate the CERCLA section 114(c)

liability exemption. Furthermore, the regulations would specify that compliance with part 280 corrective action requirements for underground storage tanks satisfies the section 3014 corrective action requirement, and that service station dealers cleaning up releases in compliance with the part 280 standards would be eligible for the CERCLA section 114(c) liability exemption.

If EPA chooses not to regulate used oil generators who have a total on-site aboveground storage capacity of less than 1,320 gallons, or one aboveground tank or container with a capacity less than or equal to 660 gallons, service station dealers meeting the definition of an exempt small quantity used oil generator will not be eligible for the CERCLA section 114 exemption, since these generators may not have to comply with the used oil management standards, including spill and release cleanup requirements, promulgated under section 3014.

EPA requests comments on the proposed spill and release cleanup requirements, and requests information on any alternative ways to activate the CERCLA section 114(c) liability exemption for used oil generators.

3. Generator Identification (ID) Numbers

In 1985, EPA proposed to require all generators of greater than 1,000 kg/month of used oil to obtain an EPA ID number (see proposed § 266.41(b), 51 FR 49252, November 29, 1985). However, EPA is now considering dropping this requirement. EPA believes that reviewing notification forms and assigning ID numbers to all used oil generators who store more than 1,320 gallons in above ground used oil tanks and containers would be resource intensive (based on the information collected for the 1985 proposal). EPA believes that used oil generated by regulated generators will be recycled and monitored by a chain of used oil handlers once it leaves the generator site and, hence, notification and ID numbers will not be necessary.

Since the Agency primarily uses ID numbers to identify the regulated universe of generators and collect generator-specific information, and since the Agency can obtain such information (e.g., type of generator and quantities of used oil generated) from transporters and used oil recyclers, the Agency believes that it may not be necessary to require used oil generators to obtain ID numbers. The tracking alternatives discussed below may also minimize the need for notification and ID numbers. Therefore, EPA is

considering eliminating the notification and EPA ID number requirements for all used oil generators. As discussed below, EPA is, however, considering requiring all used oil generators to maintain collection logs, as records of used oil shipments, and keep them on file for at least three years from the date of shipment. In addition, a generator shipping hazardous used oil off-site for disposal must comply with the current regulations for identification numbers in § 262.12 and the subpart B requirements for manifesting.

EPA requests comment on the possible elimination of the EPA identification number and notification requirement for used oil generators who do not send hazardous used oils off-site for disposal.

4. Generator Tracking of Used Oil Shipments Off-site

The November 29, 1985 proposal included requirements to track or keep records of all used oils sent off-site for recycling (50 FR 49254, November 29, 1985). Generators were required to comply with the pre-transport requirements of 40 CFR 262.30 to 262.33 and the generator and transporter were required to manifest the shipment using the hazardous waste manifest, unless the generator had a written recycling agreement with an authorized used oil recycling facility (50 FR 49253). The proposed listing may have caused used oil destined for disposal to be manifested as a hazardous waste. However, in contrast, if a generator had a written agreement with a recycler, only recordkeeping and notification requirements were required for off-site shipments of used oil.⁴³ The Agency's 1985 proposal was an attempt to balance the need for an adequate recordkeeping and tracking system and comply with the mandate of RCRA section 3014(c) to minimize the regulatory burden on used oil generators and transporters.

Comments were received following the publication of the 1985 proposal that indicated that EPA should provide greater specificity on the proposed used oil tracking system. As discussed above, EPA is considering alternatives that involve the maintenance of a collection log by used oil generators and transporters, regardless of the existence of a recycling contract. The alternatives that the Agency is currently considering for used oil tracking from generators to

recyclers are discussed here and the associated advantages and disadvantages are discussed more fully under the transporter requirements (see section IX.C.3).

As discussed above, even though all used oils may not be hazardous, some level of control over their possible mismanagement may be necessary. EPA believes that such control can be exercised by tracking used oil from generator to recycler to ensure that it reaches authorized used oil recyclers in a timely manner. EPA now believes that the 1985-proposed manifest requirement for large quantity generators that do not have a recycling contract in place may be excessive, especially since (a) all used oils will be covered under the recycling presumption and (b) the universe of recycled used oil generators may be expanded to include all generators of used oil. EPA is, therefore, considering requiring the tracking of used oil shipments from generator to recycler by use of a collection log maintained by each generator in lieu of the hazardous waste manifest, whether or not a recycling contract exists between a generator and the recycler. The use of a collection log eliminates the need for the manifesting requirement proposed in 1985 for those cases where a generator does not have a contract with a used oil recycler. EPA solicits comment on whether a collection log is an adequate requirement or whether the manifest and recycling contract option proposed in 1985 should be allowed in addition to the proposed collection log requirement.

Table IX.B.2. identifies the two options EPA is considering to track used oil from generators to recyclers via transporters. Under Option 1, EPA could require generators, regardless of any written recycling agreements they have, to keep records (a collection log signed by the generator and transporter) that document the intended destination of the used oil. These records may include documentation of the quantities of used oil shipped, the shipment dates, names and addresses of the generator and transporter, EPA identification numbers for used oil transporters, dated signatures of the generator and transporter, and EPA identification numbers of the recycling facility(ies). Under Option 2, the generator is required to maintain the same records as required under Option 1, but a transporter prepares a used oil tracking form at the conclusion of a "milk run" (for details see IX.C.3.).

⁴³RCRA § 3014 prohibits EPA from requiring generators to comply with manifest requirements if a contract between the generator and an authorized recycler is in place.

TABLE IX.B.2.—ALTERNATIVES FOR TRACKING USED OIL

	1985 proposal	Option 1	Option 2
Tracking Document.	Hazardous waste manifest.	Collection log maintained by all handlers.	Collection log maintained by all used oil handlers; tracking form initiated by transporters.
Generators.	Fills out appropriate portion. No manifest when generator has contract with recycler.	Must record quantities of used oil shipped; name, address, EPA ID no. of transporter; dated signature of transporter.	Same as Option 1.
Transporters.	Fills out appropriate portion.	Must record quantities of used oil delivered; names, addresses, ID nos., and dated signatures of recycling or disposal facilities.	Tracking form must contain information required under Option 1.
Recycling Facilities/Disposal Facilities.	Fills out appropriate portion and returns copy to generator when no contract exists.	Must retain copies of collection logs with dated signature of transporter.	Must retain copies of tracking forms signed by transporters.

5. Generator Recordkeeping and Reporting Requirements

Under the 1985 proposal, large quantity used oil generators were required to obtain EPA identification numbers (50 FR 49252) and to maintain operating records of all used oil shipments sent off-site (50 FR 49253 and 49254). Each off-site shipment was to be recorded with the name, address, and EPA ID number of the transporter; the quantity of used oil shipped; and the date of the shipment. These records were required to be maintained for three years from the date of shipment. Used oil generators with a recycling agreement were required to maintain a copy of the agreement as long as it was in effect, and to obtain a one-time signed notice from the recycler certifying that the facility is authorized to recycle used oil. EPA sees no need to change these requirements from the 1985 proposal with the exception of the possible elimination of the generator EPA ID number as discussed above.

No recordkeeping and reporting requirements were proposed for small quantity used oil generators (generators of less than 1000 kg of used oil per month) in 1985. As discussed earlier, EPA is considering an option that may include eliminating the small quantity used oil generator category. Under this approach, all generators would be subject to the same recordkeeping requirements proposed in 1985 for large generators. EPA solicits comments on whether the recordkeeping requirements discussed above should be applicable to small quantity generators, which may be defined as generators with total aboveground storage capacity less than 1,320 gallons. The Agency is also interested in receiving comments on whether a modified set of requirements might be appropriate.

In 1985, EPA proposed no reporting requirements for used oil generators who had recycling contracts, although generators using the manifests would

have been subject to exception reporting. EPA does not see a need for generator reporting when the used oil is recycled on- or off-site, because recycling facilities will provide this information in their biennial report. However, EPA is considering imposing new recordkeeping or reporting requirements under Sections 3014 and 3007 authorities for generators who can rebut the recycling presumption (see discussion in VIII.D.3.) and who dispose of used oil. (Generators disposing of hazardous used oil on-site, however, are subject to other recordkeeping and reporting requirements as a hazardous waste treatment, storage, or disposal facility.) Generators who dispose of used oil would have to comply with the recordkeeping or reporting requirements associated with the recycling presumption rebuttal prior to the disposal of used oils. EPA believes that reporting of disposal practices may allow the Agency to determine whether additional controls may be necessary to control used oil disposal in the future. EPA requests comment on reporting of generator-based disposal activities.

C. Transporter Requirements

Table IX.C.1 provides a brief summary of the used oil transporter requirements that EPA is currently considering. Table IX.C.1 also compares the requirements that the Agency is now considering with those proposed in 1985 for used oil transporters. A more detailed discussion of the proposed transporter requirements is provided below.

TABLE IX.C.1.—USED OIL TRANSPORTERS

1985	Today
<p>Storage</p> <p>For 10 days or less at a transfer facility: DOT requirements in 49 CFR Parts 173 (shipments and packaging), 178 (shipping containers), and 179 (tank cars); secondary containment standards for tanks.</p>	<p>Containers: (storage <30 days) 40 CFR § 262.30 (packaging), 49 CFR 173 (shipments and packaging), 178 (shipping containers), and 179 (tankcars). (storage >30 days) 40 CFR Part 265, Subpart I.</p> <p>Aboveground tanks: 40 CFR § 264.195 (daily inspections), § 264.196 (response to leaks), § 264.197 (closure).</p> <p>USTs: 40 CFR Part 280.</p> <p>Also, see Table IX.F.2.</p>
<p>Corrective Action</p> <p>40 CFR Part 263 Subpart C—Discharges in transit. Permit-by-rule facilities: remove leaking tanks from use; replace leaking containers; remedy releases.</p>	<p>Same as proposed for discharges in transit. Permit-by-rule facilities; 40 CFR § 264.101 and Subpart F for aboveground tanks.</p> <p>40 CFR § 280, Subparts E and F for USTs.</p>

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TABLE IX.C.1.—USED OIL TRANSPORTERS—Continued

1985	Today
Closure Remove oil and residues from tanks	Aboveground tanks: 40 CFR 264, Subpart G. USTs: 40 CFR Part 280, Subparts G and H.
Preparedness and Prevention 40 CFR Part 264, Subparts C and D	Same as proposed.
Tracking 40 CFR Part 263, Subpart B Hazardous Waste Manifests or Records of Acceptance and Delivery where generator has contract with authorized recycler.	Collection log signed by generator and recycling facility. (Two additional options under consideration.)
Recordkeeping Records of Acceptance and Delivery, including: name, address, and EPA ID number of facilities offering or accepting the shipment; quantity of used oil shipped; and date of acceptance or delivery.	Various recordkeeping and reporting requirements under consideration. (See preamble, Section IX.C.)
Reporting No requirements.....	See Recordkeeping (above).
Permit-by-Rule For storage of used oil for a period exceeding 10 days	For storage of used oil in containers for a period exceeding 35 days or for any tank storage.

Even though some used oils may not be identified as hazardous, EPA believes controls on activities associated with the transportation of used oil may be appropriate. As discussed previously, used oil that is not classified as hazardous may render drinking water nonpotable if released to surface or ground waters. In addition, storage and consolidation during transportation are possible entry points for hazardous waste being mixed with used oil. Therefore, EPA believes it may be necessary to regulate the transportation of all used oils, whether any are listed as hazardous waste or not.

EPA is proposing that owners and operators of used oil transfer facilities storing used oil in tanks or in containers for a period greater than 35 days comply with the permit-by-rule requirements proposed in 1985 for used oil recyclers. The 35-day storage period at transfer facilities is the equivalent period of time proposed for delivering used oil to a recycler after receipt of the used oil from the generator. Transfer facilities storing used oil on-site for a period of time greater than 35 days may have to comply with permit-by-rule requirements similar to those proposed in 1985, except the Agency is no longer proposing secondary containment requirements for tank storage.

EPA is not considering secondary containment requirements for used oil storage tanks at transfer facilities at this time because, based on the economic analysis data presented in section X of this notice, EPA believes that collectors may not be able to absorb the costs associated with secondary containment. For example, an independent collector/transporter of average size, with three aboveground storage tanks and a storage capacity of 22,000 gallons is likely to face a total capital cost of

\$14,000 and an annual operating cost of \$2,500. EPA may defer any secondary containment for collection/storage facilities until a later date, or may require secondary containment only for some transfer facilities, i.e., those that handle hazardous (listed or characteristic) used oil, or have a storage capacity in excess of some limit, i.e., 25,000 gallons. Comments are requested on these alternatives.

1. Transporter Storage Requirements

a. *Storage in Containers.* In 1985, EPA proposed to require transporters to comply with the 40 CFR part 264, subpart I (50 FR 49256, November 29, 1985) requirements for used oil container storage. However, storage of used oil at a transfer facility for less than 10 days was exempt from these requirements provided the containers met applicable packaging requirements of the U.S. Department of Transportation (DOT) under 49 CFR parts 173, 178, and 179. Storage in containers for greater than ten days was subject to the standards of part 264, subpart I and the used oil permit-by-rule requirements of proposed part 270. EPA is now considering increasing the 10 day storage provision for container storage to 30 days and requiring transporters storing used oil in containers at transfer facilities to comply with part 265, subpart I. In the 1985 proposal, EPA meant to propose that transporters comply with 40 CFR part 265, subpart I, rather than part 264, subpart I. Compliance with the part 264 standards, therefore, may only be necessary if an individual subtitle C permit is required.

Following the 1985 proposal, EPA received several comments requesting that the 10-day storage period at transfer facilities be extended to allow for sufficient accumulation of a

marketable quantity of used oil. Alternatively, to accommodate this concern, EPA is considering extending the exempt storage period for container storage at used oil transfer facilities to 35 days. The Agency requests comments on whether an extended period of 35 days is appropriate for transfer facilities storing used oil in containers. (See discussion on Accumulation Limit in section VIII.F.8 of this notice)

b. *Storage in Aboveground and Underground Tanks.* In 1985, EPA proposed that transporters storing used oil in tanks for more than 10 days be subject to the requirements of 40 CFR part 265, subpart J, including secondary containment (50 FR 49254, November 25, 1985). The Agency is now considering adopting the tank standards proposed in the 1985 rule (40 CFR part 265, subpart J), minus secondary containment for aboveground tank storage at used oil transfer facilities and eliminating the 10-day storage exemption for tank storage. These standards are the same as those currently applicable to small quantity hazardous waste generators (40 CFR 265.201).

EPA is considering adopting the tank storage standards without the requirement for secondary containment due to the Agency's concern that many independent transporters are small businesses and therefore the viability of these operations may be put in jeopardy by the secondary containment provision proposed in 1985.

Since the Agency may eliminate the proposed requirement for secondary containment, EPA is proposing that owners and operators of transfer facilities conduct inspections of aboveground tanks for releases and spills of used oil and conduct appropriate spill response to cleanup

and mitigate the contamination of the surrounding area. This will provide alternate assurance of protection of human health and the environment. EPA requests comment on the aboveground storage tank standards presented here and on their potential impact on the used oil recycling business.

