



United States
Environmental Protection
Agency

Preliminary 2016 Effluent Guidelines Program Plan

June 2016

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U.S. Environmental Protection Agency
Office of Water (4303T)
1200 Pennsylvania Avenue, NW
Washington, DC 20460

EPA-821-R-16-001

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1. EXECUTIVE SUMMARY

This *Preliminary 2016 Effluent Guidelines Program Plan* (Preliminary 2016 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 annual review of effluent limitations guidelines and pretreatment standards (ELGs), consistent with CWA sections 301(d), 304(b), 304(g), and 304(m) (2015 Annual Review), 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.

At this time, EPA has concluded that no additional industries warrant new or revised effluent guidelines. Therefore, EPA is not identifying any existing effluent guidelines for possible revision, nor is EPA identifying any new industries for an effluent guidelines rulemaking, aside from those currently undergoing a rulemaking.¹ EPA is also not identifying the development of any new or revised pretreatment standards at this time, beyond those that are currently under development.²

EPA plans to continue its review and/or study of several industrial categories and pollutant groups to determine if new or revised effluent guidelines are warranted, as announced in the *Final 2014 Plan Effluent Guidelines Program Plan* (Final 2014 Plan) (U.S. EPA, 2015a). These industrial categories consist of Petroleum Refining, Centralized Waste Treatment (CWT), Metal Finishing, Pesticide Chemicals, Engineered Nanomaterials Manufacturing and Formulating (ENMs), and Oil and Gas Extraction in Cook Inlet, Alaska. In addition, as announced in the Final 2014 Plan, EPA plans to continue to collect industrial wastewater treatment technology performance data for its Industrial Wastewater Treatment Technology (IWTT) Database, for use in future annual reviews. EPA also identified several additional categories for further review based on the findings from its 2015 Annual Review, as discussed below.

This Preliminary 2016 Plan and its conclusions are primarily supported by EPA's *2015 Annual Effluent Guidelines Review Report* (2015 Annual Review Report) (U.S. EPA, 2016a) which builds on prior annual reviews to identify certain pollutants in wastewater discharges in industrial categories which may not be adequately regulated by current ELGs. The 2015 Annual Review Report provides and explains the detailed data, analyses and other information EPA used in the 2015 Annual Review of industrial wastewater discharges, and is a part of the record for this Preliminary Plan. Annual Review Reports for prior years are part of the Annual Review record and can be found at [EPA's Effluent Guidelines Plan webpage](#).

EPA typically conducts a toxicity rankings analysis (TRA) of industrial categories in odd years and provides results in corresponding annual review reports. For the 2015 Annual Review EPA's TRA included those subject to existing ELGs and those not currently regulated by ELGs.

¹ Effluent limitations guidelines and standards (ELGs) for the Canned and Preserved Seafood Category covering the Alaskan seafood processing subcategories are currently undergoing a rulemaking.

² Pretreatment standards for the Dental Category and the Oil and Gas Extraction Category, specifically relating to the discharge of pollutants from unconventional oil and gas extraction facilities, are currently under development.

EPA then prioritized for further review those categories whose pollutant discharges may pose the greatest hazards to human health or the environment. From these 2015 TRA and preliminary category reviews, EPA identified three point source categories that warrant further review: Iron and Steel Manufacturing (40 CFR Part 420), Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) (40 CFR Part 414), and Pulp, Paper and Paperboard (40 CFR Part 430). EPA plans to continue its review of discharges from these categories during the 2016 annual review period, and report findings for these three categories in its *Final 2016 Effluent Guidelines Program Plan* (Final 2016 Plan).

In addition, as part of the 2015 Annual Review, EPA began reviewing in more detail three point source categories that were prioritized for further review based on public comments. These categories are Battery Manufacturing (40 CFR Part 461), Electrical and Electronic Components Manufacturing (40 CFR Part 469), specifically, Subpart B Electronic Crystals, and Rubber Manufacturing (40 CFR Part 428), Subpart A (Tire and Inner Tube Plants Subcategory).

EPA initiated these reviews to address comments received from stakeholders regarding new types of batteries that have been developed, and advances in electrical and electronics components manufacturing, since the current ELGs were developed. EPA initiated review of rubber manufacturing to determine whether 2-Mercaptobenzothiazole (MBT), a chemical compound used in tire manufacturing, was being discharged.

EPA determined that additional review of Rubber Manufacturing related to the discharge of MBT from tire manufacturing is not warranted at this time because MBT's release into the environment is not due to industrial wastewater discharges but is primarily from the wear of tires on pavement, which is not under the purview of the ELG program. EPA plans to continue reviewing Battery Manufacturing and Electrical and Electronic Components manufacturing during the 2016 Annual Review.

During the 30-day public comment period for this Plan, EPA is soliciting public comment and data and information on several industrial wastewater discharge topics. See Section 11 of this Plan for a discussion of those topics for which EPA is soliciting comments. See the Federal Register Notice of Availability for this Plan for instructions on how, and where, to submit comments and information.

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 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 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 such as “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. However, any modifications made by states to the criteria must be approved by EPA before they can take effect in a state’s water quality standards under the Clean Water Act.

EPA is responsible for developing technology-based ELGs, based on best 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). For sources discharging indirectly to POTWs, EPA, a State, or an approved municipal “control authority” will typically issue a permit or control mechanism containing the appropriate effluent limitations and/or local limits in order to obligate a facility to be in compliance with the applicable standards and reporting requirements.

While technology-based ELGs 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 regulated discharges meet the water quality standards of the 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 Federal Water Pollution Control Act (which then became known as the Clean Water Act) 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 law 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 CWA directed EPA to promulgate ELGs 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; (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 to set the nation’s sight 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, or POTW into which they discharge, will, at a minimum, meet similar effluent guidelines or pretreatment standards representing the performance of the “best” pollution control technologies or pollution prevention practices.

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 the consumption of contaminated water, fish, or shellfish.
- Degrade aquatic ecosystems.

EPA has promulgated effluent guidelines for 58 industrial categories (see Table 10-1, below); descriptions of all 58 industrial categories are available at [EPA’s Industrial Effluent Guidelines webpage](#). 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 (i.e., indirect dischargers). Based on estimates of pollutant reductions from each separate

guideline, EPA has estimated that the regulations, cumulatively, have prevented the discharge of over 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 section 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.
- Provide transparent decision making and involve stakeholders early and often during the planning process.

EPA uses four major factors to prioritize existing effluent guidelines and pretreatment standards for possible revision. These factors were developed in EPA's draft National Strategy (U.S. EPA, 2002).

The first factor EPA considers is a combination of the amount and type of pollutants in an industrial category's discharge and the relative hazard posed by that discharge. This factor enables EPA to prioritize rulemakings that could produce the greatest environmental and health benefits.

The second factor EPA considers is the performance and cost of applicable and demonstrated wastewater treatment technologies, process changes, and pollution prevention alternatives that could effectively reduce pollutant concentrations in the industrial category's wastewater.

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 that a less stringent or less expensive approach to reduce pollutant loadings would better satisfy applicable statutory requirements. EPA might also conclude that a wastewater treatment technology, process change, or pollution prevention measure was not economically achievable for a particular industry.

