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Environmental Protection
Agency

Final 2014 Effluent Guidelines Program Plan

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1. EXECUTIVE SUMMARY

This *Final 2014 Effluent Guidelines Program Plan* (Final 2014 Plan), prepared pursuant to Clean Water Act (CWA) section 304(m), 33 U.S.C. § 1314(m), identifies any new or existing industrial categories selected for effluent guidelines rulemakings and provides a schedule for such rulemakings. It also discusses the results of EPA's 2014 Annual Review of effluent guidelines and pretreatment standards, consistent with CWA sections 301(d), 304(b), 304(g), and 304(m), and it includes EPA's evaluation of indirect discharge categories that do not have categorical pretreatment standards for the purpose of identifying potential new categories for which pretreatment standards under CWA section 307(b) might be warranted.

Based on the 2014 Annual Review and public comment, EPA has concluded that no additional industries warrant new or revised effluent guidelines at this time. Therefore, EPA is not identifying any existing effluent guidelines for revision, nor is EPA identifying any new industries for an effluent guidelines rulemaking, aside from those currently undergoing a rulemaking (revised effluent limitations guidelines and standards (ELGs) for the Steam Electric Power Generating Category and for the Canned and Preserved Seafood Category covering the Alaskan seafood processing subcategories).

EPA is also not identifying the development of any new or revised pretreatment standards at this time, excluding those that are currently under development (pretreatment standards for the Dental Category and the Unconventional Oil and Gas Extraction Category).

However, EPA plans to continue its review and/or study of several industrial categories or pollutant groups to determine if new or revised effluent guidelines are warranted. These industrial categories include Petroleum Refining, Centralized Waste Treatment (CWTs), Metal Finishing, Pesticide Chemicals, Engineered Nanomaterials Manufacturing and Formulating (ENMs), and Oil and Gas Extraction in Cook Inlet, Alaska.

The Final 2014 Plan and its conclusions are supported by EPA's *2014 Annual Effluent Guidelines Review Report* (2014 Annual Review Report) (U.S. EPA, 2015), which builds on prior reviews and uses new hazard data sources and additional supporting analyses to identify new pollutants of concern and wastewater discharges in industrial categories not currently regulated by ELGs. Annual Review Reports for prior years are a part of the Annual Review record and can be found at http://water.epa.gov/lawsregs/lawsguidance/cwa/304m/index.cfm.

During the 2014 Annual Review, EPA followed up on several proposed actions identified in the *Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans* (Final 2012 and Preliminary 2014 Plans) (U.S. EPA, 2014a). Specifically, EPA continued the following reviews: (1) preliminary review of the Metal Finishing Point Source Category; (2) targeted review of pesticide active ingredients (PAIs), for which the discharge from manufacturing is not currently regulated under the Pesticide Chemicals ELGs; and (3) review of brick and structural clay products manufacturing. EPA also initiated an investigation of the manufacture and processing of ENMs as a potential new source of industrial wastewater discharges. Additionally, EPA continued its collection of industrial wastewater treatment technology performance data for the Industrial Wastewater Treatment Technology (IWTT) Database.

From the 2014 Annual Review, EPA determined that continued reviews are warranted for two regulated point source categories: Metal Finishing and Pesticide Chemicals Manufacturing. The manufacture and processing of ENMs also warrant further review. Specifically, EPA determined the following:

- EPA's continued preliminary review of the Metal Finishing Category identified several topics that warrant further investigation. These include: (1) potential new, unregulated pollutants of concern that are being used more commonly in metal finishing processes; (2) the prevalence of potential pollutants of concern associated with wastewater generated from the use of wet air pollution control devices at metal finishing operations; (3) the availability and use of advanced wastewater treatment technologies; and (4) the prevalence of zero discharge practices in the industry. As a result, EPA plans to continue this review through a preliminary study of the Metal Finishing Category.

- EPA plans to continue its targeted review of PAIs for which the discharge from manufacturing is not currently regulated under the Pesticide Chemicals ELGs. EPA will use production information reported under Section 7 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as well as facility National Pollutant Discharge Elimination System (NPDES) permit applications, fact sheets, and permits for the PAI-producing facilities, to determine which PAIs are produced in the U.S. and are present in industrial wastewater discharges from pesticide chemicals manufacturing.

- Research and information to date suggest that industrial wastewater discharges may contain ENMs, which may have impacts on human health and the environment. From its initial review, EPA identified four main areas of research appropriate to better assess the potential presence and impact of ENMs in industrial wastewater: (1) development of standard methods and sampling techniques to detect and characterize ENMs in industrial wastewater; (2) evaluation of the toxic impacts of ENMs in industrial wastewater, taking into consideration their relevant forms and concentrations; (3) identification of the universe of facilities, production values, and waste associated with the manufacturing and processing of ENMs; and (4) evaluation and characterization of the fate, transformation, and treatment of ENMs in industrial wastewaters. EPA plans to continue to monitor ongoing research in these areas in future annual reviews and collect any new information on the discharge of ENMs as it becomes available.

EPA determined that further review of brick and structural clay products manufacturing is not warranted at this time because wet scrubber use (which EPA identified as a potential new source of industrial wastewater discharge from this industry) is limited to a very few facilities. See Section 4.2 of this Plan as well as Section 5.3 of the 2014 Annual Review Report (U.S. EPA, 2015), for more details regarding EPA's findings related to this industry.

As part of the 2014 Annual Review, EPA also summarized the information captured to date in its IWTT Database, including treatment system and performance data from 98 research articles that cover 35 industrial categories, 142 pollutant parameters, and 53 individual types of

treatment technologies. EPA plans to continue adding industrial wastewater treatment technology data into IWTT for use in future annual reviews. EPA will use this database to identify whether specific industrial categories warrant further review for new or revised ELGs, based on the range of available treatment technology performance.

As announced in the Preliminary 2014 Plan, EPA has also begun a study of the Centralized Waste Treatment (CWT) industry. The study evaluates facilities that accept oil and gas extraction wastewaters to determine if the existing ELGs are adequately controlling pollutants found in the wastewaters. EPA has collected existing data and plans to visit sites, conduct monitoring, and gather additional data in the coming year.

Also announced in the Preliminary 2014 Plan, EPA has begun a study of the Petroleum Refining industry. The study will determine if changes that the industry has experienced since the ELGs were last revised, including the use of heavier crude and wet air pollution controls, make updates to the existing ELGs, including pretreatment standards, appropriate. The study will also investigate whether pollution prevention or wastewater treatment methods are available to reduce pollutants present in the industrial wastewater. As part of the study, EPA plans to collect updated industry profile data, recent discharge data, and NPDES permit information. EPA also plans to conduct site visits and will collect additional information from industry, EPA regions, states, and literature sources.

EPA also considered public comments and information submitted by stakeholders in response to a solicitation for comments on the *Preliminary 2014 Effluent Guidelines Program Plan* (Preliminary 2014 Plan), published together with the Final 2012 Plan in the Federal Register on September 16, 2014 (79 FR 55472). These Plans can be found at http://www.gpo.gov/fdsys/pkg/FR-2014-09-16/html/2014-22062.htm.

A total of 12 comment letters were received on the Preliminary 2014 Plan. The majority of the public comments either supported or did not support studies relating to the CWT Category, the Petroleum Refining Category, and the Metal Finishing Category, which EPA announced in the Preliminary 2014 Plan. Two commenters expressed support for EPA's continued investigation into the presence and impact of ENMs in industrial wastewater. See Section 4 for a more detailed summary of the public comments received on the Preliminary 2014 Plan. Additionally, a table of the comments, including commenter name, commenter organization, and a short summary of the comment can be found in the 2014 Annual Review Report (U.S. EPA, 2015).

2. BACKGROUND

This section explains how the Effluent Guidelines Program fits into EPA's National Water Program, describes the general and legal background of the Effluent Guidelines Program, and summarizes EPA's process for making effluent guidelines revision and development decisions (i.e., effluent guidelines planning).

2.1 The Clean Water Act and the Effluent Guidelines Program

The Clean Water Act (CWA) is based on the principle of cooperative federalism, with distinct roles for both EPA and the states, in which the goal is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. To that end, the Act is generally focused on two types of controls: (1) water-quality-based controls, based on water quality standards; and (2) technology-based controls, based on effluent limitations guidelines and standards (ELGs).

The CWA gives states the primary responsibility for establishing, reviewing, and revising water quality standards. Water quality standards consist of designated uses for each water body (e.g., fishing, swimming, supporting aquatic life), criteria that protect the designated uses (numeric pollutant concentration limits and narrative criteria, for example, "no objectionable sediment deposits"), and an antidegradation policy. EPA develops recommended national criteria for many pollutants, pursuant to CWA section 304(a), 33 U.S.C. § 1314(a), which states may adopt or modify as appropriate to reflect local conditions.

EPA is responsible for developing technology-based ELGs, based on currently available technologies, for controlling industrial wastewater discharges. ELGs apply to pollutant discharges from industrial facilities directly to surface water (direct discharges) and to publicly owned treatment works (POTWs) (indirect discharges). For sources discharging directly to surface waters, permitting authorities — states authorized to administer the National Pollutant Discharge Elimination System (NPDES) permit program, and EPA in the few states that are not authorized — must incorporate EPA-promulgated limitations and standards into discharge permits, where applicable (U.S. EPA, 2010). Categorical pretreatment standards are directly enforceable.

While technology-based effluent limitations and standards in discharge permits are sometimes as stringent as, or more stringent than necessary to meet water quality standards, the effluent guidelines program is not specifically designed to ensure that the discharges from each facility meet the water quality standards of its receiving water body. For this reason, the CWA also requires authorized states to establish water-quality-based effluent limitations where necessary to meet water quality standards. Water-quality-based limits may require industrial facilities to meet requirements that are more stringent than those in a national effluent guideline regulation. In the overall context of the CWA, ELGs must be viewed as one tool in the broader set of tools and authorities Congress provided to EPA and the states to restore and maintain the quality of the nation's waters.

The 1972 amendments to the CWA marked a distinct change in Congress's efforts "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (see CWA section 101(a), 33 U.S.C. 1251(a)). Before 1972, the CWA focused principally on water

quality standards. This approach was challenging, however, because of the difficulty in determining whether a specific discharger, or combination of dischargers, was responsible for decreasing the water quality in a receiving stream.

The 1972 CWA directed EPA to promulgate effluent limitations guidelines and standards that reflect pollutant reductions achievable by categories or subcategories of industrial point sources through the implementation of available treatment and prevention technologies. The ELGs are based on specific technologies (including process changes) that EPA identifies as meeting the statutorily prescribed level of control (see CWA sections 301(b)(2), 304(b), 306, 307(b), and 307(c)). Unlike other CWA tools, ELGs are national in scope and establish pollution control obligations for all facilities that discharge wastewater within an industrial category or subcategory. In establishing these controls under the direction of the statute, EPA assesses, for example, (1) the performance and availability of the pollution-control technologies or pollution-prevention practices for an industrial category or subcategory as a whole; (2) the economic achievability of those technologies, which can include consideration of the affordability of achieving the reduction in pollutant discharge; (3) the cost of achieving effluent reductions; (4) non-water-quality environmental impacts (including energy requirements); and (5) such other factors as the EPA Administrator deems appropriate.

In passing the CWA, Congress viewed the creation of a single national pollution control requirement for each industrial category, based on the "best" technology the industry can afford, as a way to reduce the potential creation of "pollution havens" and set the nation's sights on eliminating pollutant discharge to U.S. waters. Consequently, EPA's goal in establishing national ELGs is to ensure that industrial facilities with similar characteristics, regardless of their location or the nature of their receiving water, will, at a minimum, meet similar effluent limitations and standards representing the performance of the "best" pollution control technologies or pollution prevention practices. ELGs provide the opportunity to promote pollution prevention and water conservation. This may be particularly important in controlling persistent, bioaccumulative, and toxic pollutants discharged in concentrations below analytic detection levels.

The Effluent Guidelines Program has helped reverse the water quality degradation that accompanied industrialization in this country. Permits developed using the technology-based industrial regulations are a critical element of the nation's clean water program and reduce the discharge of pollutants that have serious environmental impacts, including pollutants that:

- Kill or impair fish and other aquatic organisms;
- Cause human health problems through contaminated water, fish, or shellfish; and
- Degrade aquatic ecosystems.