As noted in the preamble to the proposed rule, there is presently no permitting exemption for tank storage at transfer facilities in the hazardous waste regulations (50 FR 49233). Under subtitle C, hazardous waste transfer facilities with tank storage are required to obtain a storage permit and comply with all applicable standards in 40 CFR parts 264 and 265. The Agency is now considering eliminating the 10-day permitting exemption for tank storage at transfer facilities. The Agency is concerned that the storage exemption period allowed for containers is not protective for tank storage since the tanks remain at the facility and may always contain used oil. In the case of containers, the container is removed from the facility when the used oil is shipped off-site.

To assure that adequate protection of human health and the environment is provided, EPA believes that a level of protection beyond the technical standards alone may be necessary for used oil tank storage at transfer facilities. EPA is therefore proposing that transfer facilities storing used oil in tanks or in containers for a period longer than 35 days comply with the permit-by-rule provisions. The Agency believes that requiring facilities to comply with the permit-by-rule provisions will facilitate compliance with the technical standards since noncompliance could lead to the requirement to obtain an individual subtitle C permit. Therefore, the Agency, in addition to requiring transfer facilities storing used oil in tanks to meet the 40 CFR part 265, subpart J (minus secondary containment) and 40 CFR part 280 UST requirements, is considering requiring used oil transfer facilities with storage tanks to comply with the used oil facility and permit-by-rule standards.⁴⁴

The Subtitle I requirements (40 CFR part 280) for underground storage tanks apply to USTs at transfer facilities. Transfer facilities storing used oil in USTs that are in compliance with the part 280 standards will be in compliance

⁴⁴ Note that the 10 day permitting exemption proposed for container storage is not applicable to tank storage. EPA is proposing that all tank storage at used oil transfer facilities be in compliance with the permit-by-rule requirements, and the accumulation of used oil will be limited to 35 days.

with the permit-by-rule provisions for tank storage.

The Agency requests comment on the regulatory restrictions proposed for tank and container storage at used oil transfer facilities, including the proposed permit-by-rule requirements for all tank storage at used oil transfer facilities. EPA reiterates that transfer facilities storing used oil in tanks would also be required to comply with the SPCC standards, if applicable.

2. Transporter Discharge Cleanup

Today, EPA is considering applying provisions similar to those proposed in 1985 for cleanup of releases during transport. Used oil transporters may be required to comply with the 40 CFR part 263, subpart C standards. These provisions require that discharges of hazardous wastes during transportation be reported to DOT and cleaned up immediately. Reference to the part 263 requirements was made in the 1985 proposal because EPA was proposing to list all used oils as hazardous. The provisions contemplated today are essentially the same as those proposed, but would apply to all used oils, regardless of whether or not they are identified as hazardous. Additionally, transporters storing used oil in containers at transfer facilities for a period longer than 35 days, may be subject to the same corrective action standards (release detection and cleanup) being proposed today for recycling facilities (see section IX.D.3). Transfer facilities storing used oil in aboveground tanks may be subject to permit-by-rule requirements and to the corrective action standards of part 265, subpart J and the general inspection requirements of § 265.15(c). Transfer facilities storing used oil in USTs may have to comply with the used oil permit-by-rule requirements, but would remain subject to the corrective action requirements of 40 CFR part 280, subparts E and F (standards for release response and corrective action for underground storage tank systems containing petroleum or hazardous substances).

3. Transporter Tracking of Used Oil

EPA is considering two alternatives for tracking used oils. Both alternatives involve the maintenance of a collection log by used oil transporters. Table IX.B.2. (above) provides a summary of the two options under consideration for used oil tracking.

Option 1: Transporters would keep records in a collection log to document all pickups. Used oil transporters would be required to keep a copy of the recycling facility owner or operator's

dated signature acknowledging receipt. The recycling facility owner or operator would have to keep a copy of the transporter's collection log. In lieu of keeping the collection log, transporters may elect to use the hazardous waste manifest (see discussion in IX.B.4. of today's notice).

Option 2 is to have generators keep the same records described above, with the transporter responsible for initiating a used oil tracking form at the conclusion of a "milk run" and prior to delivering the full shipment to a used oil recycling facility. Under this approach, the transporter would complete the "generator" portion of the tracking form. Transporters and recyclers would be required to keep copies of the signed forms. This approach is consistent with RCRA section 3014(c) in that generators with recycling agreements in place need not fill out a manifest or similar tracking document. This approach provides a single tracking document that records the oil's movement. In addition, problems with multiple tracking forms originated by different generators are minimized under this approach.

The advantages of tracking records and/or collection logs compared to manifest reports for used oil handlers are as follows: A generator does not have to (a) prepare a tracking form every time he/she ships a batch of used oil off-site, (b) maintain a separate accounting system for quantities and types (i.e., hazardous and nonhazardous) of used oil generated, quantities and types of used oil stored in a particular storage device, and quantities and types of used oil picked up by a transporter. The generator merely has to maintain one document with multiple entries. Every time a shipment of used oil is picked up, the transporter acknowledges the pickup on the generator's log with a dated signature. Similarly, a transporter maintains a collection log that identifies the quantities of used oil picked up per generator along with the name and address of each used oil generator he is serving. A used oil generator acknowledges the pickup of used oil with a dated signature on the transporter's log. The transporter, when delivering used oil to a recycler, submits a copy of his collection log to the facility owner or operator. Both transporter and recycler must sign the collection log to acknowledge delivery and acceptance of used oil. Each party would maintain a copy of the record of the used oil transaction on file for three years.

As discussed above, EPA is considering promulgating a presumption of recycling for all used oils. Under this

approach, all used oils would be subject to the tracking system outlined here, unless the person successfully rebuts the presumption. Procedures for rebutting the recycling presumption were discussed above.

4. Transporter Recordkeeping and Reporting Requirements

In 1985, EPA required transporters to document all records of acceptance and delivery of recycled used oil by identifying the name, address, and ID number of the generator or recycling facility; the quantity of used oil received or delivered; and the date of acceptance or delivery (50 FR 49254). Transporters were required to maintain these records for three years from the date of acceptance or delivery. No reporting requirements for transporters were proposed in 1985.

As stated in VIII.F.8., EPA is considering limiting the transport period for used oil (period of time from transporter pickup at generator to acceptance at a recycling facility) to 35 days. This storage limit of 35 days is

similar to the 35-day limit applicable to the transport of hazardous waste (§§ 262.42(a) and 263.21). The initial day of the 35-day period will begin when the used oil is collected from a used oil generator. Transporters and recycling facilities can document that used oil is delivered to the recycler within the 35-day period through the use of collection logs or tracking forms, as discussed below. In the event a transporter is unable to deliver a shipment of used oil to a recycling facility within the 35-day period, the transporter will be required to file an exception report with the Regional Administrator explaining the reasons for the delay. EPA requests comment on the 35-day shipment period being proposed today.

D. Used Oil Recycling Facilities

Table IX.D.1 provides a brief summary of the used oil recycling facility requirements that EPA is considering adopting under Phase I of the used oil management standards (if the Agency decides to promulgate the management standards in two phases).

Table IX.D.1 also compares the requirements that the Agency is considering now with those proposed in 1985. In addition to the requirements discussed below, all used oil recyclers must comply with all applicable generator and transporter requirements discussed in previous sections of today's proposal. A more detailed discussion of the specific recycling facility requirements is provided below.

1. Recycler Storage

EPA believes that there is a need to assure that the storage practices at used oil recycling facilities are protective of human health and the environment. EPA may regulate used oil storage in the manner described below regardless of whether the used oil is determined to be a hazardous waste or not, since EPA believes that the potential for used oil to be released into the environment and the potential damages from such leaks is not necessarily dependent upon whether the used oil is a hazardous waste, but is dependent upon the way in which the used oil is managed.

TABLE IX.D.1.—PROPOSED REQUIREMENTS FOR USED OIL RECYCLING FACILITIES

1985	Today
<p>Storage</p> <p>Container Storage: 40 CFR Part 264, Subpart I.....</p> <p>Aboveground Tanks: 40 CFR Part 265, Subpart J.....</p> <p>Underground Storage Tanks: 40 CFR Part 265, Subpart J.....</p>	<p>Container Storage: 40 CFR Part 264, Subpart I. (same as proposed).</p> <p>Aboveground Tanks: 40 CFR Part 264, Subpart J (or SPCC).</p> <p>Underground Storage Tanks: 40 CFR Part 280.</p> <p>See Table IX.B.2.</p>
<p>Corrective Action</p> <p>Remove leaking tanks from use; releases must be remedied.....</p> <p>Replace leaking container(s) and stop leaks.....</p>	<p>Containers: § 264.171.</p> <p>Aboveground tanks: § 264.197.</p> <p>USTs: 40 CFR Part 280, Subparts E and F.</p>
<p>Closure</p> <p>Remove all tank systems' wastes, and meet all various technical and financial requirements of Subparts G and H of Part 265.</p> <p>Preparedness and Prevention</p> <p>40 CFR Part 264, Subparts C and D.....</p>	<p>Aboveground tanks: Same as proposed for closure, defer financial responsibility.</p> <p>USTs: 40 CFR Part 280, Subparts G and H.</p> <p>40 CFR Part 264, Subparts C and D.</p>
<p>Tracking</p> <p>Recordkeeping if a contract is in place with the generator, Hazardous Waste Manifest requirements, including exception reporting when there is no contract.</p> <p>Recordkeeping and Reporting</p> <p>Analysis records, manifests, operating record, retention and accessibility, biennial and additional reports.</p>	<p>Sign Transporter's Collection Log and maintain separate log at the facility. (Two additional options under consideration.)</p> <p>Maintain copies of collection logs; prepare and submit Used Oil Management Report.</p>
<p>Hazardous Waste Mixtures</p> <p>Rebuttable presumption—used oil containing more than 1,000 ppm total halogens is presumed to have been mixed with hazardous waste. Mixtures of oil and hazardous waste must be managed as hazardous waste.</p> <p>40 CFR 266.40(c).....</p>	<p>Same as proposed, but extend application of rebuttable presumption to all used oils. Test all used oils for halogen content.</p>
<p>Permitting</p> <p>Permit-by-rule unless excluded and require individual permit (surface impoundments); or modify existing Subtitle C permit to handle used oil for co-management facilities.</p>	<p>Same as proposed in 1985.</p>

EPA is proposing that used oil recycling facilities storing used oil on-site prior to recycling it be in compliance with the technical requirements listed below, the permit-by-rule provisions proposed in 1985, and in addition, EPA is considering requiring compliance with

the speculative accumulation provision of § 261.1(c)(8). To ensure that used oils are being accumulated for the purpose of recycling them and not being stored indefinitely, used oil recycling facilities may have to demonstrate that 75 percent of the used oil accumulated at the

beginning of a one-year period is recycled within the one-year period.

a. *Container Storage.* EPA is retaining the container standards proposed in 1985 for used oil recycling facilities. EPA is proposing that used oil recycling facilities comply with 40 CFR part 264

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subpart I standards when storing used oil in containers (50 FR 49256). EPA is retaining this provision, which requires a containment system around the containers, for used oil recycling facilities to assure adequate protection of human health and the environment from potential leaks and releases of used oil.

b. *Aboveground Tank Storage.* In 1985, EPA proposed to require recycling facilities storing used oil in aboveground tanks to comply with part 265 subpart J standards (50 FR 49256). At that time, modifications to the subpart J standards to add full secondary containment had been proposed and since then have been promulgated. EPA is now proposing to require used oil aboveground tank systems at recycling facilities to meet the current requirements of part 265 subpart J, including secondary containment. These standards include freeboard and overflow controls for uncovered and continuously-fed tanks, inspections, secondary containment, response to leaks, and closure requirements. As explained earlier in this notice, EPA is considering allowing used oil recycling facilities to comply with the SPCC requirements for aboveground storage tank areas in lieu of the part 265 secondary containment requirements.

The Agency requests comment on the proposed requirements for aboveground tank and container storage at used oil recycling facilities.

c. *Underground Tank Storage.* In the 1985 proposal, EPA indicated that all used oil storage tanks at recycling facilities would be subject to the proposed part 265, subpart J storage requirements for hazardous wastes stored in tanks. The subpart J standards for hazardous waste storage tanks have since been promulgated (51 FR 25422) and require secondary containment for both aboveground and underground tanks. Today, however, EPA is proposing that used oil recycling facilities storing used oil in underground tanks be subject to the UST regulations, including the corrective action requirements for leaking underground tanks, that were promulgated in 1988 at 40 CFR part 280. EPA will not be proposing additional section 3014 tank standards for used oils stored in underground tanks.

EPA requests comment on the tank and container storage requirements under consideration for used oil recycling facilities.

d. *Storage in Surface Impoundments.* In the November 29, 1985 proposal, EPA specified management standards and required permits for surface impoundments used by recycling

facilities (50 FR 49255). Even though, as discussed above, all used oils may not be listed or identified as hazardous wastes, their storage can pose health and environmental hazards associated with the release of oil and its toxic constituents. In fact, many of the damage cases cited earlier in this notice involved impoundments. It is EPA's understanding that surface impoundment storage is very unusual at modern used oil recycling facilities. To the extent impoundments are used, EPA is very concerned about the potential for ground-water contamination.

EPA is considering three ways to control the use of surface impoundments for storing used oil. First, as proposed in 1985, EPA could use section 3014 authorities to require surface impoundment standards similar to or identical to those found in 40 CFR part 264 or 265 subpart K for hazardous wastes and require the facility to obtain a subtitle C permit for their use (as proposed in 1985) whether or not the used oil being stored or recycled is hazardous. In addition, the Agency requests comment on two alternatives for regulating surface impoundments used to store used oils. EPA could ban the use of surface impoundments under sections 1008, 3014, and 4005 authorities since the Agency believes that the placement of used oils in unlined surface impoundments is not environmentally protective and may constitute open dumping. If EPA decides to ban the use of surface impoundments for used oil storage, those surface impoundments currently used to store used oil will have to close prior to the effective date of the section 3014 management standards. After the effective date of the used oil management standards, any surface impoundments still in use for used oil storage will have to be closed in compliance with 40 CFR subparts K and G.

Finally, EPA could require used oil recyclers to obtain a subtitle C permit, but allow used oil recyclers to petition the Regional Administrator for an exclusion to the permitting requirements upon demonstrating that the facility's site-specific conditions allow for safe storage and/or treatment in surface impoundments.⁴⁵ A facility filing a petition for a permitting exclusion may have to demonstrate that the used oil will not migrate from the unit and will not contaminate ground-water or surface water receptors.

⁴⁵ In the case of listed or characteristic hazardous used oils, the used oil recycler will have to comply with all applicable LDR and BDAT standards prior to placing the used oils in a surface impoundment.

EPA requests comments on the options presented for the regulation of surface impoundments at used oil recycling facilities. In particular, EPA requests comments regarding whether or not used oil can be safely managed in surface impoundments, and if so, under what conditions.

