Chapter

5

INDUSTRY SUBCATEGORIZATION

METHODOLOGY AND FACTORS CONSIDERED AS THE BASIS FOR SUBCATEGORIZATION 5.1

The CWA requires EPA, in developing effluent limitations guidelines and pretreatment standards that represent the best available technology economically achievable for a particular industry category, to consider a number of different factors. Among others, these include the age of the equipment and facilities in the category, manufacturing processes employed, types of treatment technology to reduce effluent discharges, and the cost of effluent reductions (Section 304(b)(2)(b) of the CWA, 33 U.S.C. § 1314(b)(2)(B)). The statute also authorizes EPA to take into account other factors that the Agency deems appropriate.

One way in which the Agency has taken some of these factors into account is by breaking down categories of industries into separate classes of similar characteristics. This recognizes the major differences among companies within an industry that may reflect, for example, different manufacturing processes or other factors. One result of subdividing an industry by subcategories is to safeguard against overzealous regulatory standards, increase the confidence that the regulations are practicable, and diminish the need to address variations between facilities through a variance process (*Weyerhaeuser Co.* v. *Costle*, 590 F.2d 1011, 1053 (D.C. Cir. 1978)).

The centralized waste treatment industry, as previously explained, is not typical of many of the industries regulated under the CWA because it does not produce a product. Therefore, EPA considered certain additional factors that specifically apply to centralized waste treatment operations in its evaluation of how to establish appropriate limitations and standards and whether further subcategorization was warranted. Additionally, EPA did not consider certain other factors typically appropriate when subcategorizing manufacturing facilities as relevant when evaluating this industry. The factors EPA considered in the subcategorization of the centralized waste treatment industry include the following:

- Facility age;
- Facility size;
- Facility location;
- Non-water quality impacts;
- Treatment technologies and costs;
- RCRA classification;
- Type of wastes received for treatment; and
- Nature of wastewater generated.

EPA concluded that certain of these factors did not support further subcategorization of this industry. The Agency concluded that the age of a facility is not a basis for subcategorization, as many older facilities have unilaterally improved or modified their treatment processes over time. EPA also decided that facility size was not an appropriate basis for subcategorizing. EPA identified three parameters as relative measures of facility size: number of employees, amount of waste receipts accepted, and wastewater flow. EPA found that CWTs of varying sizes generate similar wastewaters and use similar treatment technologies. Furthermore, wastes can be treated to the same level regardless of the facility size. Likewise, facility location is not a good basis for subcategorization. Based on the data collected, no consistent differences in wastewater treatment technologies or performance exist

because of geographical location. EPA recognizes, however, that geographic location may have an effect on the market for CWT services, the cost charged for these services, and the value of recovered product. These issues are addressed in the Economic Assessment Document.

While non-water quality characteristics (solid waste and air emission effects) are of concern to EPA, these characteristics did not constitute a basis for subcategorization. Environmental impacts from solid waste disposal and from the transport of potentially hazardous wastewater are a result of individual facility practices and EPA could not identify any common characteristics particular to a given segment of the industry. EPA did not use treatment costs as a basis for subcategorization because costs will vary and are dependent on the following waste stream variables: flow rates, wastewater quality, and pollutant loadings. Finally, EPA concluded that the RCRA classification was not an appropriate basis for subcategorization, as the type of waste accepted for treatment appears to be more important than whether the waste was classified as hazardous or non-hazardous.

EPA identified only one factor of primary significance for subcategorizing the centralized waste treatment industry -- the type of waste received for treatment or recovery. This factor encompasses many of the other subcategorization factors. The type of treatment processes used, nature of wastewater generated, solids generated, and potential air emissions directly correlate to the type of wastes received for treatment or recovery. For the final standards, EPA reviewed its earlier subcategorization approach and decided to retain it. It is still EPA's conclusion that the type of waste received for treatment or recovery is the only appropriate basis for subcategorization of this industry.

SUBCATEGORIES *5.2*

Based on the type of wastes accepted for treatment or recovery, EPA has determined that there are four subcategories appropriate for the centralized waste treatment industry:

- Subcategory A: Facilities that treat or recover metal from metal-bearing waste, wastewater, or used material received from off-site (Metals Subcategory);
- Subcategory B: Facilities that treat or recover oil from oily waste, wastewater, or used material received from off-site (Oils Subcategory); and
- Subcategory C: Facilities that treat or recover organics from other organic waste, wastewater, or used material received from off-site (Organics Subcategory); and
- Subcategory D: Facilities that treat or recover some combination of metal-bearing, oily, or organic waste, wastewater, or used materials received from off-site (Multiple Waste Stream Subcategory).