The fourth factor EPA considers is the opportunity to eliminate inefficiencies or impediments to pollution prevention or technological innovation, or opportunities to promote innovative approaches. This factor might also prompt EPA, during annual reviews, to decide

against revising an existing set of effluent guidelines or pretreatment standards if 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 rankings 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). EPA assesses the relative hazard of these discharges by applying toxic weighting factors (TWFs) to the annual pollutant discharges reported on discharge monitoring reports (DMRs); and to the Toxics Release Inventory (TRI) for a category to calculate the total discharge of toxic pollutants as toxic-weighted pound equivalents (TWPE) for a category. EPA then ranks the industrial categories based on total TWPE discharged.

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 (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.³ 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 the even-year reviews, EPA targets new data sources that will provide information 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.
- Other hazard data and information not captured in 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 *Preliminary 2016 Effluent Guidelines Program Plan* (Preliminary 2016 Plan), for details on the methodology used specifically for EPA's 2015 Annual Review.

EPA also conducts a more detailed preliminary category review of those industrial discharge categories that (1) rank highest in terms of TWPE (i.e., pose the greatest hazard to human health and the environment) in the TRA, (2) are identified as warranting further review during the even-year analyses, or (3) are otherwise brought to its attention through stakeholder or

³ 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](#).

public comments. 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.

2.2.1.1 Preliminary Category Reviews

EPA may conduct a preliminary category review for industrial categories (1) identified in the TRA as having the highest hazard potential, (2) identified as a priority by any of the even-year review analyses, or (3) otherwise brought to EPA's attention through stakeholder or public comments. EPA is particularly likely to conduct a preliminary category review 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 or may extend the review into the next cycle. In its preliminary category reviews, EPA may examine 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 or pollutant discharges identified as a priority from other sources and fill in data gaps. Next, EPA considers the factors that may be contributing to these discharges. These include, for example, whether the discharges are primarily driven by a few facilities or are more widespread within a category. These assessments provide an additional level of quality assurance for the reported pollutant discharges and number of facilities that represent the majority of toxic-weighted pollutant discharge. EPA may also review readily available technologies and approaches for reducing the discharges.

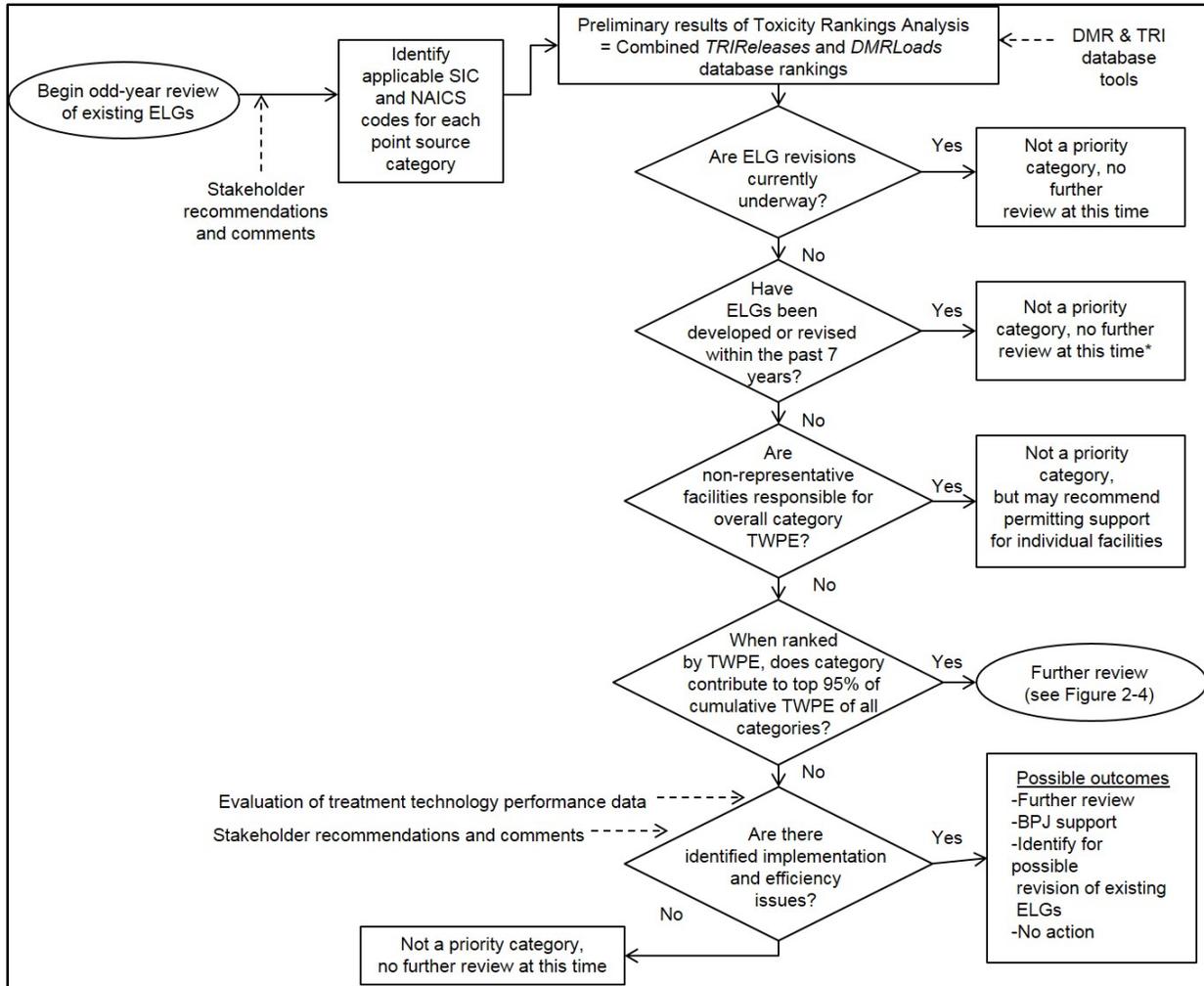
During a preliminary category review, EPA may consult data sources including, but not limited to the following: (1) the U.S. Economic Census, (2) TRI and DMR data, (3) trade associations and reporting facilities that can verify reported releases and facility categorizations, (4) regulatory authorities (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 and are likely to be the result of the production practices widely used throughout the category, or technology approaches may exist for further controlling the pollutants, EPA may decide to conduct a preliminary or detailed study prior to initiating a rulemaking.