2. Recycler Tracking of Used Oil

In the 1985 proposal, used oil recycling facilities were required to comply with the hazardous waste manifest system for shipments of used oil when a recycling agreement was not in place between a generator and the recycler (50 FR 49255). In lieu of the requirements proposed in 1985, EPA is considering two options for tracking mechanisms for used oil shipments (see Table IX.B.2). These options are explained in detail in section IX.C.3. In the discussion of transporter requirements. Used oil recyclers would have to acknowledge the receipt of each used oil shipment by signing and dating the transporters log or the accompanying manifest. If EPA chooses to promulgate Option 1 of the tracking requirements described above, used oil recyclers may have to provide documentation to confirm receipt of used oil shipments within the proposed 35-day shipment period, if a generator requests such documentation. If the Agency chooses to promulgate Option 2 of the tracking requirements described above, the transporter would retain a copy of the signed used oil tracking form and would provide a copy of the signed tracking form to the recycling facility (and generator, if requested). The recycling facility would use this information to prepare the necessary reports discussed later and maintain a copy for recordkeeping purposes.

3. Recycler Release Response and Cleanup

Under the 1985 proposed rule, used oil recycling facilities would be subject to release response requirements for containers and tanks (50 FR 49256). EPA is considering requiring the same corrective action/release response standards as proposed in 1985 for recycling facilities that store used oil in aboveground tanks and containers. Leaking containers would be required to be replaced and visible releases from containers and tanks "immediately" contained. An owner/operator may also be required to remedy any deterioration or malfunction discovered during an inspection of a tank system. However, due to the promulgation of the UST standards in 1988 (53 FR 37173 and 37189), underground tanks storing used

oil at recycling facilities are subject to the corrective action requirements for USTs in part 280, subpart F. EPA is not proposing, at this time, that used oil recycling facilities undertake full facility corrective action, unless required to obtain a full Subtitle C permit. Instead, used oil recycling facilities may be required to clean up all visible and detected releases of used oil in accordance with either the cleanup requirements proposed in 1985 (in the case of containers and aboveground tanks) or those provided in 40 CFR part 280 subpart F (in the case of underground storage tanks). Due to the fact that the UST regulations were not promulgated until 1988, the approach proposed today for response and cleanup of releases from underground tanks storing used oil are different than the requirements proposed in 1985. EPA requests comment on the appropriateness of retaining the UST release response and clean up requirements for used oil recycling facilities storing used oils in underground tanks. The Agency also requests comment on the release response requirements being considered for aboveground tank and container storage at used oil recycling facilities.

4. Recycler Closure and Financial Responsibility

In the 1985 proposed rule, used oil recycling facilities were subject to the closure and post-closure and financial responsibility requirements of subparts G and H of part 265 (50 FR 49256). EPA believes that all units used for used oil storage, treatment, and in certain cases, disposal (e.g., surface impoundments) at these recycling facilities must be closed in a manner that will minimize risk to human health and the environment. EPA is retaining the proposed requirements for closure and post-closure for aboveground tanks. However, facilities storing used oil in underground tanks will be subject to the UST closure requirements in part 280 in lieu of the closure requirements proposed in 1985. EPA requests comment on the closure requirements described above for used oil recycling facilities.

EPA is considering deferring financial responsibility requirements for aboveground tanks until a later date. Comments were received after the 1985 proposed rule was published, claiming that financial responsibility is not needed for recycling facilities and that most recyclers may not be able to obtain coverage and may therefore go out of business if the Agency promulgated the financial responsibility requirements proposed in 1985. Commenters claimed that financial responsibility

requirements would have serious detrimental effects on the used oil recycling market, and that recycling facilities should be subject to less rigorous financial responsibility requirements than treatment, storage, and disposal facilities. One commenter also questioned how financial responsibility requirements would be implemented at permit-by-rule facilities.

EPA is now proposing to require used oil recycling facilities to comply with the speculative accumulation provision applicable to hazardous waste recycling facilities (§ 261.1(c)(8)). EPA believes that the speculative accumulation provision will reduce the potential for releases associated with long-term storage and therefore may minimize the need for financial assurance at used oil recycling facilities. The Agency will, however, continue to evaluate the need for financial responsibility requirements at used oil recycling facilities and may propose financial requirements at a later date. The Agency is concerned that financial responsibility requirements may place a significant economic burden on used oil recycling facilities and may result in a decrease in the quantity of used oil that is recycled. The financial responsibility requirements given in subpart H of part 280 concerning underground tanks are applicable, however, to facilities storing used oil in underground tanks.

EPA requests comments on the deferral of financial responsibility requirements for facilities storing used oil in aboveground tanks and containers.

5. Recycler Recordkeeping and Reporting Requirements

Used oil recyclers engaged in marketing or burning used oil fuel are required to comply with the 40 CFR part 266, subpart E recordkeeping requirements. EPA is now considering modifying these requirements. In 1985, EPA proposed additional recordkeeping and reporting requirements, beyond those required by 40 CFR part 266, subpart E, for recycling facilities (40 CFR 266.43(f), 50 FR 49256). These requirements were more extensive than those proposed for used oil generators and transporters and were similar to those established for hazardous waste management facilities. These included the following:

- Operating records (§ 264.73)
- Availability, retention, and disposition of records (§ 264.74)
- Biennial reports (§ 264.75)
- Additional reports (§ 264.77).

a. *Recordkeeping.* As discussed above, EPA is considering several options for used oil tracking (see Table IX.B.2.). Under each option, the

maintenance of collection logs by transporters and recycling facilities is required to confirm the receipt of used oil shipments from a used oil generator at a recycling facility. The log maintained by recyclers would fulfill a portion of the operating record requirements that EPA proposed in 1985. Information recorded in the used oil tracking log would not have to be duplicated in a facility's operating record (the log will be considered to be a part of the operating record).

b. *Reporting.* EPA has re-evaluated the biennial reporting requirements proposed in 1985 for used oil recycling facilities (50 FR 49258) and determined that some elements of the biennial report are not appropriate for used oil recyclers, particularly in light of the fact that all used oils may not be identified as hazardous wastes and EPA may defer other requirements (e.g., facility financial responsibility requirements).

EPA is therefore considering, in lieu of the use of the biennial report designed for hazardous waste TSD facilities, a separate reporting system for used oil recycling facilities that would parallel the hazardous waste biennial report. The used oil recycling report may have data elements more applicable to used oil recycling activities. The used oil recycling report would have to be prepared and submitted to EPA biennially using the same schedule as that established for the hazardous waste biennial reporting requirements, however, EPA may consider changing the required submission date. Under this approach, EPA may develop a form with reporting requirements for used oil recycling facilities that may include:

- The average quantity of used oil typically stored on-site prior to recycling;
- The quantity of used oil recycled as lube oils or petroleum fractions annually;
- The annual quantity of used oil shipped off-site as specification fuel;
- The annual quantity of used oil marketed as off-spec used oil;
- The annual quantity of used burned as off-specification used oil fuel burned;
- The annual quantity of used oil disposed on-site;
- The quantity of used oil sent off-site for subtitle C disposal annually; and
- The quantity of used oil sent off-site for subtitle D disposal annually.

EPA may require used oil recyclers to report annual quantities of used oil handled by category of used oil generator (if EPA promulgates Tracking Option 1). EPA may use the generator-specific information obtained from recyclers' biennial reports to evaluate

the impacts of the Phase I management standards on used oil generators and to assess the need for EPA to develop non-regulatory incentives to encourage used oil recycling. EPA may also use this information to determine what percentage of the total quantity of used oil generated annually enters the used oil management system, is used to produce burner fuel, and is used as feedstock for lube oil.

EPA requests comment on the suggested reporting alternatives to the proposed requirement for biennial reports discussed above.

6. Analytical Requirements

In 1985, under proposed § 264.73, EPA required analysis of used oil to determine halogen content, ignitability, fuel specification, and additional parameter testing for used oil recycling facilities that also manage hazardous wastes. EPA still believes that testing for indicator parameters (e.g., part 261, appendix VIII constituents) is necessary to ensure used oil and other hazardous wastes are not mixed. EPA believes that the indicator parameter testing requirement, in addition to the halogen content analysis, will discourage mixing at co-management facilities. Therefore, the analytical requirements proposed in 1985 will remain unchanged.

In addition, used oil that is mixed with hazardous waste is a hazardous waste by virtue of the "mixture rule" (40 CFR 261.3(a)). Such mixtures of used oil and hazardous waste would have to be managed in compliance with 40 CFR part 266, subpart D. To ensure that used oil and hazardous waste mixtures are not either sold as blended used oil fuels or re-refined to manufacture lube oil feedstock, EPA is considering requiring recycling facilities to test each shipment of used oil for halogen content and, in the case of co-management facilities, test for part 261, appendix VIII constituents (indicator parameters), prior to shipment of the recycled product to end users.

EPA requests comment on the testing requirements discussed here.

Recycler Permits

In the 1985 proposed rule, EPA used the authority of RCRA section 3014 to propose permitting requirements for used oil recycling facilities (50 FR 49255, 49257). RCRA section 3014(d) provides that owners and operators of used oil recycling facilities are deemed to have a permit for their recycling activities and associated tank and container storage, provided they comply with the used oil management standards promulgated by EPA. Under the 1985 proposal, used oil recycling facilities would qualify for

permits-by-rule by complying with 40 CFR 266.43 and 266.44, the proposed requirements for used oil recyclers and burners. The Agency is considering retaining the 1985 proposed permit-by-rule requirements. Although EPA proposed financial responsibility requirements for used oil recyclers in 1985, EPA is not including such requirements for aboveground tank and container storage in today's proposed standards. Financial responsibility standards for these used oil recycling facilities are being deferred until the Phase II management standards are promulgated.

EPA believes that the permit-by-rule requirements proposed in 1985 are appropriate for all used recycling facilities, even if some used oils are determined not to be hazardous wastes. As discussed earlier in today's notice, potential hazards to human health and the environment exist regardless of whether or not the used oil is a hazardous waste.

Certain types of used oil recycling facilities were excluded from permit-by-rule eligibility in the 1985 proposal. These include facilities that recycle or store used oil in surface impoundments and facilities that manage other hazardous wastes in addition to used oil (co-management facilities). These types of facilities may be required to obtain an individual subtitle C permit or modify their existing permit, in the case of co-management facilities. In addition, as proposed, the Regional Administrator or the director of an approved state program may have the discretion to require individual permits for other facilities that could pose a substantial potential or present hazard. The Agency will also require used oil recycling facilities that accumulate used oil speculatively (i.e., are not in compliance with the speculative accumulation provision of § 261.1(c)(8)) to obtain a full subtitle C permit. These facilities would be subject to the § 3004(u) corrective action provisions for permitted facilities. EPA is not proposing any changes to the exclusions to permit-by-rule eligibility proposed in 1985.

If EPA promulgates used oil management standards in two phases, used oil recycling facilities that are eligible for a permit-by-rule will be deemed to have a permit-by-rule when the owner or operator is in compliance with all of the Phase I management standards. Then later, when EPA promulgates any Phase II management standards, the owner or operator will have to be in compliance with both the Phase I and Phase II management standards on the effective date of the

Phase II standards to keep the facility's permit-by-rule status.

E. Used Oil Marketers

In 1985, EPA proposed to replace the existing Part 266 Subpart E requirements with the proposed generator and transporter requirements (50 FR 49239 November 25, 1985). Under the proposed scheme, marketers were intended to become subject to the generator standards. That proposed requirement remains unchanged in the case of generators who market specification fuel. Recyclers who market specification used oil fuel must be in compliance with the recycling facility standards (including the permit-by-rule provisions) included in today's notice and those proposed in 1985.

The 1985 proposed regulations were unclear as to the status of the marketer notification requirements and the requirements relating to one-time notices to be received from the burners to which the marketer sells used oil. EPA wishes to clarify in this notice that the final requirements in § 266.43(b)(3), relating to notification to EPA of used oil marketing activities and in § 266.43(b)(5), requiring that marketers obtain a one-time written and signed notice from burners that the off-specification used oil fuel will be burned only in industrial boilers or furnaces, will still apply to marketers. These regulations will be moved to the newly-created section on used oil, part 279.

As proposed in 1985, marketers will become subject to the generator and transporter regulations, including the provision relating to maintaining records of shipments in a logbook. Marketers will also be required to comply with whatever tracking option is selected. EPA believes that since used oil marketers are the first party to determine the disposition of used oil and since marketers generally store used oil prior to shipping it to burners, used oil marketers may be required to comply with all applicable generator and transporter standards proposed today and/or discussed in the 1985 proposal. In addition, marketers are responsible for conducting analytical tests to document that used oil being sold as specification fuel does not exceed any of the specification parameters.

EPA requests comments on the appropriateness of subjecting marketers to the generator and transporter standards proposed for Part 279. Readers should note that, as proposed in 1985, marketers blending used oil fuel would be subject to the recycling facility standards.

F. Burners of Specification Used Oil

In 1985, EPA promulgated a specification for used oil fuel (50 FR 49205, 40 CFR 266.40 and 266.43(b)(1) and (6)). Used oil fuel meeting these specifications can be burned without regulation in non-industrial boilers such as those in apartment or office buildings, provided an analysis is conducted and records are kept by the first person who claims that the fuel meets the specification (i.e., the marketer). The specification was intended to be protective under virtually all circumstances. EPA believed that used oil fuels meeting the specification would not pose hazards significantly greater than virgin fuel oil when burned. In fact, the specification levels for arsenic, cadmium and chromium were selected to be equivalent to virgin fuel levels. The specification for lead was set at 100 ppm, which was about 10 times greater than lead levels found in virgin fuel oils, and was intended as an interim measure until the Phase II burning rules were promulgated.

When EPA developed the used oil fuel specification levels in 1985, the Agency based the constituent levels for the specification on the possible human health effects from an urban burning scenario (50 FR 49180). EPA performed a risk assessment to identify constituents that may pose increased risks to human health given that used oil could be burned in highly populated urban areas. When the constituents of concern were typically found in used oil at levels greater than in virgin fuel oils, they were included in the specification at their 95th percentile levels in virgin fuel oils. EPA reasoned that higher levels could pose substantial risk, and levels lower than those found for the same constituents in virgin fuel oils would not provide protection of human health and the environment given that used oil fuels could replace virgin oil fuels.⁴⁶

EPA continues to believe that there is little protection to be gained by regulating processed used oil fuels that meet the specification levels any more stringently than virgin oil fuels, since these used oil fuels essentially present no greater risk to human health and the environment than virgin oil fuels. Also, the Agency believes that the costs associated with the regulation of used oil fuels that meet the specification limits (that are essentially the same as the virgin oil fuel specification) may result in burners substituting virgin oil fuels, which are unregulated, for used oil

fuels. Therefore, EPA is considering providing a regulatory exemption from the used oil management standards for those used oil fuels that meet the used oil fuel specification in 40 CFR 266.40(e). As explained above, the specification was developed to provide virtually the same level of protection from the burning of used oil fuels as that exhibited by the burning of virgin oil fuels. Therefore, EPA sees no reason to regulate used oil fuels that meet the specification levels beyond requiring the marketer to test the fuel and document that it meets the specification levels for each constituent and comply with the recordkeeping requirements of 40 CFR 266.43.