EPA has promulgated effluent guidelines for 58 industrial categories (see Table 6-1 below; all 58 industrial categories are described at http://water.epa.gov/scitech/wastetech/guide/history.cfm). These regulations apply to between 35,000 and 45,000 facilities that discharge directly to the nation's waters, as well as another 12,000 facilities that discharge to POTWs. Based on estimates of pollutant reductions from each separate guideline, EPA has estimated that the regulations, cumulatively, have prevented the discharge of approximately 700 billion pounds of toxic pollutants annually.

2.2 Effluent Guidelines Review and Planning Process

In addition to establishing new regulations, the CWA requires EPA to review existing effluent guidelines annually. EPA reviews all point source categories subject to existing effluent guidelines and pretreatment standards to identify potential candidates for revision, consistent with CWA sections 304(b), 301(d), 304(m)(1)(A) and 304(g). EPA also reviews industries consisting of direct-discharging facilities not currently subject to effluent guidelines to identify potential candidates for effluent guidelines rulemakings, pursuant to CWA section 304(m)(1)(B). Finally, EPA reviews industries consisting entirely or almost entirely of indirect-discharging facilities that are not currently subject to pretreatment standards, to identify potential candidates for pretreatment standards development under CWA sections 307(b).

In the effluent guidelines planning process, EPA is guided by the following goals:

- Restore and maintain the chemical, physical, and biological integrity of the nation's waters; and

- Provide transparent decision-making and involve stakeholders early and often during the planning process.

EPA uses four major factors to prioritize existing effluent guidelines or pretreatment standards for possible revision. These factors were developed in EPA's draft National Strategy, described at http://water.epa.gov/scitech/wastetech/guide/strategy/fs.cfm.

The first factor EPA considers is the amount and type of pollutants in an industrial category's discharge and the relative hazard posed by that discharge. Using this factor enables EPA to prioritize rulemakings to achieve significant environmental and health benefits.

The second factor EPA considers is the performance and cost of applicable and demonstrated wastewater treatment technologies, process changes, or pollution prevention alternatives that could effectively reduce pollutant concentrations in the industrial category's wastewater and, consequently, reduce the hazard posed by these pollutant discharges to human health or the environment.

The third factor EPA considers is the affordability or economic achievability of the wastewater treatment technology, process change, or pollution prevention measures identified using the second factor. If the financial condition of the industry indicates that it would not be affordable to implement expensive and stringent new requirements, EPA might conclude a less stringent, less expensive approach to reduce pollutant loadings would better satisfy applicable statutory requirements.

The fourth factor EPA considers is an opportunity to eliminate inefficiencies or impediments to pollution prevention or technological innovation, or opportunities to promote innovative approaches such as water-quality trading, including within-plant trading. This factor might also prompt EPA, during annual reviews, to decide against revising an existing set of effluent guidelines or pretreatment standards where the pollutant source is already efficiently and effectively controlled by other regulatory or non-regulatory programs.

2.2.1 Annual Review Process

EPA's annual review process includes an odd- and even-year annual review cycle, to address cohesively and comprehensively the factors laid out in EPA's draft National Strategy. In the odd-year reviews, EPA screens industrial dischargers through a toxicity ranking analysis (TRA) that identifies and ranks those categories whose reported pollutant discharges pose a substantial hazard to human health and the environment (see Figure 2-1 and Figure 2-2). For the TRA, EPA relies on discharge monitoring report (DMR) and Toxics Release Inventory (TRI) data to rank industrial discharge categories by toxic-weighted pound equivalents (TWPE) released.

In the even years, EPA reviews additional hazard data sources and conducts alternate analyses to enhance the identification of industrial categories for which new or revised ELGs may be appropriate, beyond those that traditionally rank high in the TRA. This is consistent with the Government Accountability Office's (GAO) recommendation that EPA's annual review approach include additional industrial hazard data sources to augment its screening-level review of discharges from industrial categories.[1] Furthermore, EPA recognizes the value in considering, in the screening phase, the availability of treatment technologies, process changes, or pollution prevention practices that can reduce the identified hazards. Specifically, in its even-year reviews, EPA is targeting new data sources that will provide information on other considerations not previously captured as part of the TRA, including, but not limited to, the following:

- Industrial process changes;
- Emerging contaminants of concern;
- Advances in treatment technologies and pollution prevention practices;
- Availability of new, more sensitive analytical methods; and
- Other hazard data and information not captured through the TRA and/or suggested by stakeholders or by public comments.

Figure 2-3 illustrates the even-year review process. See Section 3 of this *Final 2014 Effluent Guidelines Program Plan* (Final 2014 Plan), for details on the methodology used specifically for EPA's 2014 Annual Review.

EPA also conducts a more detailed preliminary category review of those industrial discharge categories that rank highest in terms of TWPE (i.e., pose the greatest potential hazard to human health and the environment) in the TRA, or are identified as warranting further review during the even-year analyses. If EPA determines that further review is appropriate for an industrial category, EPA may complete a preliminary or detailed study of the point source category (see Section 2.2.1.1 and Section 2.2.1.2, respectively), which may eventually lead to a new or revised guideline.

[1] GAO's recommendations for the review of additional hazard data sources were published in GAO's September 2012 report, *Water Pollution: EPA Has Improved Its Review of Effluent Guidelines but Could Benefit from More Information on Treatment Technologies*, available online at http://www.gao.gov/assets/650/647992.pdf.

2.2.1.1 Preliminary Category Reviews

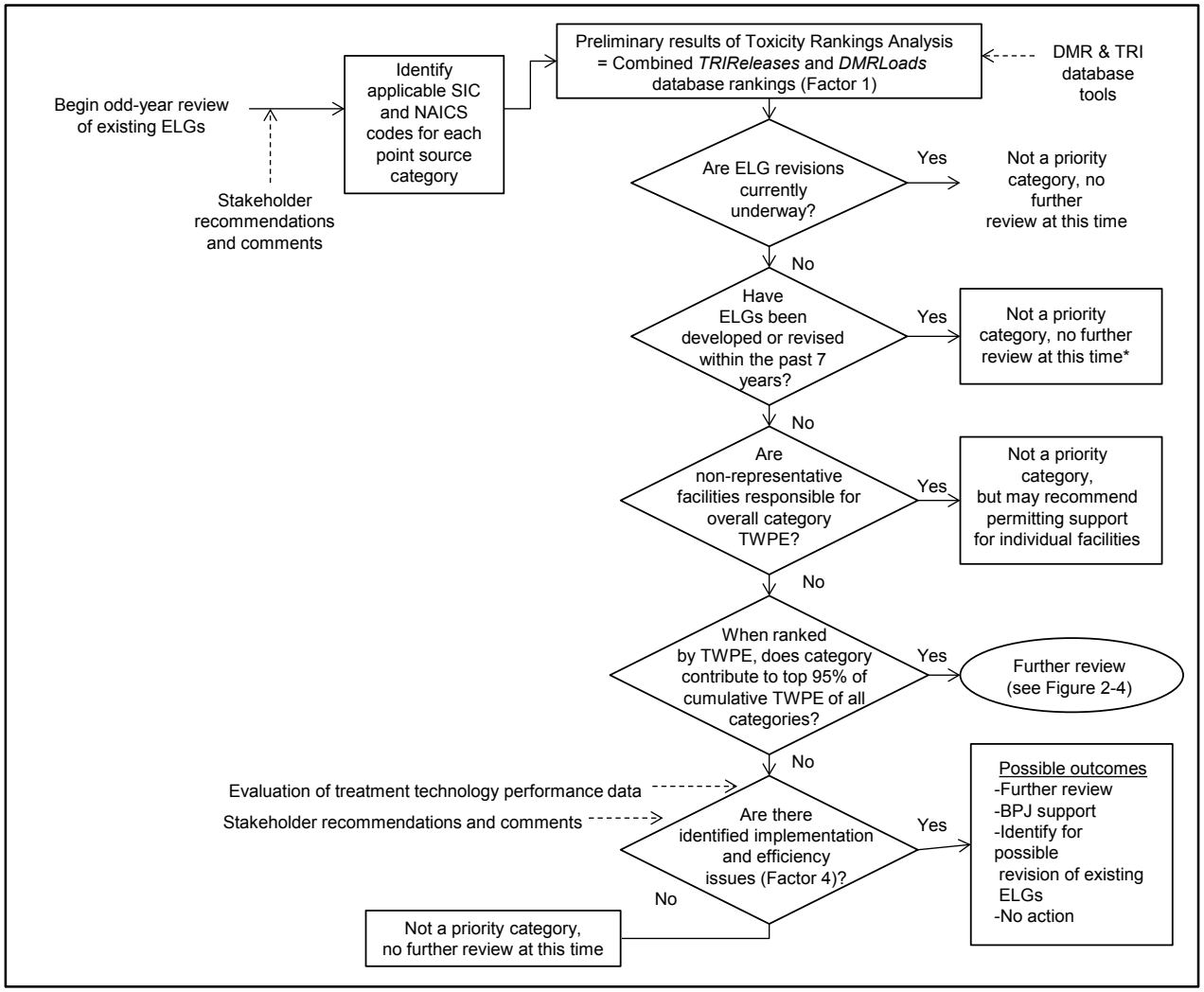
For the industrial categories with the highest hazard potential identified in the TRA, or identified as a priority from any of the even-year review analyses, EPA may conduct a preliminary category review, particularly if it lacks sufficient data to determine whether regulatory action would be appropriate, as illustrated in Figure 2-4. EPA may complete preliminary category reviews as part of the annual review cycle, depending on the industrial categories warranting review at that time. In its preliminary category reviews, EPA typically examines the following: (1) wastewater characteristics and pollutant sources, (2) the pollutants driving the toxic-weighted pollutant discharges, (3) availability of pollution prevention and treatment, (4) the geographic distribution of facilities in the industry, (5) any pollutant discharge trends within the industry, and (6) any relevant economic factors. First, EPA attempts to verify the toxicity ranking results and fill in data gaps. Next, EPA considers the factors that may be contributing to these discharges. These include, for example, changes in the production practices, costs, and performance of applicable and demonstrated technologies, or pollution prevention alternatives that can effectively reduce the pollutants in the point source category's wastewater. These assessments provide an additional level of quality assurance on the reported pollutant discharges and number of facilities that represent the majority of toxic-weighted pollutant discharge.

During a preliminary category review, EPA may consult data sources including, but not limited to the following: (1) the U.S. Economic Census, (2) TRI and DMR data, (3) trade associations and reporting facilities that can verify reported releases and facility categorization, (4) regulatory authorities (states and EPA regions) that can clarify how category facilities are permitted, (5) NPDES permits and their supporting fact sheets, (6) EPA effluent guidelines technical development documents, (7) relevant EPA preliminary data summaries or study reports, and (8) technical literature on pollutant sources and control technologies. If a preliminary category review reveals that the reports of toxic discharges are correct, not geographically isolated, and likely to be the result of the production practices in use broadly throughout the category, EPA may decide to conduct a preliminary or detailed study prior to initiating a rulemaking. In many cases, the information and data gathered for a study forms the basis of information used for the rulemaking. However, in some instances, EPA may decide not to move forward with a rulemaking following a study, if the data and information gathered indicates that a new or revised guideline is not warranted. Regardless of the outcome, EPA announces to the public and other stakeholders decisions to conduct studies, or to develop rulemakings, in the Effluent Guidelines Program Plan. When a rulemaking is determined appropriate, schedules are also announced in the Plan.