2.2.1.2 Preliminary and Detailed Studies

After conducting the preliminary category reviews (depicted in Figure 2-4), EPA may then conduct a study, at different levels of detail, of an industrial category. Typically, EPA has conducted two types of studies; preliminary studies and detailed studies. A preliminary study is usually more introductory in its level of information collection and evaluation than a detailed study. Both types of studies usually profile an industry category, gather information about its wastewater discharges, collect information about availability and cost of treatment and pollution

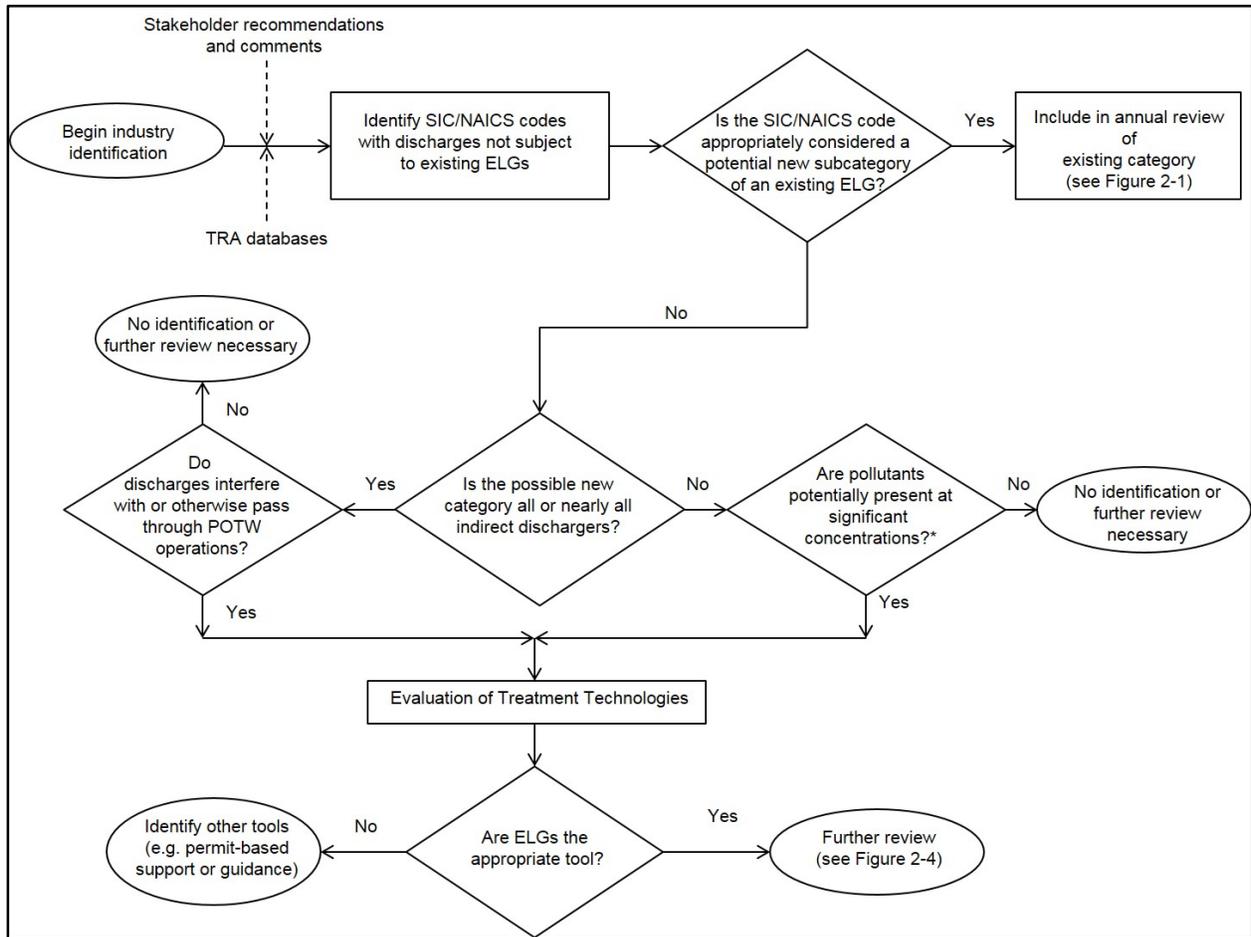
prevention technologies, assess the financial status of the facilities in the category, and investigate other factors to determine if it would be appropriate to identify the category for possible effluent guidelines revision. During preliminary or detailed studies, EPA also typically examines the factors 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 analyses conducted during a preliminary category review or preliminary study, and may include primary data collection activities, such as industry questionnaires and wastewater sampling and analysis, to fill data gaps. In many cases, the information and data gathered for a study comprises the basis of the rulemaking. However, in other instances, the additional data and information gathered may indicate that a new or revised guideline is not warranted. Regardless of the outcome, EPA describes for the public and other stakeholders its decisions to conduct studies, or to develop rulemakings, in the Effluent Guidelines Program Plan.⁴ When a rulemaking is determined appropriate, schedules are also described in the Plan.

⁴ While EPA describes such decisions in its plans, EPA may elect to describe them first on its website or through a venue other than the plan.



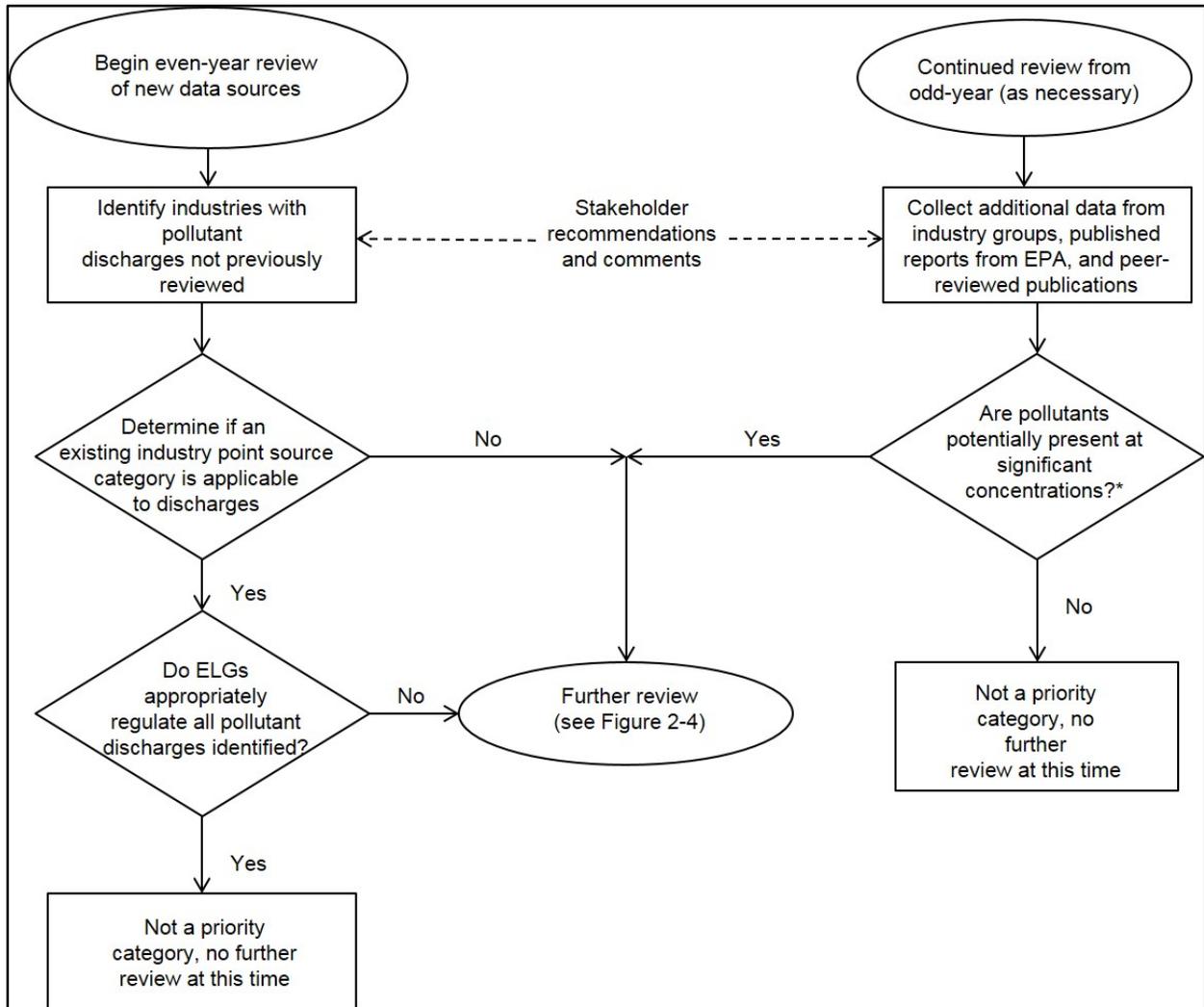
* If EPA is aware of new segment growth within such a category or new concerns are identified, EPA may do further review.