In 1985, EPA set the specification limit for total halogens at 4,000 ppm (based upon emission standards modelling). EPA also promulgated a rebuttable presumption for mixtures of used oil and hazardous wastes in 1985. The rebuttable presumption limit for halogen content was set at 1,000 ppm (based upon probable mixing scenarios). The Agency believes (due to enforcement experience) that used oils exhibiting a total halogen level greater than 1,000 ppm have most likely been mixed with chlorinated hazardous wastes.

The Agency wants to discourage all mixing of used oils and hazardous wastes. However, EPA understands that some used oils (e.g., metalworking oils with chlorinated additives) may exceed the 1,000 ppm total halogen limit without having been mixed with hazardous waste. In these cases, the generator can rebut the presumption of mixing and the used oil would be regulated under the § 3014 management standards and not as a hazardous waste. However, even if the presumption of mixing is rebutted, if the total halogen level in the used oil exceeds 4,000 ppm, the used oil will not meet the used oil specification limit for halogens. Therefore, if the used oil is to be burned for energy recovery, the used oil will have to undergo further processing to meet the used oil fuel specification (to lower the total halogen level) or the used oil must be burned as off-specification used oil fuel (in which case the marketer of the used oil fuel must be in compliance with the current part 266 subpart E requirements).

However, EPA is considering eliminating the total halogen level of 4,000 ppm from the used oil fuel specification. The deletion of the total halogen level in the specification criteria may eliminate any current confusion regarding the difference in the 4,000 ppm level of the used oil specification and the 1,000 ppm level of the rebuttable presumption. The result of establishing

only one limit for total halogen content would be that the specification level for used oil fuels would contain only concentration limits for metals and the halogen limit for the presumption of mixing would remain at 1,000 ppm total halogens. EPA believes that industry currently complies with the 1,000 ppm total halogen limit for used oil fuels. Therefore, it may be unnecessary to include a total halogen limit in the used oil fuel specification. The Agency requests comment on the need for and consequences of eliminating the total halogen limit in the used oil fuel specification.

Used oil recyclers commonly test used oil samples prior to accepting used oil to determine whether the used oil was mixed with hazardous waste or not. Many times recyclers, if the presence of halogens is detected, perform additional testing (e.g., EPA SW-846 test method 8010) to determine the quantity and the type of hazardous waste that may have been mixed with the used oil. If mixing is confirmed, then the shipment is many times rejected or the generator is advised to send the contaminated used oil to a hazardous waste incinerator. On occasion, the quantities of used oil rejected, and therefore required to be incinerated (or otherwise burned as a hazardous waste fuel), are not large enough to warrant the handling and transportation costs associated with sending them to an incinerator. In these cases, the generator may consider handling the mixture differently than sending it to an incinerator or other permitted hazardous waste burner facility. To discourage mismanagement of such mixtures, EPA is considering allowing recyclers to accept this mixture if it is accompanied by proper manifest forms and provided the recycler agrees to ship the used oil mixture to a permitted hazardous waste burner to be burned as a hazardous waste fuel. EPA requests comment on what additional requirements may be necessary to ensure that a recycler does not conduct any mixing with other unadulterated used oils to lower the halogen content and market the mixture as a used oil fuel.

EPA solicits comment on the Agency's proposal to allow used oil fuels meeting the specification levels to be burned without regulation under the section 3014 management standards.

EPA received a correspondence from the National Oil Recyclers Association (NORA) requesting an interpretation of the current regulations concerning mixtures of used oil and characteristic hazardous waste (in this case mineral spirits that exhibit the characteristic of

⁴⁶ See PEDCo Environmental Inc., A Risk Assessment of Waste Oil Burning in Boilers and Space Heaters, August 1984.

ignitability). Mineral spirits, when mixed with used oil, no longer exhibit the characteristic of ignitability and the resultant mixture is subsequently burned for energy recovery. Since the mixture no longer exhibits the characteristic of ignitability, the burning of such a mixture for energy recovery is subject to part 266, subpart E as a used oil fuel, and is not subject to part 266 subpart D as a hazardous waste fuel.

C. Burners of Off-Specification Used Oil

In November 1985, EPA proposed that burners of off-specification used oil fuel

would be subject to regulation as recycling facilities, and as such would have to comply with the proposed storage and other management requirements (see proposed § 266.43(a)(1) and 50 FR 49239). Comments were received indicating that these requirements would be too costly, and would discourage the use of used oil fuel. This section discusses some possible changes to the proposal for off-specification used oil burners. If not discussed here, provisions proposed under § 266.43 and § 266.44 are still under consideration for used oil burners.

Table IX.G.1 provides a brief summary of the used oil burner requirements that EPA is currently considering for promulgation. These standards will be included under Phase I if the used oil management standards are promulgated in two phases. Table IX.G.1 also compares the requirements that the Agency is now considering with those proposed in 1985. A more detailed discussion of the proposed used oil burner requirements is provided below.

TABLE IX.G.1.—USED OIL BURNERS

1985	Today
Storage	
Container Storage: 40 CFR Part 264 Subpart I.....	Container Storage: 40 CFR Part 265, Subpart I. Coverage same as generators (container condition and management, inspections for releases and cleanup, etc.).
Aboveground Tanks: 40 CFR Part 265, Subpart J.....	Aboveground Tanks: Same as generators (tank condition, inspections for releases and cleanup, closure requirements, etc.).
Underground Storage Tanks: 40 CFR Part 265, Subpart J.....	Underground Storage Tanks: 40 CFR Part 280. Storage time: Limited to 180 days.
Corrective Action	
Remove leaking tanks from use; releases must be remedied.....	Same as proposed for containers and aboveground tanks.
Replace leaking container(s) and stop leaks.....	USTs: 40 CFR Part 280, Subparts E and F.
Closure	
Remove all tank systems' wastes, and meet all various technical and financial requirements of Subparts G and H of Part 265.	Aboveground tanks: 40 CFR Part 265, Subpart J; defer financial responsibility. USTs: 40 CFR Part 280, Subparts G and H.
Tracking	
Shipment of off-spec used oil to receiving facility accompanied by invoice giving identification numbers and addresses of marketer and facility and quantity and dates of shipment.	Burners may be required to sign a transporters collection log. Existing invoice system.

1. Burner Storage

In 1985, EPA proposed specific requirements for tank and container storage, and accompanying preparedness and prevention and emergency procedures. EPA is concerned that the 1985 proposed storage requirements (which were similar to those proposed for used oil recycling facilities) may be too stringent and unnecessarily expensive for used oil burners. EPA believes that used oil burners store used oil merely to meet their fuel needs and generally not to stockpile used oils for an extended period of time. Therefore, in lieu of the storage requirements proposed, EPA is now considering requiring the same on-site storage requirements for burners as those outlined above for generators. These provisions are essentially the same as those proposed in 1985 for aboveground tanks and containers, except for the secondary containment requirement, and include inspection of tanks for corrosion and leaks, closure, special provisions for ignitable oil,

cleanup of visible releases, leaks, and drips, labelling of tanks and containers used for storage, and overflow and freeboard controls. In the case of underground tanks used to store used oil fuels, EPA is proposing to retain the current 40 CFR part 280 requirements for used oil burners. Also, to ensure against potential hazards from extensive accumulation and storage of used oil at burning facilities, EPA is considering limiting the storage period at burning facilities to 180 days. Burners storing used oil for a period longer than 180 days may have to comply with the recycling facility storage and permit-by-rule requirements. EPA requests comments on the proposed storage standards for burners of non-specification used oil fuels. As discussed above, the SPCC regulations would continue to apply independently to the section 3014 standards for used oil burners.

2. Burner Analysis Requirements

EPA proposed that all recycling facilities, including burners, analyze the used oil managed at the facility for total halogens, ignitability, and indicator parameters (when other hazardous wastes are also managed at the facility). Commenters stated that the analysis requirements were duplicative since such a determination has already been made by a used oil recycler or marketer. As one commenter pointed out, marketers have already performed analyses to determine if the used oil meets the specification and to determine if the oil has been mixed with hazardous waste. EPA is aware that, at a minimum, most reputable used oil handlers conduct relatively simple analyses using test kits to determine if the used oil has been mixed with hazardous waste.

EPA is considering allowing burners to use information provided by marketers (e.g., certification or analytical results) in lieu of requiring the burner to perform analyses for halogen

⁴⁹ Letter to Mr. David Bussard, Director, Characterization and Assessment Division of EPA's

Office of Solid Waste, from Mr. Chris Harris, National Oil Recyclers Association of June 5, 1991.

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content and ignitability. Where information is not available from the marketer, however, the burner would still be required to perform the analyses. EPA believes that when the oil is provided by a non-marketer (i.e., generator or transporter transporting directly from the generator's site(s)), there is a potential for contamination of the used oil prior to delivery to the burner. Therefore, in such cases, EPA believes the only way that a burner can ensure that the oil has not been mixed with hazardous waste (or the oil meets the specification, if the burner wishes to burn specification fuel) is to perform an analysis for halogens and ignitability (or specification parameters). The burner would have to keep records of the fuel specification certification on-site as part of the operating record. EPA requests comments on the analytical requirements proposed for used oil burners.

3. Space Heaters

EPA's proposal in November, 1985 inadvertently omitted the conditions on space heaters currently required in part 266, subpart E. When the used oil management standards are promulgated, EPA will clarify that continued use of used oil-fired space heaters under the conditions specified in § 266.41(b)(2)(iii) is still allowed (even if used oil is listed as a hazardous waste.)

4. Burner Permitting and Corrective Action

The 1985 proposal required off-specification used oil burners to comply with the permit-by-rule provisions proposed for used oil recycling facilities. Many commenters stated that the permitting requirements were too burdensome for burners and would discourage the recycling of used oil as fuel. EPA is hence concerned that such a large outlet for used oil may be restricted. At the same time, EPA recognizes the need to provide for the safe handling of used oil and to control against possible releases during the storage of used oil. Therefore, EPA is proposing a limited set of requirements for used oil burners that will provide a necessary level of protection while minimizing the adverse impacts on the used oil fuel market.

In light of the fact that all used oils may not be classified as hazardous, EPA is proposing to apply the permit-by-rule provisions to burners, but with a reduced set of standards. These standards are as follows: (a) The tank storage standards would be the same as those discussed above for generators; (b) the burner would not be required to perform analyses for halogen content

and ignitability if that information is provided by the marketer; (c) EPA may require that a log indicating the dates, quantities, and types of used oil accepted for burning be maintained (as required for other types of recycling facilities); (d) reduced closure requirements, the unit specific closure requirements in part 265, subpart J would apply to burners, rather than the closure requirements proposed for the other types of recyclers; and (e) EPA may require biennial reporting for burners as discussed above for recycling facilities, especially when used oil fuel is accepted directly from used oil generators. Burners may also be subject to the same unit-specific corrective action/release response requirements as other recycling facilities. Therefore, requirements for burners relating to tank storage, analysis (if analytical results are provided by the marketer), and closure are less stringent than those requirements for other types of used oil recycling facilities.

To date, EPA has not proposed regulations covering technical burning requirements for used oil burners. Also, today's proposal does not add emission standards for devices that burn used oil for energy recovery. EPA requests comments and supporting data on emissions from used oil burners and the need for development of emission standards for burners as part of the Phase II requirements.

EPA requests comments on the reduced permitting standards including storage, analytical, and recordkeeping and reporting requirements for used oil burners of off-specification oil.

H. Facilities Using Distillation Bottoms or Baghouse Dust to Produce Asphalt Products

EPA does not generally view the residues from processing and re-refining of used oil as within the scope of section 3014. As discussed earlier in this notice, these residues may be subject to listings, characteristic determinations, and the hazardous waste management regulations under subtitle C. An exception, however, may be the use of distillation bottoms and baghouse dust to make asphalt products (e.g., road-paving material, roofing tiles, etc.). Re-refineries produce substantial amounts of distillation bottoms (approximately 21 million gallons annually) and EPA has been told that the revenues from the sale of these residues are important to the viability of re-refineries. To meet the statutory goal of a protective and viable used oil recycling system, EPA considers the use of distillation bottoms as an ingredient in asphalt products, where the starting material is used oil and it

becomes an integral part of the asphalt, to be within the scope of the universe of recycled used oils governed by RCRA section 3014. (See discussion in VII.A. of the notice.) Similarly, asphalt plants burning used oil as a fuel may incorporate baghouse dust from air pollution control devices used to control emissions from used oil combustion into asphalt products. This process also seems to be closely related to used oil recycling (i.e., it may be integral to the use of used oil as a fuel at asphalt plants) and so it may also be within the scope of section 3014 authority.

In 1985, EPA proposed a special exemption from the proposed used oil management standards for asphalt paving materials containing distillation bottoms from used oil re-refining or baghouse dusts from air pollution control devices used to control emissions from recycled used oil combustion. Persons using the distillation bottoms or baghouse dusts into the asphalt would have been regulated as used oil recycling facilities. EPA asked for comments on the hazards associated with these residuals and the need for controls over asphalt products made from used oil residues in the 1985 proposal. Very little information was received in answer to this request.

EPA may propose regulations for hazardous waste-derived products that are placed on the land (e.g., aggregates, asphalt, cement). Under such proposal, producers of hazardous waste-derived products may have to demonstrate that their products are no less protective than non-waste-derived products. EPA requests comment on whether such an approach is applicable to asphalt products derived from used oil residuals, or as an alternative, whether other means (i.e., a limit on the percentage of used oil that the asphalt can contain, or a leach test such as the TCLP, etc.) could ensure the safety of such products.

Finally, EPA is proposing a change from the 1985 proposal for the facilities that make asphalt using used oil residuals. Instead of regulating asphalt plants as used oil recycling facilities, EPA is considering regulating such facilities in a manner identical to that outlined above for burners of off-specification used oil fuels. EPA is considering regulating asphalt plants in the same manner as burners of off-specification used oil fuel because the Agency believes that the used oil is, in both cases, being used for its inherent characteristics (e.g., BTU value). These facilities would be subject to:

- Inspection and spill response for aboveground tank storage;

- The 40 CFR part 280 requirements for underground tank storage;
- Analysis and documentation of no mixing with hazardous waste (which the marketer of the residues may provide); and
- Recordkeeping associated with a collection log or invoice system.

These requirements would help ensure proper management of the used oil residuals prior to their incorporation into the asphalt. Facilities making such products would also have to obtain a permit by rule (i.e., as proposed for used oil burners).

Comments are requested on the appropriateness of including these residues in the scope of the section 3014 regulations and on the approach outlined above for regulating this type of recycling activity.