2.2.1.2 Preliminary and Detailed Studies

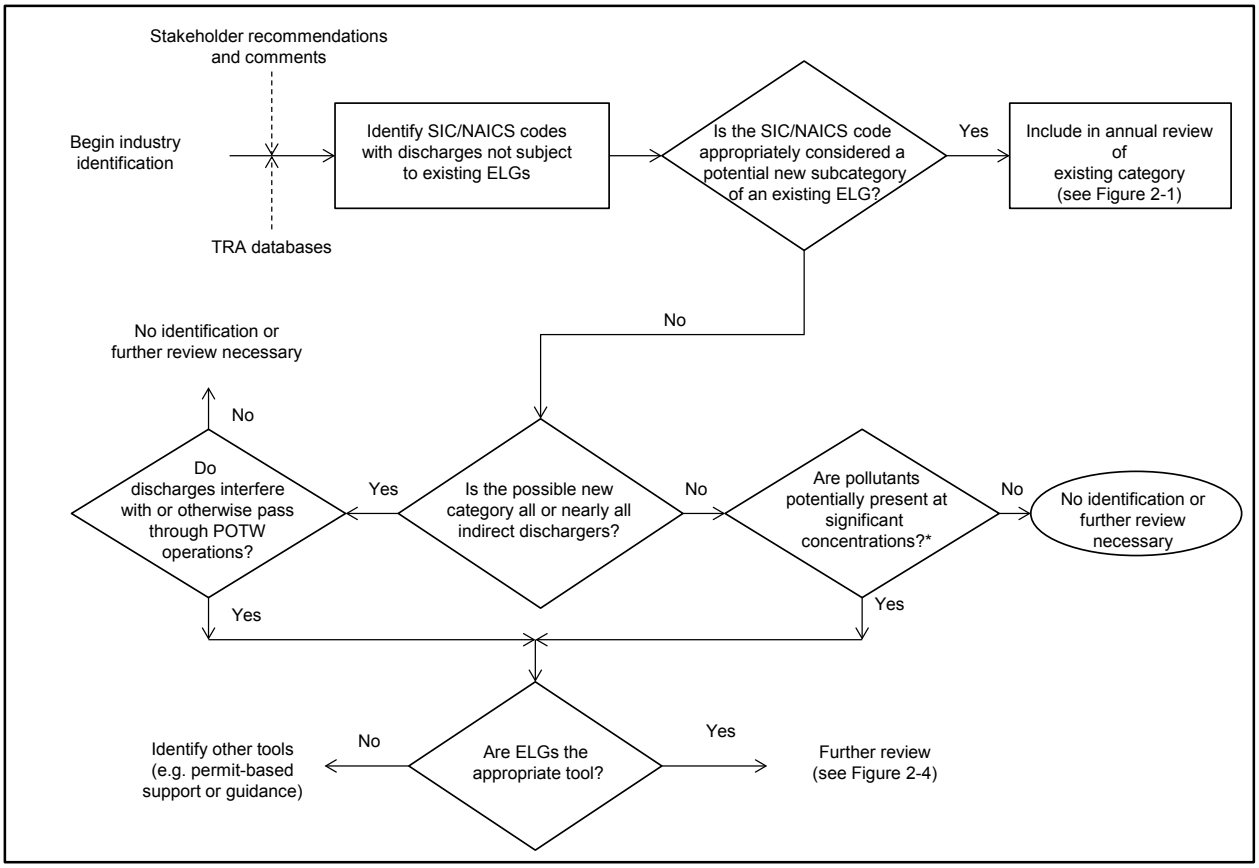
After conducting the preliminary category reviews, as shown in Figure 2-4, EPA may then conduct either a preliminary or detailed study of an industrial category. Typically, these studies profile an industry category, gather information about the hazards posed by its wastewater discharges, collect information about availability and cost of treatment and pollution prevention technologies, assess the financial status of the facilities in the category, and investigate other factors to determine if it would be appropriate to identify the category for possible effluent guidelines revision. During preliminary or detailed studies, EPA typically examines the factors and data sources listed above for preliminary category reviews. However,

during a detailed study, EPA's examination of a point source category and available pollution prevention and treatment options is generally more rigorous than the analysis conducted during a preliminary category review or study, and may include primary data collection activities (such as industry questionnaires and wastewater sampling and analysis) to fill data gaps.



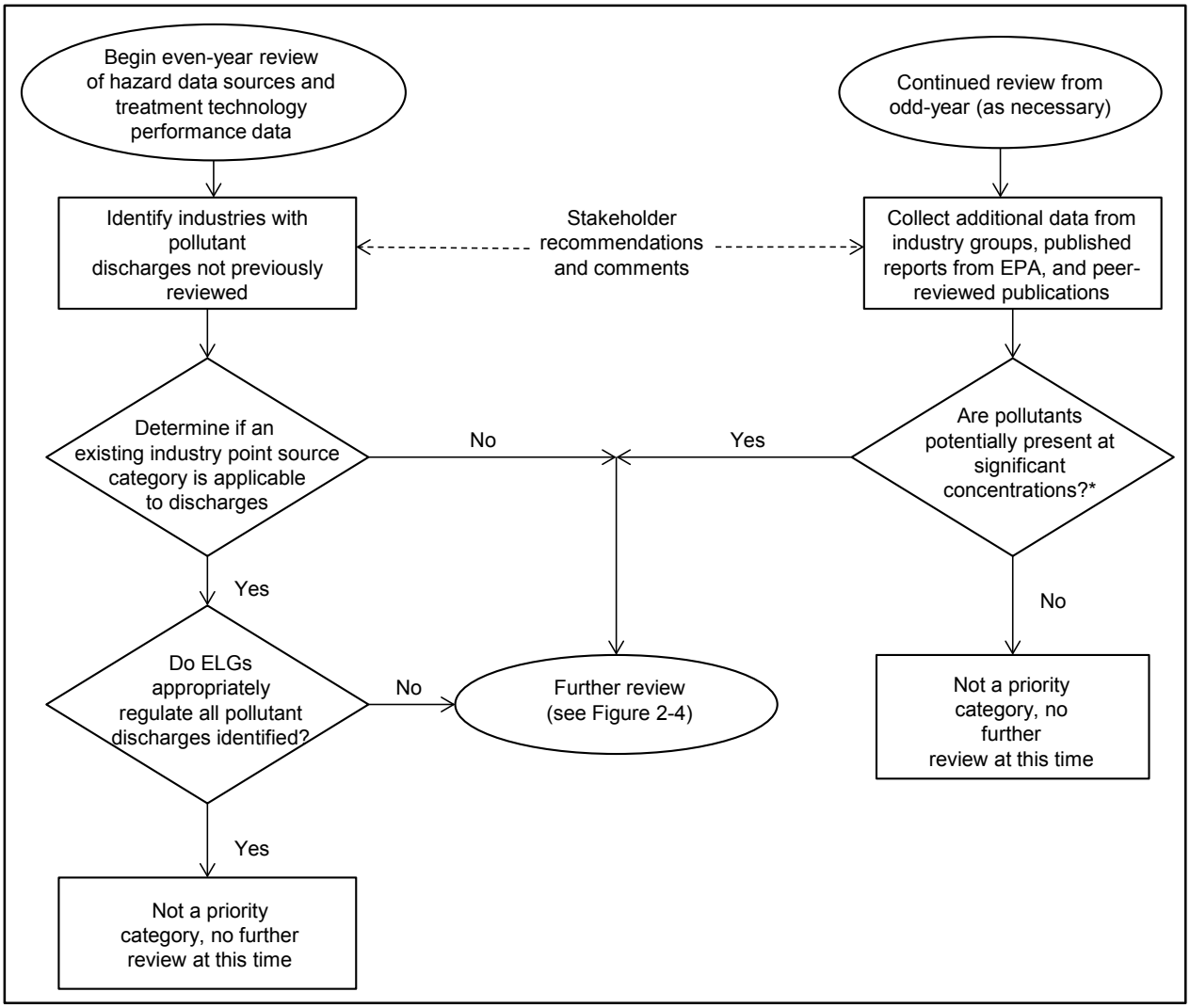
* If EPA is aware of new segment growth within such a category or new concerns are identified, EPA may do further review.

Figure 2-1. Odd-Year Annual Review of Existing ELGs



* Significant concentrations include levels above minimum levels from 40 CFR Part 136 or other EPA-approved methods, levels above treatability levels, or at levels of concern to human health and toxicity.

Figure 2-2. Odd-Year Identification of Possible New ELGs



* Significant concentrations include levels above minimum levels from 40 CFR Part 136 or other EPA-approved methods, levels above treatability levels, or at levels of concern to human health and toxicity.

Figure 2-3. Even-Year Annual Review of Existing ELGs and Identification of Possible New ELGs

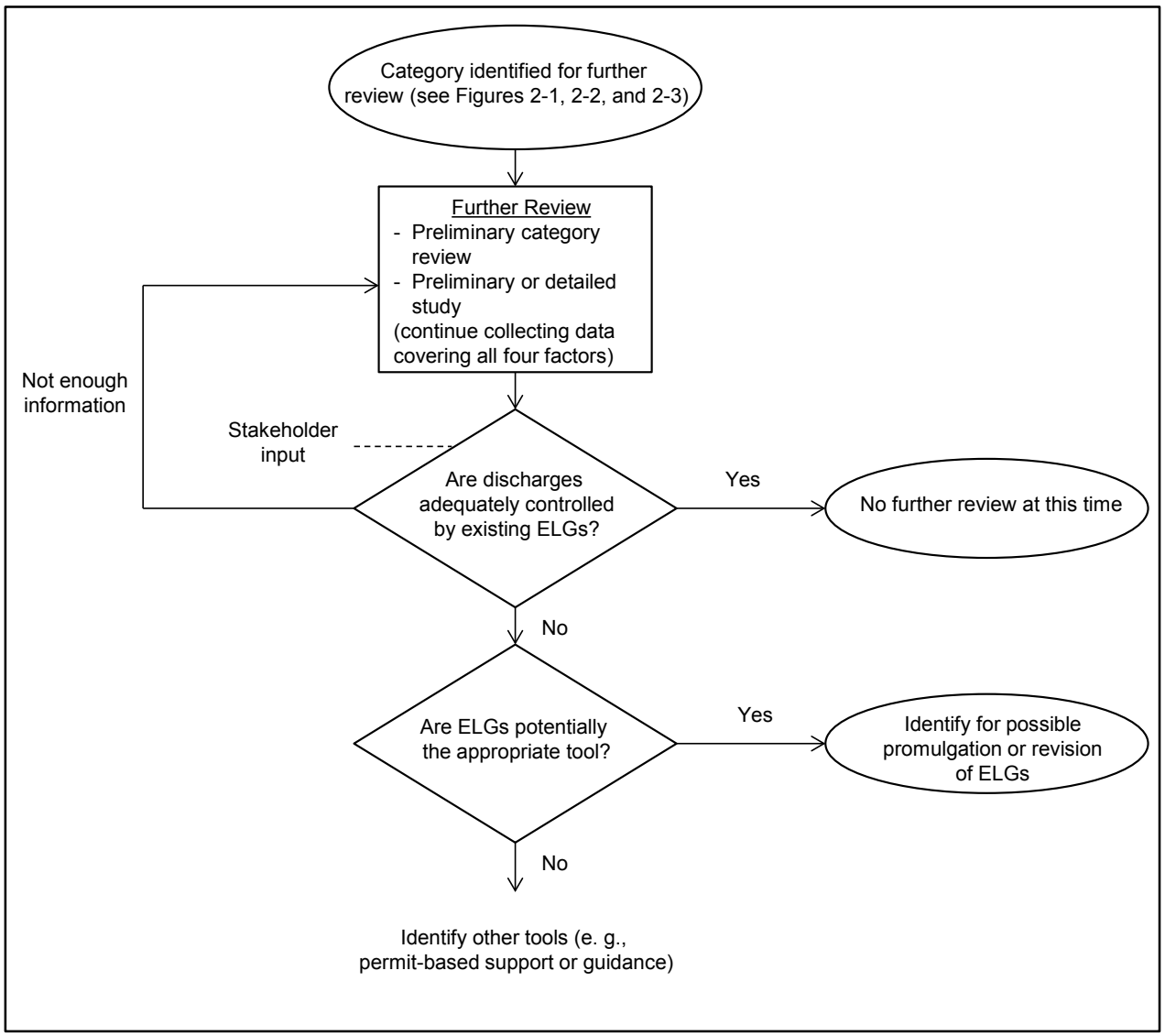


Figure 2-4. Further Review of Industrial Categories Identified During Annual Reviews

2.2.2 Effluent Guidelines Program Plans

CWA section 304(m)(1)(A) requires EPA to publish an Effluent Guidelines Program Plan (Plan) every two years that establishes a schedule for the annual review and revision, in accordance with section 304(b), of the effluent limitations guidelines that EPA has promulgated under that section. EPA's *2014 Annual Effluent Guidelines Review Report* (2014 Annual Review Report) presents the results of its effluent limitations guidelines reviews (U.S. EPA, 2015).