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



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

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



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

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

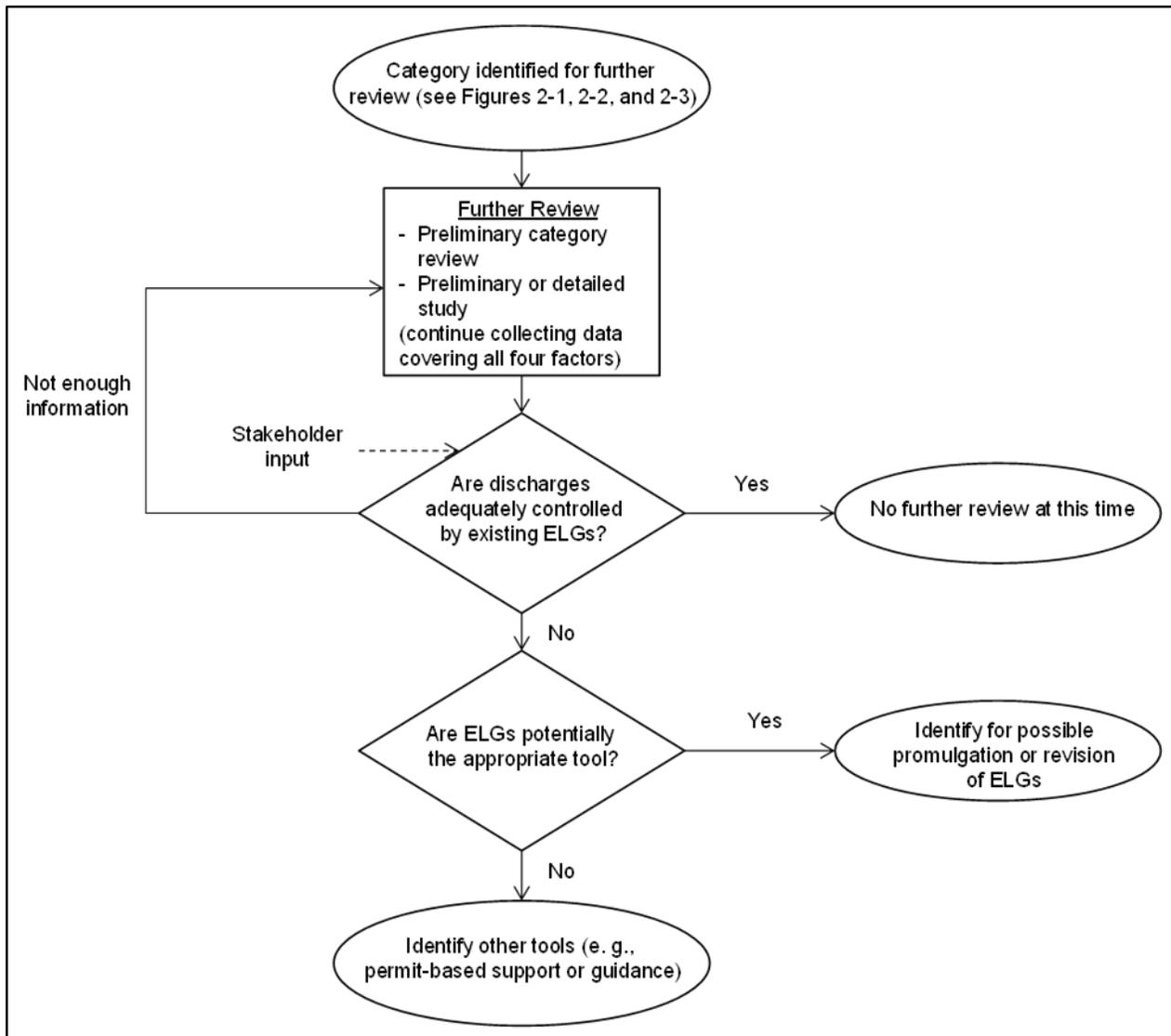


Figure 2-4. Further Review of Industrial Categories Identified During Annual Reviews

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 ELGs that EPA has promulgated under that section. EPA's *2015 Annual Effluent Guidelines Review Report* (2015 Annual Review Report) presents the results of its ELG reviews (U.S. EPA, 2016a). The 2015 Annual Review Report provides and explains the detailed data, analyses and other information EPA used in the 2015 annual review of industrial wastewater discharges, and is a part of the record for this Preliminary Plan.

Under the even- and odd-year annual review approach described above in Section 2.2.1, EPA coordinates its annual reviews of existing ELGs under section 304(b) with its publication of Preliminary and Final Plans, under CWA section 304(m). As a result, Final Plans typically

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. 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 can inform the content of the Preliminary and Final Plans (e.g., by identifying candidates for ELG revision, or by identifying point source categories for which EPA has never promulgated ELGs). Second, even though it is not required to do so under either section 304(b) or section 304(m), EPA serves the public interest by periodically describing the annual review results (including the review process). Doing so while simultaneously publishing the Preliminary and Final Plans makes both processes more transparent. Third, by requiring EPA to review existing ELGs each year, EPA understands Congress to have intended for each successive review to build on 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 conventional control technology (BCT).
3. Best available technology economically achievable (BAT).
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 effluent 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 point sources that discharge to POTWs (indirect dischargers), EPA promulgates pretreatment standards that apply directly to those sources and are enforced by POTWs and by state and federal authorities. See CWA sections 307(b), 307(c); 33 U.S.C. § 1317(b), 1317(c). Figure 2-5 illustrates the relationship between the regulation of direct and indirect dischargers.