SUBCATEGORY DESCRIPTIONS *5.3*

Metals Subcategory *5.3.1*

The facilities in this subcategory are those treating metal-bearing waste received from off-site and/or recover metals from off-site metal-bearing wastes. Currently, EPA has identified 59 facilities in this subcategory. Fifty-two facilities treat metal-bearing waste exclusively, while another six facilities recover metals from the wastes for sale in commerce or for return to industrial processes. One facility provides metal-bearing waste treatment in addition to conducting a metals recovery operation. The vast majority of these facilities have RCRA permits to accept hazardous waste. Types of wastes accepted for treatment include spent electroplating baths and sludges, spent anodizing solutions, metal finishing rinse water and sludge, and chromate wastes.

The typical treatment process used for metal-bearing waste is precipitation with lime or caustic followed by filtration. The sludge generated is then landfilled in a RCRA Subtitle C or D landfill depending on its content. Most facilities that recover metals do not generate a sludge that requires disposal. Instead, the sludges are sold for metal content. In addition to treating metal bearing wastestreams, many facilities in this subcategory also treat cyanide wastestreams, many of which are highly-concentrated and complex. Because the presence of cyanide may interfere with the chemical precipitation process, these facilities generally pretreat to remove cyanide and then commingle the pretreated cyanide wastewaters with the other metal-containing wastewaters. EPA estimates that nineteen of the metals facilities also treat cyanide wastestreams.

Oils Subcategory *5.3.2*

The facilities in this subcategory are those that treat oily waste, wastewater, or used material received from off-site and/or recover oil from off-site oily materials. Currently, EPA estimates that there are 164 facilities in this subcategory. Among the types of waste accepted for treatment are lubricants, used petroleum products, used oils, oil spill clean-up, bilge water, tank clean-out, off-specification fuels, and underground storage tank remediation waste. Many facilities in this subcategory only provide treatment for oily wastewaters while others pretreat the oily wastes for contaminants such as water and then blend the resulting oil residual to form a product, usually fuel. Most facilities perform both types of operations. EPA estimates that 53 of these facilities only treat oily wastewaters and 36 facilities primarily recover oil for re-use. The remaining 75 facilities both treat oily waste and recover oil for re-use.

At the time of the original proposal, EPA believed that 85 percent of oils facilities were primarily accepting concentrated, difficult-to-treat, stable, oil-water emulsions containing more than 10 percent oil. However, during post-proposal data collection, EPA learned that many of the wastes treated for oil content at these facilities were fairly dilute and consisted of less than 10 percent oils. While some facilities are accepting the more concentrated wastes, the majority of facilities in this subcategory are treating less concentrated wastes.

Further, at the time of the original proposal, only three of the facilities included in the data base for this subcategory were identified as solely accepting wastes classified as non-hazardous under RCRA. The remaining facilities accepted either hazardous wastes alone or a combination of hazardous and non-hazardous wastes. In contrast, based on more recent information, EPA has concluded that the majority of facilities in this subcategory only accept wastes that would be classified by RCRA as non-hazardous.

The most widely-used treatment technology in this subcategory is gravity separation and/or emulsion breaking. One-third of this industry only uses gravity separation and/or emulsion breaking to treat oily wastestreams. One-third of the industry also utilizes chemical precipitation and one-quarter also utilizes dissolved air flotation (DAF).

Organics Subcategory *5.3.3*

The facilities in this subcategory are those that treat organic waste received from off-site and/or recover organics from off-site organic wastes. EPA estimates that there are 25 facilities in this subcategory. The majority of these facilities have RCRA permits to accept hazardous waste. Among the types of wastes accepted at these facilities are landfill leachate, groundwater cleanup, solvent-bearing waste, off-specification organic products, still bottoms, used antifreeze, and wastewater from chemical product operations and paint washes.

All of the organics facilities which discharge

to a surface water use equalization and some form of biological treatment to handle the wastewater. The vast majority of organics facilities which discharge to a POTW primarily use equalization. One third of all the organics facilities also use activated carbon adsorption. Most of the facilities in the organics subcategory have other industrial operations as well, and the centralized waste treatment wastes are mixed with these wastewaters prior to treatment. The relatively constant make-up of on-site wastewater can support the operation of conventional, continuous biological treatment processes, which otherwise could be upset by the variability of the off-site waste receipts.