Under the even- and odd-year annual review approach described above in Section 2.2.1, EPA works to coordinate its annual reviews of existing effluent guidelines under section 304(b) with its publication of Preliminary and Final Plans under CWA section 304(m). As a result, Final Plans present the compilation of the odd- and even-year reviews and any public comments received on the Preliminary Plan. EPA may initiate, continue, or complete preliminary category reviews or in-depth studies during the odd- or even-year reviews, depending upon when it

identifies a category warranting further review. Additionally, EPA may publish the conclusions from these studies as part of the Preliminary or Final Plan, based on when during the planning cycle the study or review is completed.

EPA coordinates its annual reviews under section 304(b) with publication of Plans under section 304(m) for several reasons. First, the annual reviews are inextricably linked to the planning effort because each review year's results may inform the content of the Preliminary and Final Plans (e.g., by identifying candidates for effluent limitations guidelines revision, or by identifying point source categories for which EPA has never promulgated effluent limitations guidelines). Second, even though it is not required to do so under either section 304(b) or section 304(m), EPA believes it can serve the public interest by periodically describing the annual reviews (including the review process used) and review results to the public. Doing so while simultaneously publishing the Preliminary and Final Plans makes both processes more transparent. Third, by requiring EPA to review existing effluent limitations guidelines each year, Congress appears to have intended for each successive review to build upon the results of earlier reviews.

2.3 Effluent Limitations Guidelines and Pretreatment Standards Overview

The effluent guidelines program is one component of the Nation's clean water program, established by the 1972 Clean Water Act and subsequent amendments. The effluent guidelines program is authorized under CWA sections 301, 304, 306, and 307, 33 U.S.C. §§ 1311, 1314, 1316, 1317. In summary, the CWA directs EPA to promulgate categorical regulations through the following six levels of control:

1. Best practicable control technology currently available (BPT).
2. Best available technology economically achievable (BAT).
3. Best conventional control technology (BCT).
4. New source performance standards (NSPS).
5. Pretreatment standards for existing sources (PSES).
6. Pretreatment standards for new sources (PSNS).

For point sources that discharge pollutants directly into surface waters (direct dischargers), the limitations and standards promulgated by EPA are implemented through NPDES permits. See CWA sections 301(a), 301(b), 402; 33 U.S.C. §§ 1311(a), 1311(b), 1342. For sources that discharge to POTWs (indirect dischargers), EPA promulgates pretreatment standards that apply directly to those sources and are enforced by POTWs and state and federal authorities. See CWA sections 307(b), (c); 33 U.S.C. § 1317(b), (c). Figure 2-5 illustrates the relationship between the regulation of direct and indirect dischargers.

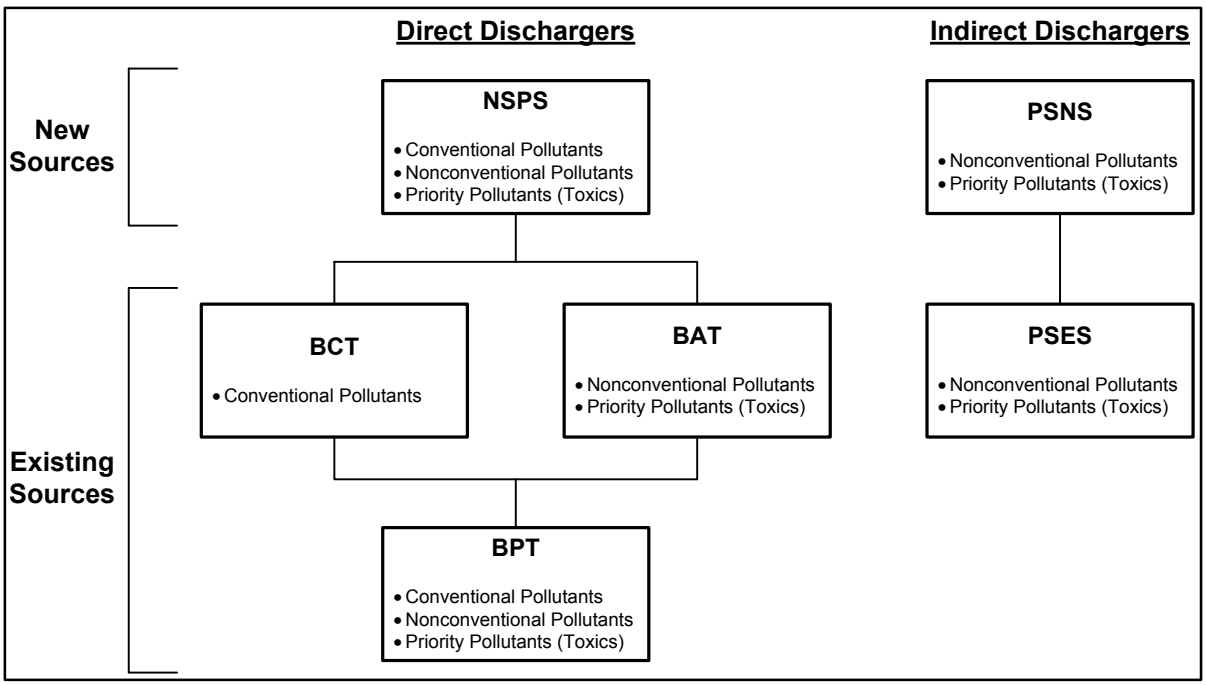


Figure 2-5. Regulations of Direct and Indirect Wastewater Discharges

2.3.1 Best Practicable Control Technology Currently Available (BPT) — CWA Sections 301(b)(1)(A) and 304(b)(1)

EPA develops effluent limitations based on BPT for conventional, toxic, and nonconventional pollutants. CWA section 304(a)(4) designates the following as conventional pollutants: biochemical oxygen demand (BOD_5), total suspended solids, fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease as an additional conventional pollutant on July 30, 1979 (see 44 FR 44501). EPA has identified 65 pollutants and classes of pollutants as toxic pollutants, of which 126 specific substances have been designated priority toxic pollutants. See Appendix A to Part 423, reprinted after 40 CFR Part 423.17. All other pollutants are considered to be nonconventional.

In specifying BPT, EPA looks at a number of factors. EPA first considers the total cost of applying the control technology in relation to the effluent reduction benefits. It also considers the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water-quality environmental impacts (including energy requirements), and such other factors the EPA Administrator deems appropriate. See CWA section 304(b)(1)(B). Traditionally, EPA establishes BPT effluent limitations by averaging the best performances of facilities of various ages, sizes, processes, or other common characteristics within the industry. Where existing performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category, if EPA determines that the technology can be applied practically.

2.3.2 Best Conventional Pollution Control Technology (BCT) — CWA Sections 301(b)(2)(E) and 304(b)(4)

The 1977 amendments to the CWA required EPA to identify effluent reduction levels for conventional pollutants associated with BCT for discharges from existing industrial point sources. In addition to the other factors specified in section 304(b)(4)(B), the CWA requires that EPA establish BCT limitations after considering a two-part, "cost-reasonableness" test. EPA explained its methodology for the development of BCT limitations in 1986 (see 51 FR 24974; July 9, 1986).

2.3.3 Best Available Technology Economically Achievable (BAT) — CWA Sections 301(b)(2)(A) and 304(b)(2)

For toxic pollutants and nonconventional pollutants, EPA promulgates effluent guidelines based on BAT. See CWA sections 301(b)(2)(A), (C), (D), and (F). The factors considered in assessing BAT include the cost of achieving BAT effluent reductions, the age of equipment and facilities involved, the process employed, potential process changes, non-water-quality environmental impacts (including energy requirements), and such other factors the EPA Administrator deems appropriate. See CWA section 304(b)(2)(B). The technology must also be economically achievable. See CWA section 301(b)(2)(A). In addition to end-of-pipe wastewater treatment, BAT limitations may be based on effluent reductions attainable through changes in a facility's processes and operations. Where existing performance is uniformly inadequate, BAT may reflect a higher level of performance than is currently being achieved within a particular subcategory based on technology transferred from a different subcategory or category. BAT may be based upon process changes or internal controls, even when these technologies are not common industry practice.

2.3.4 New Source Performance Standards (NSPS) — CWA Section 306

NSPS reflect effluent reductions based on the best available demonstrated control technology. New sources have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available demonstrated control technology for all pollutants (i.e., conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA considers the cost of achieving the effluent reduction and any non-water-quality environmental impacts and energy requirements. See CWA section 306(b)(1)(B).

2.3.5 Pretreatment Standards for Existing Sources (PSES) — CWA Section 307(b)

PSES apply to indirect dischargers and are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs, including wastewater conveyance and sludge disposal. Pretreatment standards are technology-based and are analogous to BAT effluent limitations guidelines. See CWA section 301(b)(1)(A).

The General Pretreatment Regulations, which set forth the framework for implementing national pretreatment standards, are found at 40 CFR Part 403.

2.3.6 Pretreatment Standards for New Sources (PSNS) — CWA Section 307(c)

Like PSES, PSNS apply to indirect dischargers and are designed to prevent the discharges of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSNS are to be issued at the same time as NSPS. See CWA section 307(c). New indirect dischargers have the opportunity to incorporate the best available demonstrated technologies in their plants. EPA considers the same factors in promulgating PSNS as it does in promulgating NSPS.

3. 2014 EFFLUENT GUIDELINES PLANNING PROCESS AND METHODOLOGY

This section summarizes the process EPA used in its 2014 Annual Review to identify industrial categories for potential development of new or revised effluent limitations guidelines and standards (ELGs), as well as the data sources and limitations used to complete this review. This process consists of the following:

- Considering public comments on the *Preliminary 2014 Effluent Guidelines Program Plan* (Preliminary 2014 Plan) and other stakeholder input.
- Continuing to review (e.g., collecting additional data, contacting permit writers, evaluating available treatment technology information) specific industrial categories that EPA identified as warranting additional review in the *Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans* (Final 2012 and Preliminary 2014 Plans).
- Identifying and evaluating new data sources and conducting additional supporting analyses to do the following:
  - — Identify new wastewater discharges or pollutants not previously regulated; and
  - — Identify wastewater discharges that industry can more effectively treat or eliminate.

3.1 Summary of the 2014 Annual Review Methodology

This section briefly summarizes EPA's 2014 Annual Review methodology. For more information and details on EPA's 2014 Annual Review methodology and analyses, see Part II (Sections 3 through 6) of EPA's *2014 Annual Effluent Guidelines Review Report* (2014 Annual Review Report) (U.S EPA, 2015).

3.1.1 Public Comments on the Preliminary 2014 Plan and Stakeholder Input

For the 2014 Annual Review, EPA considered public comments and stakeholder input received on the Preliminary 2014 Plan. See Section 4.1 for a summary of the public comments and stakeholder input received. For a detailed listing of the organizations that provided public comment and stakeholder input, see DCN 08110.

3.1.2 Continued Review of Selected Industrial Categories

EPA continued to evaluate industrial categories that it identified as warranting further review in the Final 2012 and Preliminary 2014 Plans. These included two regulated industrial categories, Metal Finishing (40 CFR Part 433) and Pesticide Chemicals (40 CFR Part 455), and one potential new source of industrial wastewater discharge (brick and structural clay products manufacturing) (U.S. EPA, 2014a).

EPA documented the quality and usability of the data supporting its continued review of these industrial categories and evaluated how the data could be used to improve the

characterization of industrial wastewater discharges. EPA collected and reviewed data to identify the universe of facilities with known or potential discharges, the concentration and quantity of pollutants, and the wastewater treatment available for new industries. EPA then prioritized the findings for further review.

3.1.2.1 Continued Review of the Metal Finishing Category (40 CFR Part 433)

As part of the 2012 Annual Review, EPA determined that transfers from metal finishing wastewater to publicly-owned treatment works (POTW) sludge may be contributing to higher POTW sludge concentrations of metals, particularly chromium, nickel, and zinc. In addition, in a recent letter to EPA and in its public comments on the Preliminary 2012 Plan, the Association of Clean Water Administrators (ACWA) urged EPA to revise the regulations or issue new guidance to address advancements in process and treatment technology for metal finishing and metal finishing wastewater. ACWA also urged EPA to update the interpretation of the applicability of the Metal Finishing regulations in light of current industrial practices (ACWA, 2013; U.S. EPA, 2014b). Furthermore, in the 2013 Annual Review, the Metal Finishing Category ranked high in terms of toxic-weighted pound equivalents (TWPE) in EPA's toxicity ranking analysis (TRA).