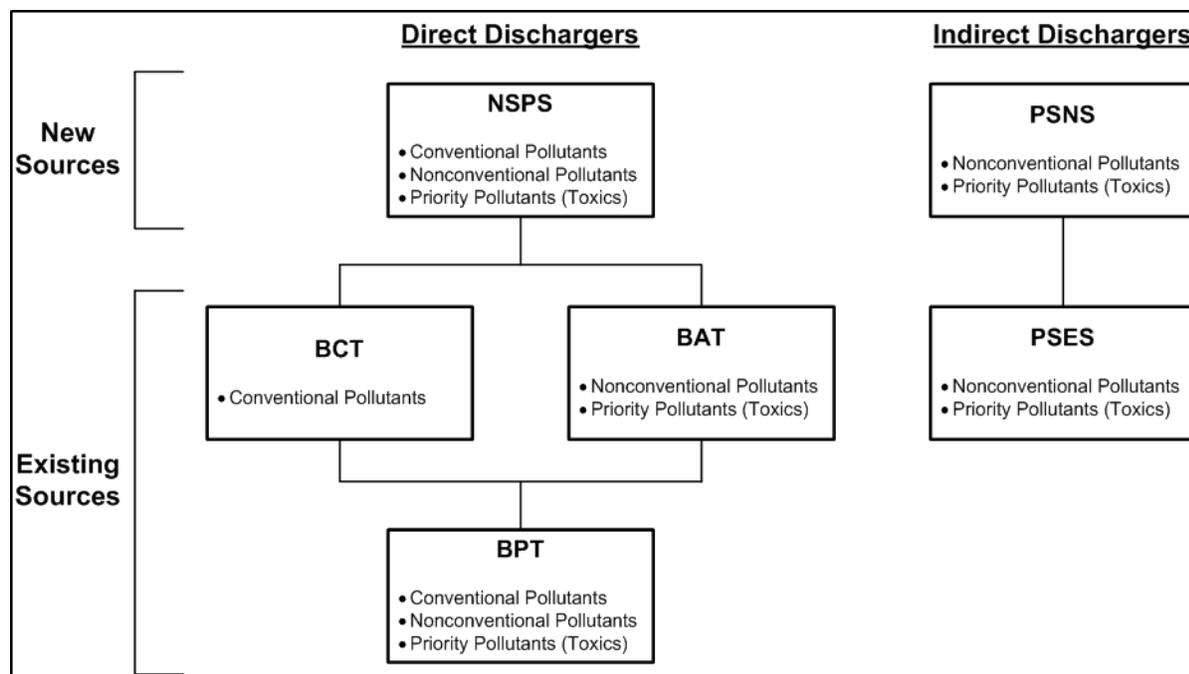


Figure 2-5. Regulations of Direct and Indirect Wastewater Discharges

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 (BOD₅), 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, among 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 numerous 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 limitations guidelines which require application of the BAT (see CWA sections 301(b)(2)(A) and 304(b)(2)(B)).

The CWA factors relating to the assessment of best available technology economically achievable shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate (see CWA section 304(b)(2)(B)).

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. 2015 EFFLUENT GUIDELINES PLANNING PROCESS AND METHODOLOGY

This section summarizes the process EPA used in its 2015 Annual Review to identify industrial categories for potential development of new or revised ELGs, as well as the data sources and limitations used to complete this review. This process consists of the following:

- Performing a TRA to identify and rank categories with pollutant discharges that may pose a substantial hazard to human health and the environment.
- Conducting preliminary category reviews for the industrial categories with the highest hazard potential identified from the TRA; and
- Reviewing additional industrial categories and chemicals brought to EPA’s attention through stakeholder comments and input, to evaluate recent changes within the industries as well as potential pollutant releases to the environment through industrial wastewater discharge that may not be adequately regulated by current effluent guidelines.

3.1 Summary of the 2015 Annual Review Methodology

This section briefly summarizes EPA’s 2015 Annual Review methodology for the TRA, preliminary category reviews, and the review of additional industrial categories and pollutants. For more information and details on EPA’s 2015 Annual Review methodology and analyses, see EPA’s *2015 Annual Effluent Guidelines Review Report* (2015 Annual Review Report) (U.S. EPA, 2016a).

3.1.1 *Toxicity Rankings Analysis (TRA)*

For the 2015 Annual Review, EPA performed a TRA of all industrial categories to: (1) evaluate reported discharges from categories subject to existing ELGs, as well as potential new categories, and (2) prioritize for further review those categories discharging high levels of toxic pollutants relative to other categories. See Section 2.0 of the 2015 Annual Review Report for more details on the TRA methodology and data sources (U.S. EPA, 2016a).

As a first step in the TRA, EPA downloaded 2013 industrial rankings data from the DMR Pollutant Loading Tool (DMR Loading Tool).⁵ The DMR Loading Tool generates industrial rankings using TRI data and DMR data from the Integrated Compliance Information System for the National Pollutant Discharge Elimination System (ICIS-NPDES), in accordance with EPA’s odd-year annual review methodology. EPA’s odd-year annual review methodology was previously described 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, 2009a), and is outlined below:

1. TRI and DMR data do not identify the ELGs applicable to a particular facility. However, TRI includes information on a facility’s North American Industry

⁵ See the [DMR Pollutant Loading Tool](#) page which presents the top industrial dischargers of toxic pollutants. EPA used this section of the DMR Pollutant Loading Tool to inform its 2015 TRA. The tool is maintained by EPA’s Office of Enforcement and Compliance Assurance, Office of Compliance.

- Classification System (NAICS) code, while DMR data include information on a facility's Standard Industrial Classification (SIC) code. Thus, as a first step, the DMR Loading Tool relates each facility's SIC and NAICS code to an industrial category.⁶
2. Next, the DMR Loading Tool uses the data reported in TRI and DMR for a specific year to calculate the pounds of pollutant discharged from facilities to U.S. waters. The tool performs these calculations for toxic, nonconventional, and conventional pollutants. For indirect dischargers, the tool adjusts the facility discharges to account for removals that occur at the POTW.
 3. The DMR Loading Tool then applies TWFs⁷ to the annual pollutant discharges to calculate the total discharge of toxic pollutants as TWPE for each facility.
 4. Lastly, the DMR Loading Tool sums the TWPE for each facility in an industrial category to calculate a total TWPE per category for that year. The tool calculates two TWPE estimates for each industrial category: (1) an estimate based on data in TRI and (2) an estimate based on DMR data. EPA adds these two estimates together to generate a single TWPE value for each industrial category. EPA then ranks the categories according to their total TWPE discharged. EPA takes this approach because it found that combining the TWPE estimates from TRI and DMR data into a single TWPE number highlights those industries with the most toxic pollution.⁸

After downloading DMR and TRI industrial rankings data, EPA performed a quality review of the data (see Section 3.3 of this Preliminary 2016 Plan for further details on the data sources and EPA's data quality review). From this review, EPA identified and made corrections to the 2013 DMR and TRI data, as appropriate (see Appendix D of the 2015 Annual Review Report for a complete list of data corrections (U.S. EPA, 2016a)). EPA downloaded the corrected data into a set of static databases and summed the DMR and TRI TWPE for all facilities in each industrial category. EPA then re-ranked the industrial categories based on the corrected total TWPE to generate the final 2015 point source category rankings. As discussed below, EPA used the final point source category rankings to prioritize industrial categories for further preliminary category review. Section 4.1 of this Preliminary 2016 Plan presents the findings of EPA's 2015 TRA.

3.1.2 Preliminary Category Reviews

Based on the final 2015 combined point source category rankings generated from the TRA, EPA prioritized for further review those industrial categories whose pollutant discharges potentially pose the greatest hazards to human health or the environment because of their toxicity. To identify these industrial categories, EPA calculated the industrial categories cumulative percent of the total TWPE. EPA identified and focused its preliminary category

⁶ For more information on how EPA relates each SIC and NAICS code to an industrial category, see Section 5.0 of the 2009 SLA Report (U.S. EPA, 2009a).