MULTIPLE WASTESTREAM SUBCATEGORY 5.4

EPA based the 1999 proposal on establishing limitations and standards for three subcategories of CWT facilities: facilities treating either metals, oil, or organic wastes and wastewater. As explained in the proposal, EPA was considering developing mixed waste subcategory limitations for facilities which treated wastes in more than one subcategory. EPA indicated that such limitations and standards would be established by combining pollutant limitations from all three subcategories, selecting the most stringent value where they overlap.

EPA's consideration of this option responded to comments to the 1995 proposal and the 1996 Notice of Data Availability. The primary reason some members of the waste treatment industry favored development of a multiple wastestream subcategory was to simplify implementation for facilities treating wastes covered by multiple subcategories. As detailed in the 1999 proposal, EPA's primary reason for not proposing (and adopting) this option was its concern that facilities that accept wastes in multiple subcategories need to provide effective treatment of all waste receipts. This concern was based on EPA's data that showed such facilities did not currently have adequate treatment-in-place. While these facilities meet their permit limitations, EPA concluded that compliance was likely achieved through co-dilution of dissimilar wastes rather than treatment. As a result, EPA determined that adoption of multiple wastestream subcategory limitations as described above could arguably encourage ineffective treatment. EPA solicited comments on ways to develop a multiple wastestream subcategory which ensures treatment rather than dilution. The vast majority of comments on the 1999 proposal supported the establishment of a multiple wastestream subcategory for this rule, and re-iterated their concerns about implementing the three-subcategory scheme at multiple-subcategory facilities. One commenter suggested a way to implement a fourth subcategory while ensuring treatment. This commenter suggested that EPA follow the approach taken for the Pesticide Formulating, Packaging and Repackaging (PFPR) Point Source category (40 CFR Part 455). Under this approach, multiple wastestream subcategory facilities would have the option of 1) monitoring for compliance with the appropriate subcategory limitations after each treatment step or 2) monitoring for compliance with the multiple wastestream subcategory limitations at a combined discharge point and certifying that equivalent treatment to that which would be required for each subcategory waste separately is installed and properly designed, maintained, and operated. This option would eliminate the use of the combined waste stream formula or building block approach in calculating limits or standards for multiple wastestream subcategory CWT facilities (The combined waste stream formula and the building block approach are discussed in more detail in Chapter 14 of the this document). Commenters suggested that an equivalent treatment system could be defined as a wastewater treatment system that is demonstrated to achieve comparable removals to the treatment system on which EPA based the limitations and standards. Ways of

demonstrating equivalence might include data from recognized sources of information on pollution control, treatability tests, or self-monitoring data showing comparable removals to the applicable pollution control technology.

EPA has now concluded that the approaches adopted in the PFPR rule address the concerns identified earlier. EPA agrees with commenters that developing appropriate limitations on a site-specific basis for multiple wastestream facilities presents many challenges and that the use of a multiple wastestream subcategory would simplify implementation of the rule. Moreover, the limits applied to multiple wastestream treaters would be a compilation of the most stringent limits from each applicable subcategory and would generally be similar to or stricter than the limits calculated via the application of the combined waste stream formula or building block approach. Most significantly, the equivalent treatment certification requirement would address EPA's concerns that the wastes receive adequate treatment.

Therefore, EPA has established a fourth subcategory: the mixed waste subcategory. Chapter 14 of this document details the manner in which EPA envisions the mixed waste subcategory will be implemented. Further, EPA has prepared a guidance manual to aid permit writers/control authorities as well as CWT facilities in implementing the certification process (available January 2001).

OTHER REGULATORY OPTIONS CONSIDERED FOR THE OILS SUBCATEGORY 5.5

Consideration of Regulatory Options on the Basis of Revenue 5.5.1

As detailed in the 1999 proposal, among other alternatives, EPA looked at whether it should develop alternative regulatory requirements for the oils subcategory facilities based on revenue because of potential adverse economic consequences to small businesses. The SBAR Panel, convened by EPA, discussed this option. Among the regulatory alternatives discussed by the panel and detailed in the 1999 proposal was limiting the scope of the rule to minimize impacts. Under this approach, EPA would not establish national pretreatment standards for indirect dischargers owned by small companies with less than $6 million in annual revenue. EPA did not propose to limit the scope of the rule based on this approach but did request comment on the issue.