To understand whether the Metal Finishing Category's current ELGs may warrant revisions, EPA reviewed the scope of the existing ELGs, examined the current industry profile, and gathered data on wastewater treatment technologies in the 2014 Annual Review. EPA also contacted regional EPA pretreatment coordinators to further discuss metal finishing operations and potential applicability issues with the Metal Finishing ELGs. See Section 5.1 of the 2014 Annual Review Report for details on the specific methodologies and analyses EPA employed for its continued review of the Metal Finishing Category (U.S. EPA, 2015).

3.1.2.2 Targeted Review of Pesticide Active Ingredients (PAIs) Without Pesticide Chemicals Manufacturing Effluent Limits (40 CFR Part 455)

As part of the 2012 Annual Review, EPA reviewed analytical methods that it recently developed or revised to facilitate its identification of unregulated pollutants in industrial wastewater discharge. By examining these methods, EPA identified 30 PAIs that are now measured by existing analytical methods under 40 CFR Part 136, but that do not currently have effluent limits under Subparts A and B in the Pesticide Chemicals ELGs (40 CFR Part 455) (U.S. EPA, 2014c). For the 2014 Annual Review, EPA began evaluating data sources that would provide information on the production of the 30 PAIs of interest to identify and prioritize for further review any that are manufactured in the U.S. These sources included pesticide registration status under Section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and production information reported under Section 7 of FIFRA. See Section 5.2 of the 2014 Annual Review Report for details on the specific methodologies and analyses EPA employed for its targeted review of PAIs for which the discharge from manufacturing is not regulated under the Pesticide Chemicals ELGs (U.S. EPA, 2015).

3.1.2.3 Continued Review of Brick and Structural Clay Products Manufacturing

In its 2012 Annual Review, EPA identified brick and structural clay products manufacturing as an industry not currently regulated by ELGs that may generate industrial wastewater discharges due to federal air pollution control requirements. To understand if

wastewater discharges are being generated as a result of the implementation of the air regulations, as part of its 2014 Annual Review, EPA reviewed the current National Emission Standards for Hazardous Air Pollutants (NESHAP) for the industry to assess more about the potential impacts on the industry, specifically regarding the installation of wet air pollution controls. See Section 5.3 of the 2014 Annual Review Report for details on the specific methodologies and analyses EPA employed for its continued review of brick and structural clay products manufacturing (U.S. EPA, 2015).

3.1.3 New Data Sources and Additional Supporting Analyses

For the 2014 Annual Review, EPA also initiated a review of engineered nanomaterials (ENMs), an emerging pollutant group of concern, and continued its review of industrial wastewater treatment technology performance data in order to populate the Industrial Wastewater Treatment Technology (IWTT) Database. EPA's goals in focusing on these specific analyses were to identify new wastewater discharges or pollutants not previously regulated, and to identify wastewater discharges that can be eliminated or treated more effectively.

EPA documented the quality of the data supporting these reviews, evaluated how the data could be used to improve the characterization of industrial wastewater discharges (such as detection or monitoring of new pollutants, wastewater treatment available for specific industries, as well as current treatability levels), and prioritized the findings for further review.

3.1.3.1 Review of Engineered Nanomaterials (ENMs) in Industrial Wastewater

In the 2014 Annual Review, EPA began evaluating ENMs as a potential emerging industrial wastewater pollutant category of concern. This was in response to public comments received on the Final 2010 Effluent Guidelines Program Plan (76 FR 66286) regarding the manufacture, use, and environmental release of nanosilver, as well as recent research and interest about ENMs impacts on human health and the environment. EPA reviewed current literature and communicated with leading researchers and government stakeholders about the fate, transport, and effects of ENMs on the environment and human health, and about the presence and discharge of ENMs in industrial wastewater. EPA focused its review on three classes of ENMs: silver, titanium dioxide, and carbon-based nanomaterials, which are estimated to be produced in the largest volumes. Further research has more fully classified their impact on human health and the environment relative to the impacts of other types of ENMs (for which there is little information). EPA assessed currently available information and identified outstanding data gaps related to characterizing and quantifying the presence and impact of ENMs in industrial wastewater discharges. See Section 6.1 of the 2014 Annual Review Report for details on the specific methodologies and analyses EPA employed for its review of ENMs in industrial wastewater (U.S. EPA, 2015).

3.1.3.2 Review of Industrial Wastewater Treatment Technologies

EPA continued reviewing technical papers and research articles that document the performance of new and improved industrial wastewater treatment technologies. EPA is working to capture the performance data and treatment information in a searchable database. Such a database would facilitate screening of industrial categories for new or revised ELGs based on the availability and effectiveness of technologies in removing pollutants of concern from specific

industrial wastewater discharges. As part of the 2014 Annual Review, EPA described its industrial wastewater treatment technology data collection methodology; data quality assurance and control protocol; and database design, development, and storage. EPA also summarized the industrial wastewater treatment technology information collected to date. See Section 6.2 of the 2014 Annual Review Report for details on the specific methodologies and analyses EPA employed for its review of industrial wastewater treatment technologies (U.S. EPA, 2015).

3.2 Categories Excluded from EPA's 2014 Annual Review

Consistent with its previous annual reviews, EPA eliminated the following from further consideration during its 2014 Annual Review:

- Discharges from industrial categories for which EPA has recently promulgated or revised ELGs (within the past seven years);
- Discharges from facilities that require a National Pollutant Discharge Elimination System (NPDES) permit, but do not fall under an existing or new point source category or subcategory (e.g., Superfund sites); and
- Discharges from facilities determined not to be representative of their category.

3.2.1 Categories for Which EPA Has Recently Promulgated or Revised ELGs

In its 2014 Annual Review, EPA excluded point source categories for which ELGs were recently established or revised but are not yet fully implemented. Point source categories that were recently reviewed in a rulemaking context, but for which EPA decided to withdraw the proposal or select the "no action" option, were also excluded. In general, EPA removed an industrial point source category from further consideration during a review cycle if EPA established, revised, or reviewed the category's ELGs within seven years prior to the annual reviews. This seven-year period allows time for the ELGs to be incorporated into NPDES permits. Table 3-1 lists the categories EPA excluded from the 2014 Annual Review due to this seven-year period.

Table 3-1. Point Source Categories That Have Undergone Recent Rulemaking

40 CFR Part	Point Source Category	Date of Rulemaking
450	Construction and Development	December 1, 2009 Revised March 6, 2014
122 and 412	Concentrated Animal Feeding Operations (CAFOs)	November 20, 2008
449	Airport Deicing	May 16, 2012

As part of its 2014 Annual Review, EPA also did not consider industrial categories for which it is currently engaged in a rulemaking process. These include the Steam Electric Power Generating Category, Canned and Preserved Seafood Category (covering the Alaskan seafood processing subcategories), dental practices (specifically, relating to the discharge of mercury found in dental amalgam), and unconventional extraction in the Oil and Gas Extraction

Category. See Section 5.2 of this Final 2014 Plan for details on the rulemaking status for these categories.

3.2.2 Discharges Not Categorizable

In its 2011 Annual Review, EPA identified discharges that are not categorizable into existing or new point source categories or subcategories (U.S. EPA, 2012a). In particular, EPA reviewed high TWPE discharges from a Superfund site (Auchterlonie, 2009). Direct discharges from Superfund sites, whether made on site or off site, are subject to NPDES permitting requirements (U.S. EPA, 1988a, 1988b). For the reasons discussed in the Preliminary 2012 Plan (78 FR 48159), EPA determined that these discharges do not fall into a single point source category and continued to exclude these discharges in its 2014 Annual Review.

3.3 Data Quality Assurance and Limitations

EPA's methodology for the 2014 Annual Review involved several components, as discussed in Section 3.1, including continued review of selected industrial categories, an evaluation of new data sources and additional supporting analyses, and an assessment of public comments and other stakeholder input.

EPA used the following sources to characterize wastewater discharges during the 2014 Annual Review:

- Data and information from academic researchers (non-published);
- Conference proceedings, peer-reviewed journals, industry-specific organization literature;
- EPA, state, and local government information provided in telephone calls, and email correspondence;
- Federal, state, and local government publications;
- Data and information obtained from industry;
- Data and information obtained from trade associations;
- Information obtained from the National Nanotechnology Initiative;
- Other stakeholder data and information; and
- U.S. Economic Census data.

In addition, as in previous annual reviews, EPA continued to use Toxics Release Inventory (TRI) and discharge monitoring report (DMR) data, downloaded from the DMR Pollutant Loading Tool during the 2014 Annual Review. This section discusses these data sources and their limitations.

3.3.1 Data Sources Supporting New or Continued Analyses

For its 2014 Annual Review, EPA used existing data to support analyses of the potential environmental impact of industrial discharges. EPA obtained the existing data from publications and databases available from other EPA offices, directly from industry and regulators, and through online sources. EPA considered the accuracy, reliability, and representativeness of data sources to assess their usability for the 2014 Annual Review, as described below and in Section 4.3.1 of the *Environmental Engineering Support for Clean Water Regulations Programmatic Quality Assurance Project Plan* (PQAPP*)* (ERG, 2013). EPA also referenced Table 4-2 in the PQAPP to determine if the sources provided information that was sufficiently accurate and reliable to use in the 2014 Annual Review.

Accuracy. EPA assumed that the supporting data and information contained in certain sources were sufficiently accurate to support the characterization of industry waste streams and the performance of specified treatment technologies. These sources included state and federal reports, selected conference proceedings, peer-reviewed journal articles, and information obtained directly from federal, state, or local government organizations. EPA also considered data and information from certain non-peer-reviewed industry publications to assist in qualitatively characterizing specific industrial discharges.

Reliability. Using the following factors, EPA also evaluated the reliability of collected existing data for use in qualitative analyses:

- The scientific work is clearly written, so that all assumptions and methodologies can be identified;
- The variability and uncertainty (quantitative and qualitative) in the information or in the procedures, measures, methods, or models are evaluated and characterized;
- The assumptions and methodologies are consistently applied throughout the analysis, as reported in the source; and
- Waste stream, parameters, units, and detection limits (when appropriate) are clearly characterized.

EPA considered data sources that met these criteria sufficiently reliable to support the characterization of industry waste streams and the performance of specified treatment technologies.

Representativeness. EPA evaluated existing data for use in qualitative analyses based on whether the data provide a national perspective and are relevant to and representative of the industry or pollutant group to which the data are applied using the following factors:

- *Relevance.* The data source is relevant to the industry or pollutant group of interest (e.g. the industry description or Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS) codes provided in the data source, when available, match the industry or pollutant group of interest,

the wastewater treatment technology is appropriate for the waste stream(s) generated at the facility).

- *National Applicability*. The data can be applied broadly to provide a national perspective relative to the industry or pollutant group of interest (e.g., are the data characteristic of the industry or pollutant group as a whole? Can the treatment technology generally be used to treat wastewater(s) from the industry?).

EPA considered data sources that met these criteria sufficiently representative to support the characterization of industry waste streams and the performance of specified treatment technologies.

For more information on the quality assurance activities supporting the 2014 Annual Review, including a summary of EPA's data quality and utility evaluation for the additional data sources, see Appendix B of the 2014 Annual Review Report (U.S EPA, 2015).

3.3.2 DMR and TRI Data

EPA has previously explained its use of DMR and TRI data in the Technical Support Document for the Annual Review of Existing Effluent Guidelines and Identification of Potential New Point Source Categories (2009 Screening-Level Analysis (SLA) Report) (U.S. EPA, 2009). The 2009 SLA Report provides the detailed methodology used to process thousands of data records and generate national estimates of industrial effluent discharges.

In general, EPA uses DMR data to understand discharges of pollutants that are regulated by an ELG or for which NPDES permits require monitoring. More than 190,000 industrial facilities and 17,000 wastewater treatment plants have NPDES individual or general permits[2] for wastewater discharges to waters of the U.S. Facilities must report compliance with NPDES permit limits via DMRs. DMR data can include pollutant concentration and/or quantity, flow, and identification of permit violations. Thus DMR data provide readily available and relevant information on industrial pollutant discharges to surface waters, e.g., direct discharges.