⁷ For more information on TWFs, see *Toxic Weighting Factors Methodology* (U.S. EPA, 2012b).

⁸ Different pollutants may dominate the TRI and DMR TWPE estimates for an industrial category due to the differences in pollutant reporting requirements between the TRI and DMR databases. The single TWPE number for each category highlights those industries with the most toxic discharge data in both TRI and DMR. Although this approach could theoretically lead to double-counting, EPA's review of the data indicates that, because the two databases tend to focus on different pollutants, double-counting is minimal and does not affect the order of the top-ranked industrial categories.

reviews on the 18 industrial categories that collectively discharge over 95 percent of the total TWPE. EPA performed the preliminary category reviews in accordance with Section 2.2.1.1 of this 2016 Preliminary Plan.

EPA documented the quality of the data supporting its preliminary review of these industrial categories, analyzed how the data could be used to characterize the industrial wastewater discharges, and prioritized the findings for further review. See Section 3.3 of this Preliminary 2016 Plan for more information on data usability and quality of the data sources supporting the preliminary category reviews. Section 4.1 of this Plan presents the findings from EPA's preliminary category reviews.

3.1.3 Review of Additional Industrial Categories and Pollutants

As part of the 2015 Annual Review, EPA also initiated a review of two additional point source categories that were not identified as categories warranting further review in the 2015 TRA: Battery Manufacturing (40 CFR Part 461) and Electrical and Electronic Components (40 CFR Part 469), specifically Subpart B Electronic Crystals. In addition, EPA reviewed in more detail MBT, a chemical compound used in tire manufacturing. Tire manufacturing is covered under the Rubber Manufacturing Point Source Category (40 CFR Part 428), Subpart A (Tire and Inner Tube Plants Subcategory)).

EPA initiated these reviews to address comments received from the public and other stakeholders regarding recent changes in these industries and the potential for new pollutant releases to the environment through their wastewater discharges. As part of these reviews, EPA revisited the existing ELGs and supporting development documents, examined recent changes to the industries, including new processes and technologies that may be generating new pollutants of concern, or industrial wastewater discharge sources not previously considered, and reviewed readily available data on current discharges.

EPA documented the quality of the data supporting its review of these industrial categories, analyzed how the data could be used to characterize the industrial wastewater discharges, and prioritized the findings for further review. See Section 3.3 of this Preliminary 2016 Plan for more information on the usability and quality of the data sources supporting these additional reviews. Section 4.2 of this report presents the findings from EPA's review of these additional industrial categories and pollutants.

3.2 Discharges Excluded from EPA's 2015 Annual Review

Consistent with its previous annual reviews, EPA eliminated the following from further consideration during its 2015 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 NPDES permit, but do not fall under an existing or new point source category or subcategory (e.g., Superfund sites).

3.2.1 Categories for Which EPA Has Recently Promulgated or Revised ELGs

In its 2015 TRA and subsequent preliminary category reviews, EPA did not consider industrial categories for which ELGs were recently established or revised but are not yet fully implemented. In general, EPA removes an industrial point source category from further consideration during a review cycle if EPA established or revised the category's ELGs within seven years of 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 2015 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	March 6, 2014
449	Airport Deicing	May 16, 2012
423	Steam Electric Power Generating	September 30, 2015

In addition, EPA did not consider in its 2015 TRA and subsequent preliminary category reviews industrial categories or subcategories that are subjects of an ongoing rulemaking process. These include the 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 the Oil and Gas Extraction Category, specifically relating to the discharge of pollutants from unconventional oil and gas extraction facilities. See Section 5 of this Preliminary 2016 Plan for details on the rulemaking status of these categories.

Industrial categories or subcategories for which EPA had recently considered developing or revising ELGs were not reviewed by EPA in its final 2015 point source category rankings and TRA. This is because EPA thoroughly reviewed these categories separately from the annual review process. This includes a subcategory of facilities that produce chlorine and chlorinated hydrocarbons (CCH) that fall within either the Organic Chemicals, Pesticides, and Synthetic Fibers (40 CFR Part 414) or the Inorganic Chemicals Manufacturing (40 CFR Part 415) point source categories. This review was limited to only those facilities producing CCH and did not include the remainder of the OCPSF or Inorganic Chemicals categories. Similarly, EPA did not review coalbed methane extraction in the Oil and Gas Extraction Category (40 CFR Part 435). See Section 5 of EPA's *Final 2012 and Preliminary 2014 Effluent Guidelines Program Plans* (U.S. EPA, 2014) for details on EPA's determinations related to these categories.

3.2.2 Discharges Not Categorizable

EPA identified some discharges that cannot be categorized into existing or new point source categories or subcategories. As part of the 2011 Annual Review, EPA reviewed high TWPE discharges from a Superfund site (Auchterlonie, 2009; U.S. EPA, 2012a). 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 below, EPA continued to determine that these discharges cannot be categorized into a single point source category, and excluded these TWPE from the final 2015 point source category rankings.

EPA determined that discharges from Superfund sites are too varied to be categorized into a single point source category. In particular, they vary by:

- Contaminants (e.g., metals, pesticides, dioxin).
- Treatment technologies (e.g., air stripping, granular activated carbon, chemical/ultraviolet oxidation, aerobic biological reactors, chemical precipitation).
- Types of facilities causing groundwater contamination (e.g., wood treatment facilities, metal finishing and electroplating facilities, drum recycling facilities, mines, mineral processing facilities, radium processing facilities).
- In addition, the duration and volume of Superfund site direct discharges vary significantly due to differences in aquifer characteristics and in the magnitude, fate, and transport of contaminants in aquifers and vadose zones.

Currently, permit writers for Superfund sites determine technology-based effluent limits using their best professional judgment. The permit must also call for more stringent effluent limitations, if necessary, to comply with state water quality standards. EPA finds that the current site-specific, best professional judgment approach is workable and flexible within the context of a Superfund cleanup (U.S. EPA, 2012a).

3.3 Data Quality Assurance and Limitations

This section discusses the data sources supporting the 2015 Annual Review and their limitations. EPA's methodology for the 2015 Annual Review involved several components, as discussed in Section 3.1, including the TRA, preliminary category reviews, and review of additional industrial categories and pollutants. As in previous annual reviews, EPA continued to rely on TRI and DMR data, downloaded from the DMR Loading Tool, during the 2015 Annual Review. EPA also used the following data source categories to support its 2015 Annual Review:

- Conference proceedings, peer-reviewed journals, other academic literature.
- State and local government information provided in telephone calls and email correspondence.
- Federal, state, and local government publications.
- Data and information obtained from industry and trade associations.
- Other (non-industry) publications.

3.3.1 *DMR and TRI Data*

Previously, in its 2009 SLA Report, EPA explained its use of DMR and TRI data (U.S. EPA, 2009a).⁹ This report provides details of the methods used to process thousands of data records and generate national estimates of industrial effluent discharges. Section 2.1 of the 2015

⁹ The 2009 SLA Report describes the odd-year annual review methodology and EPA's use of DMR and TRI data. This report is separate from the Technical Support Document for the Preliminary 2010 Effluent Guidelines Program Plan (U.S. EPA, 2009b).