Concerning the recommendation that EPA establish alternative limitations and standards on the basis of revenue, commenters largely supported EPA's conclusion that this approach should not be adopted. Commenters stated that small businesses should be subject to the same standards and requirements as other industrial users in this category because of the following reasons:

- the limitations and standards are economically achievable for small CWT facilities;
- the perception that small CWT facilities do not have the potential to cause significant impacts to the environment is not true;
- the quantity and toxicity of pollutants present are the only relevant factors for determining impacts to receiving streams and POTWs from CWT discharges;
- the business size is irrelevant to the impact of a facility's discharges;
- a small facility can have as great an impact on the environment as a large facility;
- there would be no incentive to ensure wastes are adequately treated at all CWT facilities;
- small facilities could operate at a fraction of the cost (since they would not have to meet the limitations and standards) and capture more market share leading to more wastes going to the POTW untreated; and
- large facilities could easily manipulate their corporate structure to take advantage of small business exemptions.

None of the commenters supported a small business exclusion, but a few noted that EPA should look at reducing monitoring requirements for small businesses in order to reduce their costs of compliance without compromising effective treatment. None of the commenters provided EPA with any other suggestions on ways to mitigate small business concerns that EPA had not already considered. After careful consideration of the comments and its database, EPA has decided that it should not limit the scope of the CWT rule based on revenue.

Consideration of Regulatory Options on the Basis of Flow *5.5.2*

As detailed in the 1999 proposal, among other alternatives, EPA looked at whether it should develop alternative regulatory requirements for the oils subcategory facilities based on wastewater flow level because of potential adverse economic consequences to small businesses. The SBAR Panel, convened by EPA, discussed this option. Among the regulatory alternatives discussed by the panel and detailed in the 1999 proposal was limiting the scope of the rule to minimize impacts. Under this approach, EPA would not establish national pretreatment standards for indirect oils dischargers with flows under 3.5 million gallons per year, or alternately for non-hazardous oils facilities with flows under either 3.5 or 7.5 MGY. The SBAR Panel noted, in particular, that excluding indirect dischargers with flows of less than 3.5 MGY would significantly reduce the economic impact of the rule on small businesses while reducing pollutant removals by an estimated 6%. EPA did not propose to limit the scope of the rule based on these approaches but did request comment on the issue.

Concerning the recommendation that EPA establish alternative limitations and standards on the basis of flow, commenters largely supported EPA's conclusion that this approach should not be adopted. Commenters stated that low flow facilities should be subject to the same standards and requirements as other industrial users in this category because of the following reasons:

- the perception that small CWT facilities do not have the potential to cause significant impacts to the environment is not true;
- the amount of pollutants in wastewater for a CWT facility is not a function solely of the volume of wastes that the facility receives;
- the quantity of pollutants present and the toxicity of the pollutants are the only relevant factors for determining impacts to receiving streams and POTWs from CWT discharges;
- a small facility can have as great an impact on the environment as a large facility;
- there would be no incentive to ensure wastes are adequately treated at all CWT facilities; and
- small facilities could operate at a fraction of the cost (since they would not have to meet the limitations and standards) and capture more market share leading to more wastes going to the POTW untreated.

None of the commenters supported an exclusion based on flow, but a few noted that EPA should look at reducing monitoring requirements for small businesses in order to reduce their costs of compliance without compromising effective treatment. None of the commenters provided EPA with any other suggestions on ways to mitigate small business concerns that EPA had not already considered. After careful consideration of the comments and its database, EPA has decided that it should not limit the scope of the CWT rule based on flow.

Consideration of Regulatory Options on the Basis of the RCRA Classification of the Waste Receipts *5.5.3*

As explained in the 1999 proposal, among other alternatives, EPA was considering whether it should develop limitations and standards for two categories (rather than a single category) of oils treatment facilities. The Small Business Advocacy Review (SBAR) Panel for this rule, convened by EPA in November 1997, discussed this option. For a detailed summary of the panel's findings and discussion, see the 1999 proposal and "Final Report of the SBREFA Small Business Advocacy Review Panel on EPA's Planned Proposed Rule for Effluent Limitations Guidelines and Standards for the Centralized Waste Treatment Industry" (DCN 21.5.1). Under this approach EPA would establish different limitations and standards for oils subcategory facilities depending on whether they treat RCRA subtitle C hazardous wastes (either exclusively or in combination with non-hazardous wastes) or treat only non-hazardous wastes.

At the time of the SBAR Panel, EPA had collected certain information on facilities that treat a mixture of hazardous and non-hazardous wastes as well as facilities that treat non-hazardous wastes only. The bulk of the data was from RCRA facilities treating RCRA subtitle C hazardous waste together with non-hazardous waste. The data on wastestreams did not show a significant difference in the types of pollutants for the streams being treated at RCRA and at non-RCRA permitted facilities or the treatability of those pollutants. Although the data did suggest that pollutant concentrations tended to be somewhat higher in raw waste going to RCRA permitted facilities, which in turn suggested that treatment would be more cost-effective at such facilities, the information EPA had collected from non-RCRA permitted facilities was insufficient to support the conclusion that EPA should differentiate between oils facilities on the basis of RCRA classification of the wastes treated at the facility. Consequently, EPA did not propose different regulatory requirements for facilities based on distinctions between hazardous and non-hazardous wastes.