Road Oilers

In 1985, EPA proposed a ban on the use of used oil for dust suppression based on the premise that all used oils would be listed as hazardous waste. RCRA section 3004(l) prohibits the use of materials containing hazardous waste for dust suppression. As discussed previously in this notice (Section VIII.F.4), EPA is still considering using section 3014 authority to ban road oiling. Alternatively, EPA may allow some road oiling under certain conditions (e.g., when used oil is applied in compliance with the LDR standards and the disposal guidelines that EPA may develop in the future). If that is the case, EPA may subject road oilers to analytical requirements to document that the oil is safe for road application (e.g., testing each batch prior to use). In addition, EPA may regulate road oilers the same as recycling facilities, requiring compliance with the permit-by-rule provisions (including storage, closure, release response requirements, and recordkeeping and reporting) for their storage units. EPA requests comment on this alternative regulatory scheme to allow for limited road oiling. EPA also requests comments on what analyses will demonstrate that the used oil is safe for road application.

Disposal Facilities

In 1985, because EPA proposed to list all used oils, the disposal of used oils would have been regulated under subtitle C.⁴⁸ The approach currently

under consideration may not list or identify all used oils as hazardous, however. EPA is therefore considering special requirements (e.g., analyses, recordkeeping, and reporting) for disposal of nonhazardous used oils. The party intending to dispose of used oil must prove that it is non-recyclable before determining whether it is hazardous. For non-hazardous used oil disposal, EPA may develop disposal criteria under the authorities provided to the Agency under RCRA sections 1008, 3007, and 4005. RCRA authorizes EPA to provide technical descriptions of the level of performance that provides protection of public health and the environment and to provide minimum criteria defining those practices which constitute open dumping.

The options for disposal of nonhazardous used oil are discussed extensively in section VIII.E. The Agency requests comments on the appropriateness of codifying the chosen option in the new part 279, rather than in part 257 or 258 (relating to solid waste facilities).

The disposal guidelines developed by EPA could establish design and operation steps for:

- Controlling down-gradient migration of used oil or generation of oil plumes that could reach drinking water sources;
- Locating certain sites or designating/dedicating other sites as acceptable used oil disposal sites based on:
 - Simple site-specific factors such as soil type, annual rainfall, proximity to surface water and/or ground water sources, proximity to the nearest human population, and proximity to ecologically sensitive habitats (aquatic and terrestrial); or
 - Other site-specific prevention and detection measures.

X. Economic Impact Screening Analysis Pursuant to Executive Order 12291

Executive Order 12291 (46 FR 13193) requires that a regulatory agency determine whether a new regulation will be "major" and, if so, that a Regulatory Impact Analysis (RIA) be conducted. A major rule is defined as a regulation that is likely to result in one or more of the following impacts:

- (1) Annual effect on the economy of \$100 million or more;
- (2) A major increase in costs or prices for consumers, individuals, industries, Federal, State, and local government agencies, or geographic regions; or
- (3) Significant adverse effects on competition, employment, investment, productivity, innovation, or on the

ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

Consistent with Executive Order 12291, the Agency has completed a preliminary economic impact screening analysis for the regulatory options discussed in today's Supplemental Notice, including those pertaining to listing of used oil as a hazardous waste and related land disposal restrictions as well as the proposals for Phase I alternative management standards for used oil under section 3014 of the Used Oil Recycling Act.

The Agency's analysis suggests that the various management practices proposed for the storage, handling and effective tracking of used oil are similar to or the same as those required by other existing federal and State regulations or current business practices for most of the facilities in the industry segments potentially affected by the proposed rule. Because of this, although the total number of facilities that could potentially be affected by these standards is large (approximately 640,000 used oil generator, collector, transporter, processing, rerefining, marketing, and burning facilities), incremental costs to most of the affected facilities would be quite modest. Household "do-it-yourself" (DIY) used oil activity would not be regulated as such until after the oil enters the collection system.

The Agency's best estimate is that the range of likely annual costs of compliance with various combinations of the options being considered in today's Notice, including Phase I of the section 3014 management standards, imposing bans on road oiling and land disposal of used oil, and listing processor and rerefiner used oil residuals, would not much exceed \$60 million and could be less than \$10 million per year, depending on the combination of options selected for the final rulemaking. Thus, based on this cost screening analysis, the Agency does not believe that the regulatory options presented in today's preamble would constitute a major rule according to the first criterion of E.O. 12291.

Additional analysis of potential effects on individual sectors also leads the Agency to conclude that there would not be a substantial increase in costs or prices for consumers or a significant effect on international trade or employment, even if all options were implemented in their entirety. Certain of the listing options could have substantial effects on a small but significant segment of the recycling

⁴⁸ Used oil that is determined to be hazardous (by listing or because it exhibits one or more of the characteristics of a hazardous waste) must continue to be disposed in accordance with Subtitle C requirements.

industry. On balance, however, the Agency does not believe that today's proposed rule constitutes a major rule as defined by E.O. 12291.

Several elements of EPA's cost screening are, however, subject to uncertainty due to insufficient data. In addition, the Agency has not been able to evaluate fully the costs and recycle market implications of certain of the used oil listing options related to boiler and furnace markets for "derived from" used oil fuels or the listing of distillation bottoms on rerefiners' distillation asphalt product markets. The Agency therefore solicits additional data and comments pertinent to any aspects of this cost screening analysis, and, in particular, on the effects of the "derived-from rule" on processor fuel markets and effects of listing distillation bottoms on rerefiner asphalt markets and their implications for used oil recycling.

As stated above, based on work to date the Agency does not believe that any combination of today's proposed listing alternatives and/or management standard options would constitute a major rule requiring a Regulatory Impact Assessment under E.O. 12291. However, if EPA's further work or public review comments lead to substantial reassessment of this position, and depending on the options selected in the final rulemaking, the Agency will appropriately update the 1985 RIA in support of the final rulemaking.

The following paragraphs of this section lay out in greater detail the Agency's approach and findings from the economic impact screening analysis, as well as some background on the assumptions made to arrive at the cost estimates. For further detail, the reader is referred to the supporting technical background document "Cost and Economic Impact Screening Analysis for the 1991 Used Oil Proposal" available in the docket.

A. Scope and Approach for Impact Screening

1. Overview of Used Oil Generation and Management

Used crankcase oils and other used oils are a very common and pervasive byproduct of a highly mobile, industrial society. Every mode of transportation, every machine, and virtually every industrial process which relies on oil for lubrication, hydraulic fluid, insulation, or other processing generates used oil. For 1988 the Agency estimates that about 1.35 billion gallons of used oil was generated in the United States by households, and industrial and non-industrial generators. The Agency has also estimated that approximately

640,000 industrial and non-industrial generators, and several thousand collectors, handlers, processors, rerefiners, marketers and burners could potentially be regulated under various options included in this Notice. Household generators would not be regulated under any of the used oil regulatory proposals. Table X.A.1 presents in greater detail the variety of business sectors potentially subject to these regulatory options, including the total number of facilities estimated to be operating in each sector. The number of facilities in each sector potentially affected by various options discussed in today's Notice is discussed below.

TABLE X.A.1.—TOTAL NON-HOUSEHOLD FACILITIES HANDLING USED OIL IN 1990

Facility type	Total No. of facilities
Generators Total.....	640,413
Non-Industrial Subtotal.....	282,413
Service Stations.....	45,000
Repair Shops.....	100,000
New & Used Dealers.....	56,000
Fleets.....	72,500
Non-service Retailers.....	400
Air/Marine/RR.....	7,513
Public Collection Centers.....	1,000
Industrial Subtotal.....	358,000
Collectors/Transporters Total.....	383
<= 10 Days.....	345
> 10 Days.....	38
Processors and Rerefiners Total.....	186
Major Processors.....	112
Minor Processors.....	70
Re-refiners.....	4
Subtotal Facilities.....	640,982
Marketers not already counted ¹	?
Burners ²	?
Off-Spec.....	1,121
Space Heaters.....	60,000
On-Spec.....	?

¹ According to the Hazardous Waste Data Management System (HWDMS), 1,567 facilities marketing off-specification used oil have notified EPA of this practice. However, this figure includes collectors, processors, rerefiners and some generators. The total number of marketers not already counted remains unclear. Marketers of on-specification used oil may include any general fuel oil dealers, and are not regulated under this proposal.

² According to HWDMS, 1,121 off-specification burners of used oil have notified EPA of this practice. An additional 60,000 facilities are estimated to burn used oil for fuel in space heaters; however, used oil burned for this use is exempted from regulation under this proposal. Burners of on-spec used oil include general fuel oil customers, and are also not regulated under this proposal.

Used oil is currently managed to a substantial degree by an established recycling and reuse system of oil accumulation, collection, transportation, processing, rerefining and marketing to end users. In 1988, 70 percent or 949 million gallons of the used oil generated were recycled through the used oil management system of collectors, processors, and end users, or were reused on-site by the generators themselves; approximately 34 million

gallons were reused for the purpose of road oiling. Of the 1.35 billion gallons generated in 1988, 58 percent or 784 million gallons were burned for energy recovery, either on site by the generator space heaters or in industrial boilers, or off-site in boilers and furnaces, cement kilns, and diesel engines. At each stage of the process, used oil is accumulated and stored and may be subject to mismanagement in handling or storage. The Phase I management standards seek to safeguard against mismanagement of the used oil at each step in the process.

B. Section 3014 Management Standards for Recycled Used Oil

1. Background Assumptions and Regulatory Options Analyzed for Phase I Management Standards

The regulatory options analyzed for this cost screening analysis are those described previously in the preamble. For the purpose of conducting this screening analysis, the costs attributable to the alternative management standards are understood to apply to generators and handlers of used oil regardless of the decision to list all used oil or any subcategory of used oil as a hazardous waste. All used oils except those generated by households are presumed to be bound for recycling, and all non-household generators and other facilities could be subject to the Phase I Standards. However, most generators would be exempted under the small quantity generator exemption option discussed in sections VIII and IX of today's notice. Used oil not bound for recycling would have to be tested to demonstrate non-recyclability due to its physical characteristics (e.g., low heat content or high water content).

The Phase I alternative management standards for generators, handlers, processors and end users of used oil, as described earlier in today's preamble, would describe basic management practices for used oil storage, preparedness and spill prevention, spill response and cleanup, recordkeeping and reporting, and testing (for those facilities that want to dispose of their used oil). The individual requirements vary by facility type. In general, however, compliance costs for the affected facilities relate primarily to additional labor hours required to provide regular tank inspections, provide training, maintain records or compile reports.

Specific assumptions and features significant to the cost analysis are described briefly below:

- Storage requirements for drums and containers, above-ground tanks,

underground tanks, and surface impoundments apply uniformly to all non-household generators, collectors and transporters, processors, rerefiners, marketers, and burners. All such facilities are assumed to be required to apply "good housekeeping" standards of regular inspection of the tanks to ensure tank integrity, and clean up all drips and small leaks as soon as they are detected. In addition, all storage facilities are assumed to be required to label tanks as "used oil storage." Based on interviews with association and other industry representatives of each of the categories of facilities affected, we estimate that approximately 10 percent of generators and burners would require additional measures to comply with the storage and spill response requirements. However, used oil storage identification labels may be required at every facility and on every tank and storage container, since these labels are not common among either generators, or used oil processing or management facilities. Secondary containment for used oil collector and processor facilities has not been explicitly included at this time, but because of the Spill Prevention, Control, and Countermeasures program (SPCC), incremental costs are likely to be minimal.

- Spill response and cleanup standards would apply to all facility types in order to ensure that, in the event that a spill occurs, the spill be contained and cleaned up as rapidly as possible. It is assumed that any filled tank, container, or equipment would have to be drained of remaining oil and either repaired or replaced. With the exception noted below, costs for spill response and cleanup materials are assumed to be already accounted for at all or most facilities in the used oil generating and handling sectors as a matter of common business practice due to local fire code regulations and insurance requirements. Major spills that could involve the cleanup and removal of contaminated oils, pumping or treating of groundwater, or surface water oil containment are not addressed by today's proposal.

- Preparedness and prevention standards also apply to all facilities and are the same as those contained in 40 CFR subpart C and subpart D, including installation of an internal communications or alarm system, fire extinguishers, adequate water supply, and emergency training plans and procedures. We have assumed, based on interviews with industry representatives, that facilities in only two generator subcategories (non-service retailers and public collection centers) comprising less than one percent of all generators, will require additional measures for preparedness and prevention.

- Used oil tracking, recordkeeping and reporting requirements. All facilities, including generators, would be required to keep a record of used oil shipments and/or deliveries for a period of three years in the

form of a log. In addition, transporters would be required to initiate a separate paper tracking system of the used oil they handle, with information on both the origin and destination of the used oil. Transporters, fuel processors and rerefiners, and burners of used oil which fails to meet the fuel oil specification would be required to report biennially on the volumes of recycled products handled, by categories. We have assumed that all industrial generators and handlers and 97 percent of non-industrial generators already have standard business recordkeeping systems in place which could be supplemented or revised at no measurable incremental cost. For biennial reporting, we have assumed that all collectors/transporters, processors, and rerefiners would incur modest additional costs.

- Testing for generators (for BTU content, viscosity, total halogens, or water content) would be necessary only for that subset of generators who choose to utilize disposal options instead of recycling their used oil. We believe that only a very small portion of facilities would generate used oil that is characteristically non-recyclable. Accordingly, we have estimated that only 5 percent of industrial generators and an additional 5 percent of the air/marine/railroad non-industrial subcategory would be required to test for non-recyclability. No additional testing requirements are assumed for used oil management facilities.

- Permitting requirements are assumed to apply to all transporters, processors and rerefiners, as well as to marketers and burners of used oil fuel which fails to meet the existing used oil fuel specification standards, with such permits to be issued by rule at no cost. Hazardous waste co-management facilities, however, would be required to file for a modification of their existing Subtitle C permit, and would therefore incur a modest one-time cost.

2. Existing (Baseline) Regulations and Practices That Limit Incremental Impacts of Phase I Management Standards

The Agency estimates that only a small fraction of facilities storing, handling, and burning used oil will incur additional costs attributable to the Phase I Management Standard alternatives, because the administrative and other facility standards are already substantially in place due to other federal, State, and local requirements, and standard industry practices. The alternative management standards that are under consideration and described in today's Phase I proposal were developed to ensure that used oil is adequately stored and handled to protect public health and the environment while imposing a minimal burden on the existing used oil collection and recycling system. Since the storage, handling, and management of all wastes has become a major issue, many used oil facilities have

incorporated protective measures in response.

The alternative management standards proposed today incorporate or overlap with portions of three federal statutes already promulgated: The Underground Storage Tank rule (UST, 40 CFR part 280), the Spill Prevention, Control, and Countermeasures program (SPCC, 40 CFR part 112), and regulations and guidelines promulgated under the Occupational Safety and Health Act (29 CFR part 1910). Since the UST regulations have been incorporated in today's rulemaking to cover all underground used oil storage requirements for leak detection, containment, and spill response, today's rule imposes no additional requirements or costs attributable to underground storage.

In addition, the federal SPCC aboveground tank inspection and containment requirements substantially overlap today's storage regulations and effectively preclude additional burdens for large generators as well as collectors, processors, rerefiners, marketers, and burners that store oil above ground in tanks larger than 660 gallons or combinations of tanks and containers with aggregate capacity of greater than 1,320 gallons. SPCC is designed to protect against petroleum spills into navigable waterways; however, the statute has been broadly interpreted by the federal government as well as by the regulated sectors to apply to virtually all large facilities, regardless of geographic location. These requirements, described earlier in the preamble, stipulate management practices for storing and monitoring of oil in aboveground tanks, spill response and cleanup, and preparedness and prevention to an extent which we believe would require no additional compliance cost.