Annual Review Report describes in detail EPA’s quality evaluation of the 2013 DMR and TRI data (used to support the 2015 Annual Review) and the data’s limitations (U.S. EPA, 2016a).

In general, EPA uses DMR data to evaluate direct discharges of pollutants to waters of the U.S. that are regulated by a permit in which monitoring is required. More than 250,000 industrial facilities and 17,000 wastewater treatment plants have NPDES individual permits or general permits¹⁰ for wastewater discharges to U.S. waters. Facilities must report compliance with NPDES permit requirements via DMRs. DMR data can include pollutant concentrations and/or quantities, flow, and identification of permit violations. Thus, DMR data provide readily available and relevant information on industrial pollutant discharges to surface waters (i.e., direct discharges).

In comparison, EPA generally uses TRI data to evaluate indirect discharges of pollutants to POTWs, as well as the direct discharge of pollutants to waters of the U.S. 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, etc.). 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 provide supplementary information to DMR data regarding potential additional 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. 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 SIC code.
Includes discharge data from facilities classified by manufacturing NAICS codes, as well as by 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.

¹⁰ 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, 2010).

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

TRI	DMR
Some reported releases are based on estimates (due to TRI reporting guidance); some facilities may overestimate or underestimate 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 result in overestimates of 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.
	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 overestimates 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).

EPA performed a quality review of the DMR and TRI data downloaded from the DMR Loading Tool to assess the data's completeness, comparability, accuracy, and reasonableness, in accordance with the *Environmental Engineering Support for Clean Water Regulations Programmatic Quality Assurance Project Plan (PQAPP)* (ERG, 2013). See section 2.2 of the 2015 Annual Review Report for a detailed discussion of the quality review of the DMR and TRI data.

The 2013 DMR data reported from ICIS-NPDES do not include data from New Jersey. In 2006, states began transitioning their DMR reporting from the Permit Compliance System (PCS) to ICIS-NPDES. The transition was completed in 2012. By 2012, all states and U.S. territories/tribes had completely migrated to ICIS-NPDES, except New Jersey; thus, New Jersey has not supplied EPA with required data about its CWA discharge program (U.S. EPA, 2015b).

During the course of its quality review of the 2013 TRI data, EPA found that hydrogen sulfide water releases accounted for approximately 40 percent of the total 2013 TRI TWPE. Hydrogen sulfide has not historically been included or evaluated as part of EPA's previous annual reviews, but is now included due to recent changes in TRI reporting requirements. EPA

further investigated the hydrogen sulfide releases reported to TRI and determined that the data for indirect releases are overestimated based on the estimation techniques used. EPA adjusted the indirect releases of hydrogen sulfide reported to TRI to account for these POTW removals. See Section 2.2.2.1 of the 2015 Annual Review Report for further details (U.S. EPA, 2016a).

Additionally, during EPA's quality review of 2013 DMR and TRI data, EPA made appropriate corrections to errors found in the data (e.g., unit errors, transcription errors, missing below detection limit indicators). For a detailed summary of all corrections made to the 2013 DMR and TRI data in support of the 2015 Annual Review, see Sections 2.2.1 and 2.2.2, respectively, in EPA's 2015 Annual Review Report (U.S. EPA, 2016a).

3.3.2 Other Data Sources Supporting EPA's 2015 Annual Review

For its 2015 Annual Review, EPA also used other data to support analyses of the potential environmental impact of industrial discharges. EPA obtained these data from government and other peer reviewed publications, through direct email or telephone correspondence with industry and state and local governments, and through online sources, including company websites. EPA considered the accuracy, reliability, and representativeness of data sources to assess their usability for the 2015 Annual Review, as described below and in Section 4.3.1 of the PQAPP (ERG, 2013). EPA also referred to Table 4-2 in the PQAPP to determine if the sources provided information that was sufficiently accurate and reliable to use in the 2015 Annual Review (ERG, 2013).

Accuracy. EPA assumed that the data and information contained in and supporting government publications, selected conference proceedings, peer-reviewed journal articles, and other academic literature are sufficiently accurate to support the general and/or facility-specific characterization of industries, process operations, and waste streams. EPA also considered industry and other non-industry information, including direct industry correspondence, company websites, and online news articles. The data and information reported by these sources is potentially less accurate than those in government publications or peer-reviewed literature, but provided useful information for qualitative characterization and understanding of industries, process operations, and waste streams.

Reliability. Using the following criteria, 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 methods are consistently applied throughout the analysis, as reported in the source.
- Waste streams, parameters, units, and detection limits (when appropriate) are clearly characterized.

- The governmental or facility contact is reputable and has knowledge of the industry, facility, process operation, or waste streams of interest.

EPA considered data sources that met these criteria sufficiently reliable to support its characterization and understanding of industries, process operations, and waste streams.

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

- *Relevance.* The data source is relevant to the industry or pollutant group of interest (e.g., the industry description or SIC and NAICS codes provided in the data source, when available, match the industry).
- *National Applicability.* The data can be applied broadly to provide a national perspective relative to the industry or pollutant group of interest (e.g., the data are characteristic of the industry or pollutant group).

EPA considered data sources that met these criteria sufficiently representative to support the characterization of industries, process operations, and waste streams. During the course of its preliminary category reviews, EPA obtained certain facility-specific data from correspondence with state and local regulators and/or industry representatives and determined that the data were not representative of the industry (e.g., the pollutant discharge was associated with a process unique to an individual facility). In such instances, EPA determined that the information was useful for understanding and characterizing wastewater discharges or process operations from specific facilities, which furthered its understanding of the wastewater discharges and operations for the industry.

For more information on the quality assurance activities supporting the 2015 Annual Review, including a summary of EPA's data quality and utility evaluation for these additional data sources, see Appendix A of the 2015 Annual Review Report (U.S EPA, 2016a).

4. RESULTS OF THE 2015 ANNUAL REVIEW

This section presents a summary of the findings from EPA’s 2015 Annual Review, specifically the TRA, preliminary category reviews, and the review of additional industrial categories and pollutants.

4.1 Findings from EPA’s 2015 TRA and Preliminary Category Reviews

In its 2015 Annual Review, consistent with the odd-year review methodology, EPA conducted a TRA to identify, rank, and prioritize for further review categories with pollutant discharges that may pose a substantial hazard to human health and the environment, relative to other categories. From the TRA, EPA developed the final 2015 combined point source category rankings, presented in Table 4-1 below, accounting for all corrections and updates to the data discussed in Section 3.3.1, and removal of any categories and discharges, as discussed in Section 3.2.