EPA, following the SBAR panel, collected wastewater samples at twelve other facilities that treat only non-hazardous materials. EPA collected the samples in order to broaden the database with additional information on the pollutant profiles of the wastes that are treated at these facilities. While EPA included the analytical results of the sampling efforts in the Appendix of the technical development document for the proposal, EPA had not, at the time of the proposal, reviewed the data in detail or compared the data to the earlier data it had collected. As the proposal also explained, EPA planned to review the data in detail and present a preliminary assessment of its findings at a public hearing during the comment period for the proposal.

At a public hearing on February 18, 1999, EPA described the relevant sampling data, the constraints of evaluating this data, and a comparison of data from hazardous and non-hazardous waste streams. This data showed that, while the mean and median values of influent concentration of hazardous wastestream data are greater than for non-hazardous wastestreams for most pollutants examined, the ranges of concentration for the hazardous and non-hazardous wastestreams overlap for most pollutants. In its presentation, EPA indicated that it planned to re-examine the oils subcategory in terms of pollutant loadings, removals, limitations and standards, costs, impacts, and benefits. EPA requested comment on this issue, and extended the comment period for this issue to 30 days after the public hearing. EPA's presentation is included in the public record for this rulemaking as DCN 28.1.1 (other supporting information is in Section 28).

Five commenters provided specific input on basing regulatory options for the oils subcategory

on the RCRA classification of the waste receipts. Two commenters supported differentiation on this basis. They asserted that there are significant differences between facilities that accept non-hazardous wastes and those that accept a combination of hazardous and non-hazardous waste in terms of pollutant loadings and the number and type of pollutants, the types of treatment methods employed, and price structures. Three commenters opposed differentiation based on RCRA classification. These commenters do not believe that RCRA classification is a critical distinction, but rather believe that RCRA classification often has no impact on the treatability of the waste or final effluent quality. They commented that non-hazardous waste receipts have approximately the same constituents as hazardous waste receipts. From an environmental perspective, they believe that it is irrelevant whether the source of the pollutants of concern is a hazardous or non-hazardous facility.

EPA has reexamined this data using the same standards it applied earlier in this rulemaking for determining pollutants of concern for this industry (see Chapter 6 of this document). Based on this review, EPA determined that the pollutants of concern for non-hazardous facilities are largely the same as those previously identified for the oils subcategory (EPA had based its earlier conclusion on data from facilities processing a mix of hazardous and non-hazardous waste receipts).

EPA also looked to see if the treatment technologies at strictly non-hazardous facilities differ from those at facilities that accept both hazardous and non-hazardous wastes. EPA's database shows that the range of treatment technologies employed at both types of facilities is similar.

Essentially, the only operational difference EPA has observed between hazardous and non-hazardous oils treatment facilities is that hazardous oils waste facilities treat wastes with higher influent concentrations. EPA's data show that the *average* pollutant concentrations in non-hazardous wastes are lower than in hazardous wastes. Consequently, pollutant loadings, removals and treatment cost estimates will differ to some extent depending on the RCRA classification of the wastes that are treated. As explained above, however, both types of facilities treat for the same pollutants and the concentration ranges of these pollutants overlap at hazardous and non-hazardous operations. In these circumstances, the characteristics of wastes treated at hazardous operations do not require a different treatment technology from that used at non-hazardous operations. The choice of treatment technology for a particular facility is a function primarily of the effluent concentration required, not of any inherent differences in the wastes being treated. As a result, EPA concluded that there is no basis in the chemistry of the wastewaters being treated which supported development of different limitations and standards for hazardous and non-hazardous oils facilities. Furthermore, after evaluating treatment technology costs, EPA found that the costs for RCRA permitted facilities were equivalent to those for non-RCRA facilities, although, as noted above, loadings reductions at the non-RCRA permitted facilities will generally be lower. Given these factors, EPA decided that it should not develop different limitations and standards for RCRA hazardous and non-hazardous oils facilities. DCN 33.1.1 discusses the determination in more detail. EPA notes, however, that its estimates of loadings, removals, and revenue generated from treating the different types of wastes take account of differences in the type of wastes treated.