Finally, the requirements for worker training and protection against hazards in the workplace issued by OSHA, require training for workers engaged in the handling of hazardous materials, although the requirements are not specific to used oil facilities. Even if many or all categories of used oil are non-hazardous, used oil is typically generated in facilities where other hazardous materials such as degreasers, paint thinners, and other solvents are handled. We believe that preexisting OSHA-mandated training programs for other materials handled at used oil facilities can be expanded to include used oil handling considerations at no additional cost.

At the State level, seven States regulate used oil as a hazardous waste,

controlling the storage, handling and management of used oil. Four States (California, Missouri, Rhode Island and Vermont) have set the small quantity generator exception threshold low enough that hazardous waste management regulations cover even very small generators such as small service stations and community collection facilities. The other three States (Massachusetts, New Jersey, Oklahoma), have SQG thresholds high enough to exempt small generators, but do regulate other used oil management facilities. Depending on the States in question, we have assumed that no additional compliance costs for management standards are incurred by the covered facilities in these States.

At the local level, fire code regulations typically mandate equivalent physical preparedness and prevention equipment such as alarm or communications systems and spill absorbent materials. Also, on an individual facility basis, management guidelines stipulating "good housekeeping" management standards imposed by insurers are common among processors, marketers, and burners.

One additional factor may limit the incremental costs below what is presented here. As mentioned earlier, the majority of costs estimated for the management standards are labor- rather than capital- dependent. Some of the

labor requirements are so low (e.g. daily inspection time for storage) that the cost may be absorbed into the amount of "down time" of unallocated flexible time available in most businesses. They can also be absorbed by providing proper training and education to workers and emphasizing the need for inspection and cleanup to minimize the potential hazards to human health and the environment associated with used oil releases and spills and improper disposal.

3. Summary of Potentially Affected Activities and Facilities Under Phase I Management Standards With no Small Business Generator Exemption

After accounting for existing requirements and standard industry practices dictating storage, monitoring, and handling of used oil compelled by the provisions of UST regulations, SPCC program requirements, OSHA requirements and guidelines, existing state regulations, and local fire codes, and insurance requirements, only a much smaller subset of the total number of potentially affected facilities remains. Table X.B.1 shows that, of the total population of approximately 642,000 facilities potentially affected by Phase I management standards, approximately 60,000 will bear additional costs for storage measures, 1,200 for preparedness and prevention, 9,400 for tracking, recordkeeping and/or

reporting, and just over 18,000 for testing. The vast majority of these facilities are generators. Since permit by rule would be applied for the majority of used oil handling and recycling facilities except for used oil generators, no additional permitting cost is assumed in the majority of cases. However, additional permitting costs for permit modifications would be borne by approximately twenty rerefiners and other used oil processors that are currently permitted subtitle C co-management facilities.

The numbers of facilities shown in table X.B.1 assumed to incur additional costs are those facilities which have non-standardized regular storage inspections, have no OSHA training programs because no other hazardous materials are handled on site (as in the case of public collection centers and non-service retailers), do not keep records of the used oil transported off site, or are used oil generators, processors, or rerefiners who are required to test used oil before disposing of it (i.e. if the oil is not recyclable). Although collectors, transporters, and processors all have in place invoice and tracking systems as a matter of standard industry accounting and billing practice, they are not currently required to report the volumes of used oil picked up from generators, accumulated and processed on site, and delivered to end users.

TABLE X.B.1.—NUMBER OF FACILITIES ASSUMED TO INCUR INCREMENTAL COST WITH SMALL QUANTITY GENERATOR EXEMPTION

Facilities	Total No.	Storage standards	Preparedness and prevention standards	Spill cleanup response standards	Record-keeping tracking and reporting standards	Permitting standards	Disposal presumption testing standards
Generators	640,413	60,238	1,200	0	8,868	0	18,276
Transportation	282,413						
—with SQG Exemption		2,400	1,200		8,868		376
—without SQG Exemption		26,861	1,200	0	8,868	0	376
Industrial	358,000						
—with SQG Exemption		0	0	0	0	0	1,215
—without SQG Exemption		33,377	0	0	0	0	17,900
Collectors/Transporters	383	0	0	0	383	0	0
Processors/Re-Refiners	186	0	0	0	186	19	0
Marketers ¹	?	0	0	0	0	0	0
Burners ²	1,121	112	0	0	0	0	0
Total With SQG Exemption		2,512	1,200	0	9,437	19	1,591
Total Without SQG Exemption		60,350	1,200	0	9,437	19	18,276

¹ Marketers include general fuel dealers assumed to handle only specification fuel which are exempt from the Section 3014 Management Standards under today's Notice.

² Burners of off-specification used oil

³ Permitted hazardous waste co-management facilities will incur additional costs for modifying their Subtitle C permit.

For the facilities that do incur incremental costs, Table X.B.2 presents the annual cost per facility for each of the components of the management

standards. Generators are subject to the highest unit cost for these requirements. Additional detail on the numbers of affected facilities and unit cost of

compliance is available in the technical background documentation available in the docket.

TABLE X.B.2.—NATIONWIDE INCREMENTAL ANNUAL COSTS ATTRIBUTABLE TO SECTION 3014 MANAGEMENT STANDARDS

Sectors	Storage ¹	Spill preparedness and prevention	Spill response	Tracking/recordkeeping and reporting	Permitting	Testing	Overall cost
Generators	\$18,071,280	\$154,440	\$0	\$422,028	\$0	\$5,555,904	\$24,200,000
Non-Industrial	8,058,180	154,440	0	422,028	0	114,304	8,750,000
Service Stations	2,966,580	0	0	0	0	0	2,970,000
Repair Shops	2,197,500	0	0	0	0	0	2,200,000
New & Used Dealers	246,000	0	0	0	0	0	246,000
Fleets	2,360,400	0	0	374,438	0	0	2,730,000
Non-Service Retailers	0	51,480	0	0	0	0	51,500
Air/Marine/Railroad	137,700	0	0	9,518	0	114,304	262,000
Public Collection Centers	150,000	102,960	0	38,072	0	0	291,000
Industrial	10,013,100	0	0	0	0	5,441,600	15,500,000
Collectors/Transporters	0	0	0	99,275	0	0	99,300
Processors/Re-Refiners	0	0	0	92,870	≈ 50,000	0	143,000
Marketers	0	0	0	0	0	0	0
Burners	33,600	0	0	0	0	0	33,600
Total ²	18,100,000	154,000	0	614,000	50,000	5,560,000	24,500,000

¹ Storage costs for labels will be borne by all facilities. Annualized at approximately 50 cents per year, labels add approximately \$300,000 to the total cost.
² Permitted hazardous waste co-management facilities will incur additional costs for modifying the Subtitle C permit.
³ Totals are rounded to three significant digits.

Table X.B.3 provides the Agency's best present estimates of the total incremental costs, by sector, for each of the Phase I Management Standards discussed in relation to today's proposed rule. In the absence of a small business generator exemption, the Agency's best estimate is that today's proposed Section 3014 Management Standards would result in a total annual compliance cost of approximately \$25 million.

TABLE X.B.3.—ANNUAL COSTS PER FACILITY FOR FACILITIES ASSUMED TO INCUR COSTS AS A RESULT OF SECTION 3014 MANAGEMENT STANDARDS

[Dollars per year]

Sectors	Storage	Preparedness & prevention	Tracking/recordkeeping & reporting	Permitting	Testing
Generators:					
Transportation	\$300	\$129	\$48	\$0	\$304
Industrial	300	0	0	0	304
Collectors/transporters	0	0	259	0	0
Processors/re-refiners	0	0	407-555	10	0
Marketers	0	0	0	0	0
Burners	300	0	0	0	0

¹ Approximately 20 already permitted hazardous waste co-management facilities will incur a one-time permit modification cost for modifying their Subtitle C permit. This could amount to as much as a few thousand dollars per year on an annualized basis.

The greatest part of this cost is attributable to additional inspection requirements for used oil storage at generator facilities. The next highest cost is for testing used oil for the small percentage of industrial facilities that would test to be able to dispose of their used oil under the rebuttable assumption for disposal, estimated at approximately \$5.6 million. As a sector, industrial generators are estimated to bear the greatest costs, with an annual cost of \$15.4 million. Together, industrial and non-industrial generators combined bear over 90 percent of the total cost of compliance with the proposed management standards.

Allowing a small quantity generator exemption changes both the total cost and the distribution of the cost of Phase I of the management standards significantly. As Table X.B.3 shows,

total compliance costs for the management standards drops from \$24.5 million to \$2.1 million when a SQG exemption is included.

4. Summary of Potentially Affected Facilities Given a Small Business Generator Exemption

The original 1985 proposal included an exemption from management standards for small quantity generators (SQG). Today's proposal also discusses two SQG options, based either on oil generation of less than 1,000 kg/month (about 280 gallons) or based on storage capacity equivalent to the SPCC minimum for above ground storage. Because of data limitations, we were able to analyze only the 1,000 kg limit.

The net effect of exempting facilities generating less than 1000 kg/month of used oil would be to significantly reduce the number of industrial and non-

industrial generators affected by the management standard requirements. The Agency believes that 91 percent of the non-industrial generators and all of the industrial generators that would bear additional storage requirements (shown in Table X.B.1) would be eliminated, leaving only about 2,400 generators and 112 used oil fuel burners with additional storage costs.

The Agency estimates conservatively that the generator facilities bearing additional compliance costs for preparedness and prevention, tracking, and recordkeeping would remain unchanged, as would the number of non-industrial generators required to test. The number of industrial facilities that would be exempted from testing requirements is also significant. The Agency estimates that 93 percent of otherwise affected industrial facilities

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would be exempt, leaving about 1,200 industrial facilities with additional testing requirements, and reducing total compliance costs for generators to about \$1.2 million per year from over \$24 million per year.

C. Listing and Related Land Disposal Options

Today's Notice discusses several listing and related land disposal regulatory options. These proposals range from listing all used oil as a RCRA hazardous waste (the 1985 proposal) to listing specific waste oil type/sources (internal combustion crankcase, for example), to not listing any used oils (and relying on section 3014 management standards and the Toxicity Characteristics Rule to assure proper management). Related to these is the possibility of imposing a ban on any direct land applications of used oil (road oiling, landfill, surface impoundment, land farming). In addition, and separate from the above, is a proposal to list four categories of used oil processing residuals as RCRA hazardous wastes, including a sub-option to regulate rerefiner distillation bottoms sold as an asphalt extender as a section 3014 recycled used oil product, similar to off-specification used oil fuel, rather than as a listed hazardous waste.

All of these options and alternatives involve various and complex implications for direct compliance costs of waste management as well as potential indirect market repercussions on the oil recycling sectors. The Agency has not evaluated all the individual options separately in detail. However, we have evaluated what we believe to be the major economic cost aspects of these options under the following 5 headings:

- Road oiling ban effects
- Land ban effects
- Effects of listing processing residuals (excluding the special case of distillation bottoms)
- Effects of regulating distillation bottoms, either as a hazardous waste or as a recycled used oil product.
- Combustion residuals "derived-from" burning listed used oil fuels.

The Agency has estimated the direct costs of each of these possible regulatory approaches, as discussed in the following paragraphs.

1. Ban on Road Oiling

For the purpose of this cost screening analysis, we have assumed the extreme case that spreading used oil on roads for the purpose of dust suppression or for any other purpose would be totally banned, either as an outcome of listing all used oil as a hazardous waste or as a

separate banned activity. EPA has previously estimated that 33 million gallons of used oil was used as a dust suppressant in 1988. At the time, 18 states prohibited this practice. Since then, the number of states prohibiting its use has climbed to 28 and these states include 60 percent of the population. An additional 15 states regulate this application of used oil. Given this change, EPA now believes only 24 million gallons of used oil is used for road oiling. Thirteen million gallons are used by firms that are paid to provide this service (i.e., commercial road oilers). The remaining 11 million gallons are used on-site by generators.

EPA believes that much of the generator road oiling is designed to provide an inexpensive disposal option for the generator. It is likely that if road oiling were banned, these generators would simply divert the oil into the used oil management system and pay collectors (if necessary) to pick-up the oil.

Commercial road oilers, however, will still be called upon to provide their services and will utilize alternative dust suppression materials. Based on discussions with highway departments, public works officials, and general contractors around the country, EPA believes that the most common alternative to used oil would be water. In some places, salts such as calcium chloride may be applied, particularly in cold weather, but this is a relatively expensive alternative.

To estimate total costs associated with a ban on road oiling, we have assumed that generators or collectors simply divert the oil from road oiling into the used oil recycling system and incur no incremental costs for dust suppression. Currently, prices paid for used oil for recycling are very close to \$0 (i.e., the generator neither pays nor is paid for used oil), although considerable regional variation exists. Therefore, as a national average, we have assumed no incremental management costs, either. As a best estimate, commercial or public sector road oilers that continue to provide dust suppression services are assumed to replace half of their used oil with calcium chloride and half with water. At this substitution rate, the total Nationwide annual cost would be \$7.4 million per year for 13 million gallons per year of diverted used oil. To show the sensitivity of the estimate to this assumption, the annual cost would range between \$3.7 million and \$11.1 million if the replacement fraction were 25 percent salts or 75 percent salts, respectively. Again, these estimates assume no incremental cost for generators, who divert their oil into the

used oil management system at an average price of \$0.

2. Ban on Land Disposal

Today's notice also discusses the possibility of banning the land disposal of any used oil (equivalent to listing at the point of disposal). Since residuals from fuel processing and rerefining would be separately listed as hazardous wastes (discussed below), only oil land disposed by industrial and other non-household generators would be directly affected by this provision. In 1988, 71 million gallons of used oil was land disposed by industrial generators and 6 million gallons by non-industrial generators. Used oil illegally dumped by generators or collectors was assumed to be unaffected by this provision. Some of the legally-disposed oil was disposed in States that have listed used oil as a hazardous waste. Based on populations residing in those seven States, 18 million gallons (21 percent of the used oil) would thus already be precluded from land disposal because of State regulations. In addition, some of the oil is hazardous under the Toxicity Characteristic Leaching Procedure (TCLP) and would already be legally required to be managed as a hazardous waste. Based on sampling data provided earlier in the preamble, about 20 percent of industrial samples and 50 percent of transportation engine samples tested exhibited the toxicity characteristic. Allowing for these two factors, the Agency estimated the adjusted total quantity of land disposed oil that would be newly subject to Subtitle C disposal by the proposed land disposal ban (or as a result of hazardous waste listing) at about 46 million gallons (175 thousand tons).