In comparison, EPA generally uses TRI data to understand indirect discharges of pollutants to POTWs as well as the discharge of pollutants that are not regulated via NPDES permits. TRI requires facilities that meet operating thresholds, to report on-site releases of certain listed toxic chemicals to receiving streams and POTWs, as well as other media (e.g., air, land, underground wells, and several other categories). In addition, the list of chemicals reported to TRI can be broader than the chemicals for which facilities have NPDES permit limitations or monitoring requirements, and therefore reported on DMRs. Thus TRI data provides supplementary information to DMR data regarding potential additional unregulated pollutants that may be discharged by an industrial category. However, as discussed below, TRI data are somewhat limited in utility due to TRI reporting requirements, including requirements that allow facilities to report releases that are based on estimates and not actual sampling data.

[2] An NPDES individual permit is written to reflect site-specific conditions of a single discharger based on information submitted by that discharger in a permit application. An individual permit is unique to that discharger. NPDES general permits are written to cover multiple dischargers with similar operations and types of discharges based on the permit writer's professional knowledge of those types of activities and discharges (U.S. EPA, 2007).

For its analyses EPA typically relies on outputs from the DMR Pollutant Loading Tool,[3] which categorizes pollutant discharges using the SIC and NAICS codes and calculates pollutant loadings using DMR and TRI discharge data. In its analyses, EPA multiplies a mass loading of a pollutant in pounds per year (as reported in the DMR Pollutant Loading Tool) by a pollutant-specific toxic weighting factor (TWF) to derive a toxic-weighted pound equivalent (TWPE) loading. For more information on TWFs, see EPA's Toxic Weighting Factors Methodology (U.S. EPA, 2012b). EPA also classifies each facility reporting discharges into a particular industrial point source category based on the applicable SIC or NAICS codes for that facility. TRI includes information on a facility's NAICS code, while DMR data include information on a facility's SIC code. EPA then sums the TWPE for each facility classified in a point source category to calculate a total TWPE per category for a given year. Table 3-2 describes the utility and limitations of the DMR and TRI data.

Table 3-2. TRI and DMR Data Utility and Limitations

TRI	DMR
Utility of Data	
National scope.	National scope.
Includes releases to POTWs, not just direct dischargers to surface waters.	Discharge reports are based on effluent chemical analysis and metered flows.
Includes releases of many toxic chemicals, not just those on the facility permit.	Includes discharge data from facilities classified by any SIC code.
Includes discharge data from facilities classified by manufacturing NAICS codes and some other industrial categories.	
Limitations of Data	
Small establishments and those that do not meet reporting requirements are not included in the database.	Data systems contain data only for pollutants in the facility permit.
Some releases are based on estimates due to TRI reporting guidance; some facilities may over- or under-estimate releases.	Limited discharge data on minor[b] discharges.
Certain chemicals are reported as a class, not as individual compounds.[a] This can cause inaccurate estimates of the toxicity of chemical releases.	Data systems do not include data characterizing indirect discharges from industrial facilities to POTWs.
Facilities are identified by NAICS codes, not point source category.	Facilities do not always report duration of discharges, which may overestimate toxic releases based on the assumption that discharges are continuous.
TRI only requires facilities to report certain chemicals; therefore, all pollutants discharged from a facility may not be captured.	Some data systems do not identify the type of wastewater discharged, which may include stormwater or non-contact cooling water; pipe identification is not always clear.

[3] The DMR Pollutant Loading Tool is at http://cfpub.epa.gov/dmr/. The tool is maintained by EPA's Office of Enforcement and Compliance Assurance, Office of Compliance.

Table 3-2. TRI and DMR Data Utility and Limitations

TRI	DMR
	Facilities are identified by SIC codes, not point source category.
	Data may contain errors from manual data entry.
	Facilities do not always report average concentrations or quantities, which results in an overestimation if only maximum values are reported.

[a] Chemicals reported as a class include polycyclic aromatic compounds, dioxin and dioxin-like compounds, and metal compounds.

[b] EPA developed a major/minor classification system for industrial and municipal wastewater discharges. The distinction was initially made to help EPA and states set priorities for permit issuance and reissuance. Facilities with minor discharges must report compliance with NPDES permit limits via monthly DMRs submitted to the permitting authority; however, EPA does not require the permitting authority to enter data in the Permit Compliance System and Integrated Compliance Information System-NPDES databases (U.S. EPA, 2010).

The DMR and TRI data EPA used have been evaluated and corrected during previous Toxicity Ranking Analyses (TRAs) reported for calendar years 2000, 2002, 2004, and 2006–2013. For a detailed list of all corrections made to the 2011 DMR and TRI data, see Section 3.3.1 and 3.3.2, respectively, in EPA's 2013 Annual Review Report (U.S. EPA, 2014d).

4. RESULTS OF THE 2014 ANNUAL REVIEW

For the 2014 Annual Review, EPA evaluated public comments and stakeholder input received on the *Preliminary 2014 Effluent Guidelines Program Plan* (Preliminary 2014 Plan) and continued its review of specific industrial categories that EPA identified as warranting additional review in the *Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans* (Final 2012 and Preliminary 2014 Plans). Furthermore, EPA identified new data sources and conducted additional supporting analyses.

4.1 Findings from Public Comments and Stakeholder Input

EPA's annual review process considers information provided by the public and stakeholders regarding new or revised effluent limitations guidelines and pretreatment standards. This section presents a summary of the comments received on the Preliminary 2014 Plan. A more detailed summary table of the comments can be found in the *2014 Annual Effluent Guidelines Review Report* (2014 Annual Review Report) (U.S. EPA, 2015).

EPA published its Preliminary 2014 Plan together with the Final 2012 Plan and provided a 60-day public comment period on the Preliminary 2014 Plan starting on September 16, 2014 (see 79 FR 55472). The Docket supporting this *Final 2014 Effluent Guidelines Program Plan* (Final 2014 Plan) includes a complete set of the comments submitted, as well as the Agency's responses (see DCN 08110).

EPA received public comments on the Preliminary 2014 Plan from 18 organizations; one consultant to pretreatment programs for local governments, one organization representing states, nine organizations representing industry, and seven environmental organizations.[4] The public comments addressed the following topics:

- Centralized waste treatment (CWTs) (5 comments);
- Petroleum refining (4 comments);
- Metal finishing (3 comments);
- Nanomaterials (3 comments);
- Oil and gas pretreatment standards and ongoing rulemaking for oil and gas extraction for unconventional oil and gas facilities (2 comments); and
- Other (2 comments).

EPA received five comments on its proposed CWTs detailed study from one consultant to local government pretreatment programs, two industry representatives, and several environmental organizations. The consultant to local government pretreatment programs commented that EPA should review and clearly define the applicability of CWT effluent limitations guidelines and standards (40 CFR Part 437) as they relate to accepting oil and natural

[4] Seven environmental organizations submitted one combined public comment on the Preliminary 2014 Plan. One of the environmental organizations also submitted a separate public comment on the Preliminary 2014 Plan.

gas produced wastewater. One industry representative questioned the intent and basis for the CWTs detailed study, stating there is a lack of definition for what qualifies as a CWT, a lack of a reasonable basis for initiating the study, and potential overlap with the Oil and Gas Extraction ELGs for shale gas facilities that direct their wastewater to CWTs. The other industry representative commented that revising the CWT ELG may not be necessary to address discharges of oil and gas extraction wastewater (to CWTs, POTWs, or surface water) and that any new regulations and/or guidelines for CWT facilities could be aided by direct meetings between EPA, industry experts in the field, and the operators of CWT facilities. The environmental organizations supported EPA's decision to undertake a detailed study of CWTs that accept oil and gas wastewaters and requested the study be expedited, stating that (1) the CWT ELGs are out of date in light of the developments in the oil and gas extraction industry; (2) CWTs may not have treatment in place for pollutants in oil and gas wastewaters; (3) oil and gas wastewaters may have potential impacts on drinking water sources; and (4) pretreatment standards under development for discharges to POTWs from onshore unconventional oil and gas extraction could result in more discharges to CWTs. One environmental organization also provided recommendations for resources and information in support of the CWT detailed study.

For the Petroleum Refining Category (40 CFR Part 419), EPA received three comments from industry representatives questioning the quality and appropriateness of data used as the basis for initiating the study. Industry representatives also questioned EPA's objective for examining feedstock metals. One industry representative questioned the basis for EPA's investigation of polynuclear aromatic hydrocarbons. EPA also received a comment from the consultant to local government pretreatment programs supporting the detailed study and suggesting that EPA specifically evaluate common problem pollutants, including benzene and sulfides. In addition, the commenter indicated that EPA should evaluate groundwater pump-and-treat operations to clearly define regulated, unregulated, and dilute waste streams.

EPA received comments on its proposal to continue review of the Metal Finishing Category (40 CFR Part 433) from the consultant to local government pretreatment programs, one industry representative, and an organization representing states. The consultant to the local government pretreatment programs did not support reopening the regulation because it could make the regulation vulnerable to weakening by special interest groups. The industry representative did not support further review of the Metal Finishing Category, stating that EPA recently reviewed the industry as part of the Metal Products and Machinery ELGs rulemaking and determined that revised guidelines were not necessary. Further, the industry representative commented that the industry is not using new processes or treatment technologies that would suggest the need to revise the applicable Metal Finishing ELGs, and POTWs have the ability to impose stricter limits to address specific concerns. The organization representing states supported further review of the Metal Finishing Category, stating that the industry has changed significantly since the existing regulations were developed. These changes include updated chemical formulas and processes, new pollutants of concern, new treatment technologies, and a broader scope for the metal finishing universe. The organization representing states also commented that clarification is needed regarding classification of a facility as an existing or new source, that there are inconsistencies in categorical determinations across the country for certain metal finishing applications (etching vs cleaning, coating vs adsorption, phosphate coating vs cleaning), and that EPA should consider adopting a sunset provision for the Electroplating ELGs (40 CFR Part 413) to require eventual compliance with the Metal Finishing ELGs (40 CFR Part 433).

For nanomaterials, the consultant to local government pretreatment programs and one industry representative supported EPA's effort to characterize nanomaterials in industrial wastewater discharges. Specifically, the industry representative urged EPA to recognize the diversity of nanomaterials and their applications across multiple industries in its future reports; coordinate closely with EPA's New Chemicals Program to understand nanomaterial releases in water; consider work on the fate and transport of nanomaterials completed or currently underway; and recognize the potential for nanotechnology to provide new and improved tools for wastewater treatment. One wastewater treatment products manufacturer also commented that he is currently testing a coagulant/flocculent/filter aid that has shown success at settling nano-particles, E. coli, phosphorus and other particulates.

The group of seven environmental groups commented that ongoing revisions to pretreatment standards for discharges to POTWs need to reflect changes in onshore oil and gas exploration, stimulation, and extraction. One environmental organization commented that the oil and gas ELG rulemaking for the unconventional oil and gas facilities should be finalized as soon as possible, and provided recommendations for resources and information in support of the rulemaking.

The organization representing states supported EPA's new even-year review methodology, used in the 2012 Annual Review, as well as inclusion of the current status of ELGs under development in the Final 2012 Plan. This commenter also suggested improvements to the ELG review and planning processes, including an increase in EPA staff allocated to work on ELGs and pretreatment standards, and publication of Annual Review Reports earlier in the planning process, as well as more timely publication of future ELG Plans.

The consultant to local government pretreatment programs commented that EPA should add biodiesel manufacturing to the list of industrial sectors to evaluate.

Lastly, EPA received three unsolicited comments on final decisions announced in the Final 2012 Plan. EPA did not solicit public comment on the contents of the Final 2012 Plan since public comments were solicited on the actions and decisions when they were proposed in the Preliminary 2012 Plan on August 7, 2013. Regardless, one industry commenter indicated support for EPA's decision in the Final 2012 Plan to delist coalbed methane as a new subcategory under the Oil and Gas Extraction Category (40 CFR Part 435), and an environmental organization indicated they did not support EPA's decision to delist coalbed methane. The third unsolicited comment by an industry organization indicated support for EPA's final decision in the Final 2012 Plan not to further review Pulp and Paper industry discharges.