We can approximate the current disposal cost for this oil based on typical subtitle D disposal costs of approximately \$30 per ton or \$0.12 per gallon. If the oil were recyclable, we assumed that collectors would charge \$0.30 per gallon to pick it up (a high current price for collection for recycled used oils, to allow for possible smaller quantities and/or longer haul distances). This would result in an incremental cost of \$0.18 per gallon to recycle the oil instead of dispose of it. Alternatively, some fraction of this oil may not be recyclable by used oil processors using conventional oil cleaning technologies and would have to be sent to a hazardous waste treatment facility such as a cement kiln, at an average price of \$1.00 per gallon (\$240 per ton drummed waste). The latter alternative implies an incremental disposal cost of \$0.88 per gallon over the current baseline.

To compute a range of total National compliance costs for the ban on land disposal of used oil, the Agency assumed three scenarios. For the lower bound, all 46 million gallons are assumed directly recyclable at an incremental cost of \$0.18 per gallon over current subtitle D practices, for a total of \$8.3 million per year. As a reasonable upper bound, we assumed that half of the oil was recyclable (at \$0.18) and half was sent to hazardous waste treatment or recovery at an incremental cost of \$0.88 per gallon, yielding a cost per year of \$24.4 million. For a more reasonable scenario, we assumed that only 25 percent of the disposed oil was sent to a cement kiln for energy recovery, and 75 percent to the recycling system, for a best estimate of incremental national cost of \$16.3 million per year.

3. Listing Processing and Rerefining Residuals

This Supplemental Notice identifies four waste streams resulting from used oil processing that are proposed to be listed as hazardous wastes. These include residuals from separation processes (K152), spent polishing media (K153), distillation bottoms (K154), and residues from oil/water/solids separation in wastewater treatment (K155). To the extent that these residuals are not reused onsite or already recycled or disposed of as hazardous wastes, the processors or rerefiners would incur incremental management costs as a result of the listing. This section considers all of these residuals except distillation bottoms which are addressed separately in the next section.

The quantity of residuals produced by facilities in the used oil management system varies dramatically with the type of oil handled and the processes used. Many facilities report generating no residuals since their tanks are routinely pumped dry and any settled material is blended with the oil and is ultimately burned as fuel. At the same time, processors of certain types of industrial oil may extract and dispose of a substantial amount of solids (3 to 5 percent of dry oil weight) from the oil they process. Also, based on the literature and interviews with companies and industry associations, many facilities already manage or market these residuals as hazardous waste, even in states where used oil is not already listed as a hazardous waste.

To estimate the total quantity of processing residuals (other than distillation bottoms), we applied an average residuals generation rate to the flow of oil into the used oil management system. According to EPA estimates, 770

million gallons of used oil was handled in the system in 1988; 21 percent was handled in states where used oil is already a hazardous waste, leaving 608 million gallons. We applied a range of average residual content estimates of between 0.5 percent and 1 percent of the oil based on currently reported actual experience at used oil management facilities. The resulting range of estimated national residual generation is 3.0 million gallons to 6.1 million gallons per year. As a final adjustment, we eliminated from consideration the share of estimated residuals attributable to the Breslube plant in Ontario, which rerefines approximately 4 percent of all oil entering the used oil management system and which would not be subject to U.S. regulations. After the 4 percent reduction the estimated range of residuals is 2.9 million gallons to 5.9 million gallons per year, not including distillation bottoms.

For the lower bound cost, we assumed that 75 percent of these residuals are currently managed as hazardous wastes and would thus have no incremental compliance cost attributable to the proposed option. Incremental costs would apply to only 0.73 million gallons of residuals (25 percent of 2.9 million gallons). Virtually all of the processors and rerefiners contacted reported that their residuals were already handled in cement kilns or hazardous waste landfills. For the upper bound cost, we assumed that only 25 percent of the residuals are already managed as hazardous waste, so incremental costs are based on the remaining 75 percent of 5.9 million gallons (the upper bound volume), or 4.4 million gallons of residuals per year.

The waste management options for these residuals are assumed to be used as fuel in a cement kiln or disposal in a hazardous waste landfill depending on waste heat value characteristics. The price for drummed material at cement kilns is set at \$1.00 per gallon (see note 5); taking away the cost of Subtitle D land disposal leaves an incremental cost of \$0.88 per gallon. This price is applied to the total estimated quantity of residuals in the lower bound for a national cost of \$0.64 million (0.73 million gallons at \$0.88 per gallon).

For the upper bound cost, we assumed that only half of the residuals would be sent to cement kilns with the remainder going to hazardous waste landfills. Based on estimates received from several used oil processors, we used a disposal price of \$200 per drum or about \$3.60 per gallon for disposal in hazardous waste landfills. Subtracting the baseline disposal cost of \$0.12 per

gallon leaves an incremental cost of \$3.48 per gallon. The average management cost for the upper bound is therefore \$2.18 per gallon (the average of \$0.88 and \$3.48). Applying this average price to the upper bound residuals estimate of 4.4 million gallons yields an upper bound annual cost of \$9.6 million.

The midpoint and best estimate is \$5.1 million per year. The wide range of costs reflects uncertainty over the quantity of residuals generated, the costs of current management practices, and the costs of alternative, hazardous waste management.

4. Regulation of Used Oil Distillation Bottoms

One of the residuals proposed for listing is distillation bottoms from used oil rerefining. The proposal also discusses regulating distillation bottoms used in asphalt production as recycled used oil. Because of the substantial revenue value of these distillation bottoms to used oil rerefiners, any regulation on the uses of these bottoms will have economic consequences.

Through phone interviews with industry members, we identified five rerefining facilities that currently process used oil originating in the U.S., using distillation technology and marketing the distillation bottoms as asphalt flux. Based on current practices, these five rerefineries produce about 26 million gallons of asphalt flux per year from 114 million gallons of dry used oil.⁴⁹ One rerefiner is a Canadian operation, Breslube, which would not be subject to these restrictions if the asphalt were sold in Canada. As it produces about 20 percent of this asphalt flux, the cost estimates are based on only 21 million gallons of distillation bottoms.

The facilities interviewed estimated the average price received for these bottoms at about \$0.30 per gallon, as sold to paving and roofing asphalt plants near the rerefineries. The asphalt flux from used oil is sold at a price discount relative to primary refinery asphalt, and it could be easily replaced with virgin materials by the market.

a. Option 1: Distillation Bottoms Listed As Hazardous Waste. Under the first option, if the distillation bottoms were subject to hazardous waste management (either through listing or regulation of waste-derived products), rerefiners would be adversely affected.

⁴⁹ Four of the five plants produce an average of 15 percent asphalt, emphasizing the production of base lube stock. The fifth facility uses a slightly less complex distillation process and produces just over 50 percent asphalt flux and very little base lube.

To estimate worst-case, short-run impacts, we assumed that the residuals would all shift from a revenue generating product to a waste burned as fuel in cement kilns. As an asphalt extender product, rerefiners currently receive about \$0.30 per gallon. The price for bulk shipments of this type of material as a hazardous waste at cement kilns is approximately \$0.30 per gallon. The net price differential to rerefiners under this worst-case scenario would thus be approximately \$0.60 per gallon, or an annual revenue loss of about \$13 million across these four domestic rerefiners.

This estimate overstates the real resource cost associated with this option, however, because the material still has substantial fuel value: The cement kilns would be receiving a valuable fuel source and would be paid to take it. Most of the \$0.60 per gallon price swing would thus represent a transfer of wealth from the rerefiners to the cement kilns, but not a real resource cost. Whether rerefiners could continue to survive under this extreme case is questionable.

The low-cost scenario assumes that the asphalt plants that purchase the distillation bottoms continue to accept them, but do so as hazardous waste recycling facilities. This would require these companies to incur permitting and other costs to bring them into compliance with subtitle C standards. We estimated that these four rerefineries might serve, at most, 30 asphalt plants. At a compliance cost of about \$30,000 per year per asphalt facility, the total cost for this option would be approximately \$1 million.⁵⁰ This scenario assumes that this \$1 million would be passed back to rerefiners as a lower price received for the bottoms, although rerefiners could experience a market price reduction greater than the costs incurred by the asphalt plants.

The most likely estimate falls somewhere between these two boundary scenarios. Since asphalt plants have a ready substitute for distillation bottoms (virgin asphalt), they could easily shift away from these materials, although at a slightly higher cost. Because the distillation bottoms from rerefiners account for such a small share of total supply, however, the effect on the paving or roofing markets would

⁵⁰ This estimate is very rough and was developed for illustrative purposes only. It assumes initial subtitle C treatment facility permitting costs of \$100,000 for a previously unpermitted asphalt plant and annual costs for financial responsibility, reporting, and other requirements of about \$15,000 per year for an annualized total cost of \$30,000 per facility.

be negligible. Some rerefiners could make arrangements with cement kilns or other facilities permitted to burn hazardous waste and still earn something for the residuals (i.e., instead of facing a loss of \$0.60 per gallon, reduce the loss to \$0.20 or \$0.30). Finally, rerefiners could alter their processes somewhat to produce fewer bottoms and change the characteristics of their other products. As a most likely cost estimate for this option, we chose the midpoint between the bounds: an annual cost of \$7 million. The midpoint still represents a relatively high cost—about 8 cents per gallon of dry oil throughput at the four rerefineries, on average.

b. *Option 2: Distillation Bottoms Regulated as Recycled Used Oil.* Under this option distillation bottoms would be regulated as a recycled used oil product. The bottoms could still be sold if the asphalt purchasers complied with the Phase I management standards appropriate for other purchasers of recycled used oil products (i.e., purchasers of off-specification used oil fuel). This option would impose lower costs than Option 1 and would not result in the large transfer payments from rerefiners to hazardous waste management facilities.

To estimate costs under this option, we used compliance costs for burners of off-specification used oil fuel as a proxy for asphalt plant compliance costs. As shown in the facility cost summary in chapter IV (Table IV-1) the annual cost for burners would be no higher than \$1,200 per facility. With approximately 30 asphalt plants affected, the incremental national cost would likely be less than \$40,000. (If each rerefiner marketed to only one or two asphalt plants, aggregate nationwide costs would be less than \$10,000 per year on an annualized basis).

5. Residuals Derived From Burning Used Oil

EPA has proposed several options for listing all or some categories of used oil. If any used oil were listed as hazardous waste, any other oil mixed with it and any residual "derived from" treating or burning it would also be a hazardous waste (40 CFR 261.3(c)(2)). The economic consequence of this issue is its effect on burning, the major end use of recycled used oil. Any air pollution control or other ash or sludge produced from the combustion of this oil (and all fuels mixed with it) would become hazardous waste.

The total quantity of used oil fuel and resulting ash that might be subject to incremental costs as a result of the derived from rule is difficult to estimate.

EPA has estimated that in 1988 about 680 million gallons was burned in boilers and furnaces which would produce ash. Much of this oil meets the fuel specification described in 40 CFR part 266 and would therefore be exempt from any further regulation as long as current part 266 requirements were observed. Further, some of this oil is burned in States where used oil is a hazardous waste already, so no incremental cost would be attributable to this proposal in those States. Finally, some of the ash may fail the TCLP and be subject to hazardous waste regulations because of its characteristic toxicity, although we have not factored this into an quantitative estimates.

Based on the best available information, we calculated a rough estimate of the oil and residuals that might incur additional cost as a result of listing. Overall, 79 percent of the 682 million gallons burned (or 539 million gallons) was burned in States where used oil is not already a hazardous waste. At most, 36 percent of this oil would fail the specification or a total of 194 million gallons, based on earlier 1985 estimates of average specification levels. The ash from this quantity of oil would be about 9,900 tons per year (51 tons per million gallons burned times 194 million gallons of off-specification used oil burned) which is certainly an overestimate for three reasons:

- A far smaller fraction of used oil fuel would fail the specification today because of lower lead levels and improved process or quality control.
- All ash is assumed to be captured.

A more reasonable estimate would be that only 54 million gallons (10 percent of the 539 million gallons) currently fails the specification, producing 2,800 tons of ash per year (51 tons per million gallons times 54 million gallons). For a lower bound, we assumed all fuel could meet the specification so that no residuals would be handled as hazardous wastes. Given that additional blending with virgin fuel oils might be required to achieve this, some small cost would be incurred by marketers or burners, but we have assumed this cost to be negligible.

As a hazardous solid waste, the ash would require stabilization and landfilling in a subtitle C landfill. A typical commercial price for stabilization and disposal is \$400 per ton. The current disposal in subtitle D landfills is assumed to cost \$30 per ton, so the incremental cost would be \$370 per ton.

The annual national cost of managing this ash as hazardous waste would be approximately \$1.0 million in the most

likely scenario, which assumes that 10 percent of used oil fuel would fail the fuel specification (2,800 tons of ash at \$370 per ton). The upper bound annual cost would be \$3.7 million (9,900 tons at \$370 per ton) and the lower bound would be approximately \$0. Of course, if no used oils were listed as hazardous wastes or if residuals were exempt from the derived from rule, all costs would be eliminated.

Several other factors could also reduce the incremental cost associated with this option. First, burners may be exempt from hazardous waste management costs for ash as a result of the small quantity generator exemption. Given an ash generation rate of 51 tons per million gallons of used oil burned (at an average blending rate of 60 percent virgin oil to 40 percent used oil), a facility would have to burn about 50,000 gallons of blended fuel per month to generate 1,000 kilograms (one ton) of ash. Second, fly ash from use of used oil fuel recycled at asphalt plants may also be exempt from hazardous waste regulation under another option in this proposal. If this were the case, asphalt plants, which account for a substantial share of off-specification fuel use, might incur no incremental cost from this provision. Third, a significant fraction of used oil fuel may be burned at facilities that also burn hazardous waste already, so the ash would already be subject to hazardous waste management. Fourth and finally, the Bevill Amendment to RCRA (56 FR 7196 et seq.) allows for exemption from hazardous waste regulation certain ash from boilers and furnaces burning fossil fuels. Cement kilns, industrial furnaces, and coal-fired boilers that use virgin fuel for more than half of their fuel can self-exempt their ash from hazardous waste management subject to testing of the ash. All of these factors would reduce the costs attributable to this option.

D. Summary of Costs and Economic Impacts

The total national cost estimates for each of the components of the proposal and the proposal in aggregate, including all listing options, indicate the proposal is not likely to constitute a major rule. Similarly, the results of a screening analysis of economic impacts on specific industry sectors indicate that per-facility costs will be \$0 for most facilities. For the majority of facilities that do incur costs, they will typically pay on the order of several hundred dollars per year, with a small number of larger, more complex, facilities experiencing compliance costs of up to several thousand dollars per year, depending on regulatory option scenarios. The

principal exception is the possibility of larger effects on at least some narrow segments of the used oil processing and refining sectors under the proposals to list various processing residuals.

1. National Costs

Table X.D.1 presents the Agency's total national cost estimates for each of the component parts of the cost screening analysis: the Phase I management standards, road oiling and land disposal bans, and costs associated with listing processing residuals, distillation bottoms, and residuals derived from burning used oil. Using the "most likely" cost estimates from previous sections, the Table shows the costs for each component part of the proposal with and without a small quantity generator exemption for the 3014 management standards, and arranges the cost components into three possible regulatory scenarios for the supplemental proposal as a whole.