In general, the public comments submitted on the Preliminary 2014 Plan did not result in any new direction or determinations with respect to the proposed actions announced in the Preliminary 2014 Plan, or EPA's final decisions and actions indicated in this Final 2014 Plan. EPA did, however, receive useful information and input from the public review that will help inform ongoing studies, in particular Petroleum Refining, Metal Finishing, and CWTs. EPA's responses to the specific comments can be found in EPA's comment response document (DCN 08110).

4.2 Findings from Continued Review of Select Industrial Categories

For the 2014 Annual Review, EPA continued to evaluate two regulated industrial categories and one potential new source of industrial wastewater discharge, all of which EPA had identified in the Final 2012 and Preliminary 2014 Plans as warranting further review: Metal Finishing (40 CFR Part 433), Pesticide Chemicals (40 CFR Part 455), and brick and structural clay products manufacturing (unregulated) (U.S. EPA, 2014a). Below are the findings from these 2014 continued category reviews.

- *Continued Review of the Metal Finishing Category (40 CFR Part 433).* EPA's continued review of the Metal Finishing Category in 2014 indicates that the industry has not experienced significant growth in the last 30 years. However, research suggests that the industry is consolidating into larger companies that tend to compete better with the expanding global market; this consolidation may have slightly reduced the size of the U.S. metal finishing industry. Further, the industry is exploring the use of new chemicals that improve surface finishing quality and/or eliminate the use of toxic chemicals. These alternatives may be changing the characteristics of metal finishing wastewater. In addition, at least some portion of the industry is employing more advanced wastewater treatment technologies, including reuse, although a majority of the industry continues to meet the effluent limitations guidelines and standards (ELGs) using the more common treatment technologies that formed the basis of best available technology economically achievable as defined in the ELGs.

  EPA's continued preliminary review of the Metal Finishing Category identified several topics that warrant further review, including the following:

  — Potential new pollutants of concern not currently regulated that are increasingly used in metal finishing processes.

  — Prevalence of potential pollutants of concern associated with wastewater generated from the use of wet air pollution control devices to control air emissions from metal finishing operations.

  — The application of advanced wastewater treatment technologies and the prevalence of zero discharge practices in the industry.

- *Targeted Review of Pesticide Active Ingredients (PAIs) without Pesticide Chemicals Manufacturing Effluent Limits (40 CFR Part 455)*. EPA reviewed the 30 PAIs that are now measured by analytical methods listed in 40 CFR Part 136, but discharges of which from manufacturers are not currently regulated under the Pesticide Chemicals ELGs. The review identified only seven that are currently registered or under registration review in accordance with Section 3 of the Federal Insecticide, Fungicide, and Rodenticide Act. The remaining 23 PAIs of interest have either never been registered or have had their registrations canceled. However, registration status may not be an indicator of whether the PAI is manufactured in the U.S. (and potentially present in industrial wastewater discharge), because unregistered pesticides may still be manufactured in the U.S.

for export. Though EPA was not able to prioritize a subset of the PAIs for further review at this time, EPA did identify follow-up questions and sources of information that will indicate which of the 30 PAIs of interest are produced in the U.S. and are thus potentially present in wastewater discharges. These sources of information include the Pesticide Registration Information System (PRISM), Section Seven Tracking System (SSTS) production data, permit applications, fact sheets, and facility permits for producers of the PAIs in the U.S.

- *Continued Review of Brick and Structural Clay Products Manufacturing.* As part of EPA's 2012 Annual Review, EPA identified brick and structural clay products manufacturing as an industry not currently regulated by ELGs that may generate industrial wastewater discharges due to federal air pollution control requirements. During its 2014 Annual Review, EPA determined that wet scrubbers are not a common air pollution control method within the industry. Additionally, EPA determined that only two of the 345 brick manufacturing facilities, two of the 24 clay ceramics facilities, and three of 127 ceramic tile facilities in the U.S. currently have wet scrubbers installed. The findings suggest that the use of wet scrubbers to control air pollution is limited in this industry and not expected to increase.

4.3 Findings from New Data Sources and Additional Supporting Analyses

EPA initiated a review of a group of emerging pollutants of concern and continued its review of industrial wastewater treatment technology performance data as part of the 2014 Annual Review (U.S. EPA, 2015). Below are the findings from these reviews.

- *Review of Engineered Nanomaterials (ENMs) in Industrial Wastewater.* EPA reviewed current literature and scientific research and communicated with researchers and government stakeholders regarding ENMs. As a result, EPA determined the following:

  — Some manufacturing and processing methods likely generate wastewater, but the quantity generated and waste management practices are not documented.

  — Toxicity hazards from ENMs have been demonstrated in the laboratory, but the environmental and human health risks are largely unknown.

  — Fate of and exposure to industrial wastewater releases of ENMs to the environment have not been studied.

  — The small size, unique properties, and complexity of ENMs present a challenge for environmental monitoring, risk assessment, and regulation.

  — Methods for detecting and characterizing nanomaterials in complex media, like industrial wastewater, are under development.

— EPA has not approved any standardized methods for sampling, detecting, or quantifying of nanomaterials in aqueous media.

— Research has shown that common treatment technologies employed at municipal wastewater treatment plants can remove nanomaterials from the wastewater, but that these may then accumulate in the sludge.

EPA's review also identified four main areas of further research appropriate to better assess the potential presence and impact of ENMs in industrial wastewater:

— Development of standard methods and sampling techniques to detect and characterize nanomaterials in industrial wastewater.

— Evaluation of ENM toxicity impacts and potential occurrence in industrial wastewater, taking into consideration relevant forms and concentrations of ENMs.

— Identification of the universe of ENM facilities, their production values, and the waste generated and disposed of during the manufacturing and processing of ENMs.

— Evaluation and characterization of the fate, transformation, and treatment of ENMs in industrial wastewaters.

The National Nanotechnology Initiative (NNI), a collaborative, interagency U.S. government research and development initiative, provides a framework for individual and cooperative nanotechnology-related activities for 20 federal department and agency units, including EPA. Ongoing research coordinated by NNI agencies and academic research centers (e.g., research by several offices within EPA, the National Science Foundation, the National Institute of Standards and Technology, the National Institute of Occupational Safety and Health, the Occupational Safety and Health Administration, and others) may serve to address these research needs and facilitate understanding of the potential for wastewater discharges from the manufacture and processing of ENMs, as well as potential human health and environmental impacts.

- *Review of Industrial Wastewater Treatment Technologies.* From EPA's continued review of technical papers and research articles that document the performance of new and improved industrial wastewater treatment technologies, EPA has identified and captured treatment information from 163 articles in the Industrial Wastewater Treatment Technology (IWTT) Database as of September 2014. Of the 163 articles, 98 provide both treatment system information and performance data (i.e., pollutant removal efficiencies). The 98 articles with performance data represent 35 industrial categories; however, most of the literature reviews conducted to date have focused on the petroleum refining and metal finishing industries. IWTT documents the removal efficiencies of 142 parameters, including many metals, chemical oxygen demand, total suspended solids, and total dissolved solids. Though performance data are captured for pilot- and full-

scale treatment systems as a whole, 53 individual treatment technologies (which constitute the various treatment systems) are currently included in IWTT, with chemical precipitation, membrane bioreactors, and clarification described in the greatest number of articles.

5. FINAL 2014 PLAN DECISIONS AND ACTIONS

As proposed in the *Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans* (Final 2012 and Preliminary 2014 Plans), EPA initiated studies of the Centralized Waste Treatment (CWT) Category (40 CFR Part 437) and Petroleum Refining Category (40 CFR Part 419) (U.S. EPA, 2014a). As part of the 2014 Annual Review, EPA also continued several other activities, including its preliminary review of the Metal Finishing Category (40 CFR Part 433); collection of data for the Industrial Wastewater Treatment Technology (IWTT) Database; review of the brick and structural clay manufacturing industry (for which air regulations may result in an unregulated wastewater discharge); and evaluation of several pesticide active ingredients (PAIs), identified through EPA's review of analytical methods, for which the discharge from manufacturing is not currently regulated under the Pesticide Chemicals Manufacturing, Formulating, and Packaging effluent limitations guidelines and standards (ELGs) (40 CFR Part 455). In addition, EPA began investigating the environmental toxicity and industrial wastewater discharge of engineered nanomaterials (ENMs). This section presents EPA's decisions on actions proposed in the Final 2012 and Preliminary 2014 Plans.

As part of the Final 2012 and Preliminary 2104 Plans, EPA also proposed to continue reviewing specific Chemical Action Plan chemicals and industrial categories identified in the Toxics Release Inventory (TRI) Sectors Expansion rule; however, EPA did not focus on these actions during the 2014 Annual Review. EPA plans to focus on these actions during future annual reviews as additional data and information become available.

Based on the 2012, 2013, and 2014 Annual Reviews and public comments, EPA has concluded that no new industrial wastewater discharges present concerns that warrant new or revised effluent guidelines at this time. Therefore, EPA is not identifying any existing effluent guidelines for revision, nor is EPA identifying any industries for new effluent guidelines, aside from those currently undergoing rulemakings. EPA is also not identifying the development of any new or revised pretreatment standards at this time, excluding those that are currently under development.

5.1 Industries Previously Identified for Further Review for Which EPA is Taking No Action

In the Final 2012 and Preliminary 2014 Plan, EPA announced its continued review of industries for which air regulations may result in unregulated wastewater discharge (U.S. EPA, 2014a). As part of that review, EPA further evaluated brick and structural clay products manufacturing. The findings suggest that the use of wet scrubbers to control air pollution is limited in this industry; therefore, EPA determined that brick and structural clay products manufacturing is not now generating a potential new source of industrial wastewater discharge that warrants regulation. Based on these findings from the 2014 Annual Review, EPA has concluded that no further review of discharges from brick and structural clay products manufacturing is warranted and is taking no further action related to this category at this time (U.S. EPA, 2015).

5.2 Industries for Which EPA is Currently Undertaking an ELG Rulemaking

EPA is currently undertaking a rulemaking that would revise ELGs for the Steam Electric Power Generating Point Source Category (40 CFR 423). Because the Steam Electric rulemaking is underway, EPA excluded these facilities' discharges from analyses conducted for the 2014 Annual Review.

EPA is also developing an amendment to the ELGs for the Canned and Preserved Seafood Category — Alaskan Seafood Subcategories (40 CFR Part 408). This action was initiated in 1980 in response to two petitions submitted by the Alaska seafood processing industry. Since that time, EPA has taken a number of actions to respond to the petitions, including publishing a proposed rule in 1981, sending data and information requests (in the form of a questionnaire) to nine corporations in 2010, and issuing a Notice of Data Availability (NODA) on November 7, 2013. Currently, EPA is reviewing public comments received on the NODA, and an effluent guideline revision for this subcategory is expected to be final sometime in late 2015. For further information see:
http://water.epa.gov/scitech/wastetech/guide/seafood/alaskan.cfm.

EPA is currently engaged in a rulemaking to develop potential pretreatment requirements for discharges of mercury from dental practices. Based on information submitted in prior annual reviews (2004, 2006, and 2008), commenters raised concerns about mercury discharges from dental practices and urged EPA to consider establishing effluent guidelines and pretreatment standards for such discharges. EPA announced the rulemaking concerning mercury discharges from dental practices in the Final 2010 Plan. Subsequently, EPA published a proposed rule on October 22, 2014 (79 FR 63,256), and held public hearings on November 10, 2014. The public comment period ended on February 20, 2015.

EPA also indicated in its Final 2010 ELG Plan (76 FR 66286) that it was initiating two separate rulemakings to potentially revise ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 435) to address discharges from coalbed methane and shale gas extraction. EPA announced that it was delisting the coalbed methane extraction industry from the effluent guidelines plan in the Final 2012 Plan (U.S. EPA, 2014a). EPA recently proposed a rulemaking on April 7, 2015 (80 FR 18557), which will revise the ELGs for the Oil and Gas Extraction Point Source Category, adding a subcategory for pretreatment standards for unconventional oil and gas extraction to address wastewaters, including, but not limited to, shale gas, shale oil, tight gas, and tight oil extraction. This proposed rule would fill a gap in existing federal wastewater regulations to ensure that the current practice of not sending wastewater discharges from this sector to POTWs continues into the future. Direct discharge requirements are not being revised.