TABLE X.D.1.—TOTAL ANNUAL COST OF PHASE I MANAGEMENT STANDARDS AND LISTING OPTIONS

(Dollars in millions)

	With SQG exemption—best estimate	Without SQG exemption—best estimate
(1) Phase I Mgmt. Standards.....	2.1	24.5
Listing/Ban Options.....		
(2) Road Oiling Ban.....	7.4	7.4
(3) Land Disposal Ban.....	16.3	16.3
Subtotal: Bans.....	23.7	23.7
Other Listing Costs.....		
(4) Listing Residuals (K152, K153, K155).....	5.1	5.1
(5) Listing Asphalt Distillation Bottoms (K154).....	7.0	7.0
Subtotal: Residuals Listing.....	12.1	12.1
(6) Listing "Derived-from" Fuel Combustion Residuals.....	1.0	1.0
Subtotal: Other Listing Costs.....	13.1	13.1
A. Alternative Scenario A All Options (1) thru (6).....	38.9	61.3
B. Alternative Scenario B Phase I + Bans + List 3 Process Residuals (1) thru (4).....	30.9	53.3
C. Alternative Scenario C Phase I + List 3 Process Residuals (1) and (4) only.....	7.2	29.6

If the most stringent scenario for the rule were adopted (Scenario A), imposing Phase I management standards, banning land disposal and road oiling, listing process residuals, distillation bottoms, and residuals derived from burning used oil, with no exemption for small quantity generators,

we estimate the total annual cost for the proposal would be \$61.3 million.

Exempting small quantity generators would reduce the annual cost by more than one third, to a total of \$36.9 million.

The least comprehensive combination of these options (Scenario C) would involve promulgation of only the Phase I management standards and listing of processing residuals (except distillation bottoms). In this case, the incremental cost per year would be \$29.6 million with no small quantity generator exemption and \$7.2 million with the exemption.

The actual costs will be determined by the mix of options selected for promulgation. Several assumptions that affect the magnitude of the estimates are important to reiterate at this time. First, the options that involve land disposal (listing processing residuals, distillation bottoms, and derived-from ash) were costed out assuming compliance with BDAT for the disposed materials, even though BDAT is not yet established for these wastes. Some other form of hazardous waste disposal that is less expensive may be appropriate for some of these residuals, so our cost estimates may be overstated somewhat. Similarly, some of the costs, especially for distillation bottoms, reflect private, not social, costs. Transfer payments between refineries and hazardous waste management facilities do not represent social costs, but rather a redistribution of income.

2. Facility- and Sector-Specific Costs

Table X.D.2 summarizes the incidence of section 3014 management standard costs as well as the listing and related land disposal options discussed in the previous sections. Because typical facilities handle relatively small volumes, the generator sector may include a small proportion of facilities that would incur high costs. First, however, we should reiterate that over 90 percent of the generators would incur no incremental costs as a result of the management standards. (If generators smaller than 1,000 kilograms per month were exempt from the regulation, approximately 99 percent of the generators would incur no incremental costs.) For those generators that do incur costs, the annual facility costs for management standards range from \$129 to \$652. The transportation-related generators that face the maximum cost of \$652 for management standards include larger transportation installations, such as aircraft/marine/railroad facilities, that incur costs for storage inspections, recordkeeping, and testing to allow disposal of some used

oil. These are large facilities that would not be significantly affected by costs of this magnitude.

All other affected generators (mostly automotive services) incur management standard costs of less than \$500 per facility per year, and over two-thirds of

these incur costs for storage inspections and labeling only (\$300 per year). Given the diversity of the generator population, it is difficult to assess the impact of a \$300 cost. For transportation-related generators such as an automobile dealership or a fleet operator, the costs

would likely be insignificant. For a small machine shop, however, the costs could be somewhat more important. The incidence of these impacts is very infrequent, however, relative to the size of the overall population.

TABLE X.D.2.—INDIVIDUAL FACILITY COMPLIANCE COST RANGES PER FACILITY AND PER GALLON

	Total facilities	Total affected facilities ^(a)	Range of Annual Cost Per Affected Facility						Total Range across all affected facilities	Worst-case cost per gallon
			Management standards	Ban land disposal	List process residuals	Regulate distillation bottoms		Burning residuals		
						Option A	Option B			
Generators:										
Transportation	282,400	28,400	\$129-\$652	\$830	NA	NA	NA	NA	\$129-\$1,480	\$0.630
Industrial	358,000	59,700	300-604	\$550	NA	NA	NA	NA	300-1,150	0.737
Indep.Collectors/Transporters.....	383	383	259	0	\$1,700	NA	NA	NA	1,960	0.007
Processors:										
Minor	70	70	407-2,907	0	5,700	\$0	\$0	\$0	6,100-8,600	0.009
Major	112	112	555-3,055	0	29,000	0	0	0	29,600-32,100	0.006
Rerefiners.....	4	4	555-3,055	0	120,000	1,700,000	8,000	0	129,000-1,820,000	0.087
Burners (Off-Spec).....	1,121	1,121	300	0	0	0	0	900	300-1,200	?

Notes:

^(a) Facilities may be affected by one or more cost elements.

¹ Estimates refer to most-likely scenarios for listing and related options.

² Management standard range for processors and rerefiners assumes annualized cost of permit modification of \$2,500 for 10 percent of these facilities.

³ Rerefiner estimates exclude Breslube facility in Ontario.

Two categories of used oil generators may also bear additional costs for disposal with the imposition of a ban on land disposal of used oil: Air/marine/railroad facilities and industrial facilities who test and dispose of the oil due to non-recyclability. If a ban on land disposal is included as a part of the final rule, those air/marine/railroad facilities testing and disposing the oil on land would face additional costs of up to \$830 per facility; industrial facilities testing and disposing of the oil on land would face additional costs of up to \$550. Since both of these facility types are characteristically large facilities, the additional cost is not expected to have a significant impact on operations.

For the independent collector/transporters, fuel processors, rerefiners, and burners, the incremental costs of the management standards are very small given the scale of the operations. The most significant costs result from costs to modify permits at 10 percent of the processors and rerefiners that co-manage hazardous waste with used oil. The other facilities all face very low compliance costs for these management requirements. The regulatory options to list or regulate processing and rerefining residuals may in certain instances have larger impacts, especially under the listing option for distillation bottoms (Option A). The annual facility costs range from \$1,700 for collectors (if process residuals are listed) to \$1.7

million per rerefiner if all residuals including distillation bottoms are listed as hazardous wastes.

In general, the impacts on most individual used oil management facilities are limited since they typically handle between 300,000 gallons of used oil per year (independent collectors) up to a few million gallons (most fuel processors). The facility costs in the Table imply costs of less than 0.1 cents per gallon of used oil handled by collectors and fuel processors. If distillation bottoms are regulated as a hazardous waste (Option A), rerefiners (which typically handle 10 to 40 million gallons per year of used oil and produce 1 to 10 million gallons distillate bottoms) could face a significant loss of revenue from the sale of these materials (nearly 9 cents per gallon of used oil throughput, worst case). (As noted above these lost revenues largely represent private transfer payments from rerefiners to hazardous waste management facilities rather than direct social costs of compliance.) This increase would be large enough to affect the rerefiners' operating margins and their ability to compete for used oil in the marketplace.

Burners of off-specification fuel also handle large quantities of used oil. A typical asphalt plant burning oil might use 150,000 gallons of used oil as fuel each year, so an incremental fuel cost of up to \$1,200 would be insignificant compared to the total fuel bill. The

\$1,200 cost would be less than \$0.01 per gallon of used oil purchased. Given that the used oil is blended with other fuels, the cost per gallon of fuel would be still lower.

Even though direct social costs may be somewhat overstated in Table X.D.2, these transfer payments and other costs imposed on used oil recyclers and end users may have indirect effects on the markets for used oil. In the case of rerefiners in particular, the cost of compliance with the Option A listing scenario for distillation bottoms could adversely affect the rerefining sector compared to other end-use markets (e.g., burning). Any requirements which increase operating costs for used oil recycling facilities, whether they are collectors, processors, burners, or rerefiners, have the potential to raise the price that generators must pay to have their used oil collected.

Therefore, this proposal has the potential to alter the mix of end-use markets to which used oil flows by affecting rerefiners more than processors. It may also change the quantity of oil that is recycled, by raising prices paid by generators for collection. As shown in Table X.D.2, however, the overall costs are quite low for most facilities so the effect on the overall market for used oil is expected to be minimal.

XI. Regulatory Flexibility Analysis

The Regulatory Flexibility Act (RFA) of 1980 (Pub. L. 96-345), which amends the Administrative Procedures Act, requires Federal agencies to consider "small entities" throughout the regulatory process. The RFA requires, in Section 603, an initial screening analysis to be performed to determine whether a substantial number of small entities will be significantly affected by the regulation. If so, regulatory alternatives which eliminate or mitigate the impacts must be considered.

Based on employment or sales, the vast majority of all used oil generators, collectors, and processors are small businesses; rerefiners and burners are rather less likely to be small businesses. Overall, the economic analysis indicates that impacts are not significant for well over 90 percent of the generators and all of the other facility types affected, with the possible exception of rerefiners under certain options.

A small fraction of the small business used oil generators may face incremental costs up to \$477 per year for storage and recordkeeping, preparedness and prevention. We believe this is not an unreasonable cost burden borne only by a very small fraction of affected small businesses. The small quantity generator exemption would virtually eliminate significant impacts for any small business sectors. Other generators may incur higher costs if they dispose of their used oil and that practice is banned. While we generally expect these facilities to be large, we have no basis for characterizing the types of facilities that dispose of their oil.

Most rerefiners, who stand to face the greatest impacts under the distillation bottom listing option, are not small businesses and if the full listing option is not chosen, any potential for significant impacts disappears.

In general, given the large population of small businesses subject to various provisions of this proposal, only a very small fraction of these business will incur any compliance costs and those that do will typically face relatively small costs. Therefore the Agency certifies that the supplemental proposal will not have significant economic impacts on substantial numbers of small businesses or entities.

XII. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paper Reduction Act, 44 U.S.C. 3501 *et seq.* An information

Collection Request document has been prepared by EPA (ICR No. 1286) and a copy may be obtained from Sandy Farmer, Information Policy Branch, EPA, 401 M Street, S.W.

Public reporting burden for this collection of information averages from 8 to 54 hours annually per respondent, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM-223Y, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA." The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

Dated: September 3, 1991.

William K. Reilly,
Administrator.

Appendix A—Status of Proposed Provisions

Note: Federal Register citations refer to the November 29, 1985 Proposed Rule, unless otherwise indicated. Section citations refer to today's notice.

Proposed provisions	Status as of today's notice	Citations
General: Recycling Presumption.	New	Section VIII.D.
Controls on Used Oil Disposal.	New	Section VIII.E.
Amendment to Current Exemption for Characteristic Recycled Oil.	Modified	Section VIII.F.1.
Application of the 1,000 ppm Halogen Rebuttable Presumption to All Used Oils.	As Proposed in 1985.	Section VIII.F.2; (50 FR 49217).
Ban on Road Oiling.	As Proposed in 1985.	Section VIII.F.4 (50 FR 49239).
Conditional Exemption for Primary Oil Refiners.	New	Section VIII.F.5.

Proposed provisions	Status as of today's notice	Citations
Regulation of Used Oil Stored in Under-ground Tanks.	Modified	Section VIII.F.6.
Mixtures of Used Oil and Absorbent Materials.	New	Section IX.A.2.
Management of CFC-contaminated Used Oils.	New	Section IX.A.3.
Regulation of Oil/Water Mixtures.	Modified	Section IX.A.4.
Regulation of Used Oil Filters.	New	Section IX.A.5.
Used oil used as fuel in incinerators and combustors.	New	Section IX.A.6.
Generators: EPA ID Numbers.	Modified	Section IX.B.3.
Storage Provisions (tank and container standards).	Modified	Section IX.B.1.
Corrective Action.	Modified	Section IX.B.2.
Preparedness and Prevention.	As Proposed in 1985.	(50 FR 49253).
Shipments Off-site (tracking).	Modified	Section IX.B.4.
Recordkeeping.	Modified	Section IX.B.5.a.
Reporting Used Oil Disposal.	New	Section IX.B.5.b.
Exemption from CERCLA Liability.	New	Section IX.B.2.b.
Transporters: Storage	Modified	Section IX.C.1 (50 FR 49254).
Closure	As Proposed in 1985.	(50 FR 49254).
Permitting	As Proposed in 1985.	(50 FR 49254).
Discharge Cleanup.	Modified	Section IX.C.2.
Tracking	Modified	Section IX.C.3.
Recordkeeping.	Modified	Section IX.C.4.
Exception reports.	New	Section IX.C.4.
EPA ID Numbers.	As Proposed in 1985.	(50 FR 49254).
Recyclers: EPA ID Number and General Facility Standards.	As Proposed in 1985.	(50 FR 49255).
Analysis Requirements.	Modified	Section IX.D.6 (50 FR 49255).

US EPA ARCHIVE DOCUMENT

Proposed provisions	Status as of today's notice	Citations
Written Analysis Plan.	As Proposed in 1985.	(50 FR 49255).
Preparedness and Prevention.	As Proposed in 1985.	(50 FR 49255)
Tracking	Modified	Section IX.D.2.
Recordkeeping/Reporting.	Modified	Section IX.D.5.
Storage in Containers.	Modified	Section IX.D.1.a.
Storage in Above-ground Tanks.	Modified	Section IX.D.1.b.
Storage in Under-ground Tanks.	Modified	Section IX.D.1.c.
Storage in Surface Impoundments.	Modified	Section IX.D.1.d.
Corrective Action.	Modified for underground tanks.	Section IX.D.3.
Closure/Post-closure.	As Proposed in 1985.	(50 FR 49256).
Financial Responsibility.	Deferred	Section IX.D.4.

Proposed provisions	Status as of today's notice	Citations
Permitting	As Proposed in 1985.	Section IX.D.7; (50 FR 49256-58).
Marketers:		
Replacement of 266 Subpart E with Section 3014 Generator and Transporter Standards.	As Proposed in 1985.	(50 FR 49239).
Burners:		
Storage in Tanks and Containers.	Modified	Section IX.G.1.
EPA ID Number.	As Proposed in 1985.	(50 FR 49255).
Analysis Requirements.	Modified	Section IX.G.2.
Space Heater Requirements.	As Proposed in 1985.	(50 FR 49205; final burning & blending rule).
Corrective Action.	Modified for USTS.	Section IX.G.4; (50 FR 49256).

Proposed provisions	Status as of today's notice	Citations
Permitting	As Proposed in 1985.	Section IX.G.4; (50 FR 49256).
Tracking	Modified	Section IX.G.2.
Closure	Modified	Section IX.G.2.
Recordkeeping/Reporting.	Modified	Section IX.G.2.
Hazardous Waste Mixtures.	As Proposed in 1985.	(50 FR 49205; final burning & blending rule).
Road Oilers	Modified	Section IX.H; Section VIII.F.4.
Disposal Facilities:		
Listed or characteristic used oil.	As proposed in 1985.	(50 FR 49239).
Nonhazardous used oil and disposal guidelines.	New	Section IX.I; Section VIII.E.

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