5.2.1 EPA's Current Schedule for ELG Actions

Steam Electric Power Generation:

- Proposed Rule	June 7, 2013
- Final Action	September 30, 2015

Pretreatment Standards for the Dental Category:

- Proposed Rule	October 22, 2014
- Final Rule	June 2016

Pretreatment Standards for Unconventional Oil and Gas Extraction:

- Proposed Rule	April 7, 2015

Canned and Preserved Seafood Category covering the Alaskan Seafood Processing Subcategories:

- Notice of Data Availability	November 7, 2013
- Final Rule	Early 2016

5.3 Industries for Which EPA Is Currently Conducting Further Study

Based on the findings from EPA's 2014 Annual Review and status of ongoing studies, EPA plans to continue its review and/or study of several industrial categories or pollutant groups to determine if new or revised effluent guidelines are warranted, as discussed in the subsections below.

5.3.1 Continued Detailed Study of the Petroleum Refining Category (40 CFR Part 419)

In the Final 2012 and Preliminary 2014 Plan, EPA announced it was planning to initiate a detailed study of petroleum refineries (40 CFR Part 419) (U.S. EPA, 2014a). EPA has initiated that study to determine if changes to the existing ELGs or pretreatment standards are appropriate for this industry. In reviewing DMRs from petroleum refineries, EPA has observed an increase in discharges of metal pollutants that are not regulated by the existing regulations and identified some dioxin compound discharges. In particular, the detailed study will investigate the effects of heavier crudes and new wet air pollution controls on wastewater discharges. The detailed study will also investigate pollution prevention or wastewater-treatment methods available to reduce pollutants present in petroleum refining wastewater.

The following information will initially be collected for the industry:

- Updated profile information obtained from a variety of public sources (e.g. crude types processed, wet air pollution control types used, and economic information);
- Recent DMR and TRI discharges;
- National Pollutant Discharge Elimination System (NPDES) Permit information;
- Information from site visits to petroleum refineries; and
- Information from industry, other EPA programs, EPA regions, states, and literature sources.

After analyzing the information collected from the sources listed above, EPA will determine whether an information collection request to the industry and wastewater sampling are appropriate.

5.3.2 Continued Detailed Study of CWT Category (40 CFR Part 437)

In the Final 2012 and Preliminary 2014 Plan, EPA announced it was planning to initiate a detailed study of the CWT industry (40 CFR Part 437) for facilities accepting oil and gas extraction wastewaters (U.S. EPA, 2014a). EPA has initiated that study to determine if revisions to the ELGs are warranted. The current regulations do not include limitations for pollutants commonly found in these wastewaters, such as total dissolved solids, barium, bromide, radium, and strontium. The study is intended to be comprehensive and will cover all oil and gas wastewater, including both conventional and unconventional oil and gas extraction. As part of this study, EPA plans to evaluate the following:

- The extent of facilities accepting oil and gas extraction wastewaters;
- The technologies used to treat these wastewaters, their performance, and costs;
- Financial characteristics of the industry;
- Environmental impacts of these wastewater discharges to waters in the U.S.; and
- Current practices for management of treatment residuals.

To date, EPA has been conducting site visits at CWT facilities across the country and collecting existing information and data to characterize the industry. In the coming year, EPA plans to continue conducting site visits and sampling wastewater and treatment residuals at facilities to evaluate the pollutants present, their concentrations, and the performance of treatment technologies.

5.3.3 Continued Evaluation of Cook Inlet, Alaska Oil and Gas Requirements

EPA received comments during public review of the Preliminary 2012 ELG Plan questioning the appropriateness of the limits established for Cook Inlet, Alaska in the Coastal Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart D). In 1996, EPA decided not to require zero discharge of drill cuttings, produced water, and other drilling wastes for oil and gas extraction operators in Cook Inlet. EPA determined that onsite injection and other zero discharge options did not represent BAT in Cook Inlet. Currently, Cook Inlet discharge requirements are the same as those that apply to dischargers in the Offshore Subcategory.

According to commenters, the limits that apply in Cook Inlet allow contamination of the Inlet, which poses significant concerns because the inlet is a source of commercial, recreational, and subsistence harvesting of fish, shellfish, and other marine species. As a result of the public comments, EPA is evaluating the current implementation of the effluent guidelines, including the availability and economic achievability of injection wells that could achieve zero discharge for produced water, drilling muds and cuttings from all wells and exploration in the Inlet. EPA is examining data provided from EPA Region 10, Alaska Department of Environmental Conservation, and the Alaska Oil and Gas Conservation Commission to evaluate injection capacity and/or other barriers that may exist in Cook Inlet to managing wastewater to achieve zero discharge.

5.3.4 Actions from the 2014 Annual Review

EPA plans to continue its evaluation of the following categories and pollutant groups of interest based on results from the 2014 Annual Review:

- *Preliminary Study of the Metal Finishing Category (40 CFR Part 433).* EPA will continue its review through a preliminary study of the Metal Finishing Category to help determine whether revisions to the existing Metal Finishing ELGs are warranted. The study will focus on the following:
  - — Potential new pollutants of concern not currently regulated that are increasingly used in metal finishing processes;
  - — Prevalence of potential pollutants of concern associated with wastewater generated from the use of wet air pollution controls at metal finishing operations; and
  - — The application of advanced wastewater treatment technologies and the prevalence of zero discharge practices in the industry.
- *Targeted Review of PAIs Without Pesticide Chemicals Manufacturing Effluent Limits (40 CFR Part 455).* EPA plans to continue its targeted review of PAIs for which the discharge from manufacturing is not regulated under the Pesticide Chemicals ELGs. Specifically, EPA plans to conduct a comprehensive review of production data compiled in the Pesticide Registration Information System (PRISM), Section Seven Tracking System (SSTS) database, maintained under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). EPA will focus on the 23 PAIs of interest that are not currently registered (never registered or with canceled registrations). After identifying specific PAIs that are produced in the U.S., EPA plans to further review plant process and permit information for the facilities that produce the PAIs to identify whether they are present in wastewater discharges from pesticide chemicals manufacturing.
- *Continued Review of ENMs in Industrial Wastewater.* EPA plans to continue to monitor ongoing research on ENMs in future annual reviews and will collect any new information as it becomes available, particularly related to the following data gaps:
  - — Development of standard methods and sampling techniques to detect and characterize nanomaterials in industrial wastewater;
  - — Evaluation of ENM toxicity impacts and potential occurrence in industrial wastewater, taking into consideration relevant forms and concentrations of ENMs;
  - — Identification of the universe of facilities, their production values, and the nature of the waste generated and disposed by manufacturing and processing of ENMs; and

- Evaluation and characterization of the fate, transformation, and treatment of ENMs in industrial wastewaters.

- *Continued Review of Industrial Wastewater Treatment Technologies.* EPA plans to continue to collect industrial wastewater treatment technology data for IWTT for use in future annual reviews. EPA expects to use this database to identify whether specific industrial categories warrant further review for new or revised ELGs, based on the range of available treatment technology performance.

6. SUMMARY TABLE OF FINDINGS FOR EXISTING GUIDELINE CATEGORIES FROM THE 2014 ANNUAL REVIEW

Table 6-1 summarizes the findings from EPA's 2014 Annual Review of existing point source categories. EPA uses the following codes to describe its findings and potential next steps for each industrial category:

1. Effluent guidelines or pretreatment standards for this industrial category were recently promulgated or revised through an effluent guidelines rulemaking, or a rulemaking is currently underway. Or, EPA recently completed a preliminary study or a detailed study, and no further action is warranted at this time.

2. Revising the national effluent guidelines or pretreatment standards is not the best tool to control toxic and non-conventional pollutant discharges because most discharges result from one or a few facilities in this industrial category. EPA will consider assisting permitting authorities in identifying pollution-control and pollution-prevention technologies for the development of technology-based effluent limitations during the development of individual permits.

3. Not identified as a priority based on data available at this time because EPA did not identify during the 2014 Annual Review that revisions to the national effluent guidelines or pretreatment standards are warranted.

4. EPA intends to start, or continue to conduct, a preliminary category review of the pollutant discharges from this category.

5. EPA intends to start or continue either a preliminary or detailed study of this industry to determine whether to identify the category for effluent guidelines rulemaking.

6. EPA is identifying this industry for a potential revision of an existing effluent guideline.

Table 6-1. Summary of Findings from EPA's 2014 Annual Review of Existing Industrial Categories

No.	Industry Category (Listed Alphabetically)	40 CFR Part	Findings
1	Airport Deicing	449	(1)
2	Aluminum Forming	467	(3)
3	Asbestos Manufacturing	427	(3)
4	Battery Manufacturing	461	(3)
5	Canned and Preserved Fruits and Vegetable Processing	407	(3)
6	Canned and Preserved Seafood Processing	408	(3)
7	Carbon Black Manufacturing	458	(3)
8	Cement Manufacturing	411	(3)
9	Centralized Waste Treatment	437	(5)

Table 6-1. Summary of Findings from EPA's 2014 Annual Review of Existing Industrial Categories

No.	Industry Category (Listed Alphabetically)	40 CFR Part	Findings
10	Coal Mining	434	(3)
11	Coil Coating	465	(3)
12	Concentrated Animal Feeding Operations (CAFO)	412	(1)
13	Concentrated Aquatic Animal Production	451	(3)
14	Construction and Development	450	(1)
15	Copper Forming	468	(3)
16	Dairy Products Processing	405	(3)
17	Electrical and Electronic Components	469	(3)
18	Electroplating	413	(5)
19	Explosives Manufacturing	457	(3)
20	Ferroalloy Manufacturing	424	(3)
21	Fertilizer Manufacturing	418	(3)
22	Glass Manufacturing	426	(3)
23	Grain Mills	406	(3)
24	Gum and Wood Chemicals	454	(3)
25	Hospitals	460	(1)
26	Ink Formulating	447	(3)
27	Inorganic Chemicals[a]	415	(1) and (3)
28	Iron and Steel Manufacturing	420	(3)
29	Landfills	445	(3)
30	Leather Tanning and Finishing	425	(3)
31	Meat and Poultry Products	432	(3)
32	Metal Finishing	433	(5)
33	Metal Molding and Casting	464	(3)
34	Metal Products and Machinery	438	(3)
35	Mineral Mining and Processing	436	(3)
36	Nonferrous Metals Forming and Metal Powders	471	(3)
37	Nonferrous Metals Manufacturing	421	(2)
38	Oil and Gas Extraction[b]	435	(1) and (3)
39	Ore Mining and Dressing	440	(2)
40	Organic Chemicals, Plastics, and Synthetic Fibers[a]	414	(1), (2), and (3)
41	Paint Formulating	446	(3)
42	Paving and Roofing Materials (Tars and Asphalt)	443	(3)
43	Pesticide Chemicals	455	(4)
44	Petroleum Refining	419	(5)
45	Pharmaceutical Manufacturing	439	(3)

Table 6-1. Summary of Findings from EPA's 2014 Annual Review of Existing Industrial Categories

No.	Industry Category (Listed Alphabetically)	40 CFR Part	Findings
46	Phosphate Manufacturing	422	(3)
47	Photographic	459	(3)
48	Plastic Molding and Forming	463	(3)
49	Porcelain Enameling	466	(3)
50	Pulp, Paper, and Paperboard	430	(3)
51	Rubber Manufacturing	428	(3)
52	Soaps and Detergents Manufacturing	417	(3)
53	Steam Electric Power Generating	423	(1)
54	Sugar Processing	409	(3)
55	Textile Mills	410	(2)
56	Timber Products Processing	429	(3)
57	Transportation Equipment Cleaning	442	(3)
58	Waste Combustors	444	(3)

[a] Codes (1) and (3) are used for this category. The first code, (1), refers to the recent effluent guidelines rulemaking, and subsequent delisting for the Chlorinated and Chlorinated Hydrocarbons (CCH) manufacturing sector, which includes facilities currently regulated by the Organic Chemicals, Plastics, and Synthetic Fibers and Inorganic Chemicals effluent guidelines. The second code, (3), indicates that the remainder of the facilities in these two categories does not represent a hazard priority at this time.

[b] Codes (1) and (3) are used for this category. The first code, (1), refers to the ongoing effluent guidelines rulemaking for shale gas extraction and EPA's review of the coalbed methane extraction sector of the industry. The second code, (3), refers to category discharges of the oil and gas extraction industry, excluding coalbed methane and shale gas extraction, that do not represent a hazard priority at this time.

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