Table 4-1. Final 2015 Combined Point Source Category Rankings

PSC Code	PSC Description	TRI TWPE	DMR TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
430	Pulp, Paper and Paperboard	2,190,000	321,000	2,510,000	30.1%	1
NA	Drinking Water Treatment	0	892,000	892,000	40.8%	2
415	Inorganic Chemicals Manufacturing ^a	794,000	94,200	888,000	51.4%	3
419	Petroleum Refining	419,000	242,000	661,000	59.4%	4
414	Organic Chemicals, Plastics and Synthetic Fibers ^a	333,000	301,000	634,000	67.0%	5
418	Fertilizer Manufacturing	8,500	568,000	577,000	73.9%	6
420	Iron and Steel Manufacturing	84,600	188,000	273,000	77.2%	7
421	Nonferrous Metals Manufacturing	34,300	187,000	221,000	79.8%	8
406	Grain Mills	179,000	22,300	201,000	82.2%	9
445	Landfills	235	166,000	166,000	84.2%	10
435	Oil & Gas Extraction	0	163,000	163,000	86.2%	11
436	Mineral Mining and Processing	4,710	139,000	144,000	87.9%	12
440	Ore Mining and Dressing	82,700	57,700	140,000	89.6%	13
433	Metal Finishing	46,900	73,500	120,000	91.0%	14
NA	Miscellaneous Foods and Beverages	5,030	105,000	110,000	92.3%	15
410	Textile Mills	2,210	89,500	91,700	93.4%	16
432	Meat and Poultry Products	81,500	8,220	89,700	94.5%	17
458	Carbon Black Manufacturing	63,800	0.0998	63,800	95.3%	18
437	Centralized Waste Treatment	2,720	59,700	62,400	96.0%	19
NA	Unassigned Waste Facility	13,000	34,000	47,000	96.6%	20
434	Coal Mining	386	40,200	40,600	97.1%	21
409	Sugar Processing	406	32,500	32,900	97.5%	22
422	Phosphate Manufacturing	2,340	23,900	26,200	97.8%	23
429	Timber Products Processing	22,500	2,980	25,500	98.1%	24
455	Pesticide Chemicals	19,000	3,760	22,700	98.4%	25
438	Metal Products and Machinery	17,400	2,010	19,400	98.6%	26
471	Nonferrous Metals Forming and Metal Powders	12,300	1,070	13,400	98.8%	27
424	Ferroalloy Manufacturing	12,100	283	12,400	98.9%	28
428	Rubber Manufacturing	7,410	4,120	11,500	99.0%	29
439	Pharmaceutical Manufacturing	2,670	6,500	9,170	99.2%	30
468	Copper Forming	5,840	2,440	8,280	99.3%	31
463	Plastics Molding and Forming	1,830	6,030	7,860	99.4%	32
464	Metal Molding and Casting (Foundries)	3,460	3,890	7,350	99.4%	33
444	Waste Combustors	88.8	7,210	7,300	99.5%	34

Table 4-1. Final 2015 Combined Point Source Category Rankings

PSC Code	PSC Description	TRI TWPE	DMR TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
407	Canned and Preserved Fruits and Vegetables Processing	5,340	660	6,000	99.6%	35
411	Cement Manufacturing	381	5,600	5,980	99.7%	36
405	Dairy Products Processing	4,270	481	4,750	99.7%	37
413	Electroplating	4,620	0	4,620	99.8%	38
469	Electrical and Electronic Components	3,030	171	3,200	99.8%	39
NA	Printing and Publishing	27.6	2,110	2,140	99.8%	40
425	Leather Tanning and Finishing	1,400	506	1,910	99.9%	41
451	Concentrated Aquatic Animal Production	0	1,530	1,530	99.9%	42
457	Explosives Manufacturing	1,130	386	1,520	99.9%	43
467	Aluminum Forming	857	657	1,510	99.9%	44
417	Soap and Detergent Manufacturing	1,260	148	1,410	99.9%	45
442	Transportation Equipment Cleaning	71.7	1,270	1,340	100.0%	46
461	Battery Manufacturing	934	227	1,160	100.0%	47
426	Glass Manufacturing	522	133	655	100.0%	48
NA	Independent and Stand Alone Labs	0	542	542	100.0%	49
460	Hospitals	0	536	536	100.0%	50
443	Paving and Roofing Materials (Tars and Asphalt)	190	93.6	283	100.0%	51
446	Paint Formulating	94.8	0.437	95.3	100.0%	52
454	Gum and Wood Chemicals Manufacturing	26.4	62.4	88.8	100.0%	53
465	Coil Coating	79.1	0.0925	79.2	100.0%	54
NA	Food Service Establishments	0	35.5	35.5	100.0%	55
447	Ink Formulating	19.6	0.0103	19.7	100.0%	56
466	Porcelain Enameling	7.82	0	7.82	100.0%	57
NA	Tobacco Products	5.32	0.167	5.48	100.0%	58
412	Concentrated Animal Feeding Operations	0	1.49	1.49	100.0%	59
427	Asbestos Manufacturing	0	0.589	0.589	100.0%	60
NA	Industrial Laundries	0	0	0	100.0%	61
Total		4,480,000	3,860,000	8,340,000		

Sources: DMRLTOutput2013_v1 and TRILTOutput2013_v1.

Note: Sums of individual values may not equal the total presented, due to rounding.

NA: Not applicable.

^a The Organic Chemicals, Pesticides, and Synthetic Fibers and Inorganic Chemicals Manufacturing point source categories do not include discharges from facilities that produce chlorine and chlorinated hydrocarbons because EPA recently reviewed this category separately from the annual review process.

Based on its TRA, EPA prioritized for further review those industrial categories whose pollutant discharge toxicities potentially pose the greatest hazards to human health or the environment. To identify these industrial categories, EPA calculated each industrial category's percent of the total TWPE. As shown in Table 4-1, EPA identified and focused its preliminary category reviews on the 18 industrial categories that collectively discharge over 95 percent of the total TWPE. EPA excluded Petroleum Refining (40 CFR Part 419) and Metal Finishing (40 CFR Part 433) from further preliminary category review because it is currently conducting detailed and preliminary studies of these categories, respectively, as announced in the *Final 2014 Effluent Guidelines Program Plan* (Final 2014 Plan) (U.S. EPA, 2015a).

Based on further review of the remaining 16 categories, EPA determined that five categories did not warrant a detailed preliminary review as part of the 2015 Annual Review. For these five categories, many of which have been reviewed in detail in prior annual reviews, EPA found that one facility accounts for the majority of the category TWPE. From data available for the 2015 Annual Review, EPA determined that the discharges from the top facility are the result of an easily identifiable error, do not represent the category, or recommends the facility for facility-specific permitting action. These industrial categories include:

- Drinking Water Treatment (potential new category)
- Fertilizer Manufacturing (40 CFR Part 418)
- Inorganic Chemicals Manufacturing (40 CFR Part 415)
- Miscellaneous Foods and Beverages (potential new category)
- Oil and Gas Extraction (40 CFR Part 435)¹¹

For each of the remaining 11 categories (of the top 18 that collectively discharge over 95 percent of the total TWPE), EPA completed a preliminary category review to evaluate whether the category warrants further review for possible effluent guidelines development or revision. Below is the summary of findings from EPA's 2015 preliminary category reviews. From these reviews, EPA identified three categories that warrant further review and eight categories that do not warrant further review. The three categories that warrant further review are: Iron and Steel Manufacturing (40 CFR Part 420), Organic Chemicals, Plastics, and Synthetic Fibers (40 CFR Part 414), and Pulp, Paper, and Paperboard (40 CFR Part 430).

- **Carbon Black Manufacturing (40 CFR Part 458).** EPA determined that the estimated toxicity of the Carbon Black Category discharges resulted primarily from polycyclic aromatic compounds (PACs) releases reported to TRI. EPA identified two facilities that account for 99 percent of the PAC TWPE for the Carbon Black Category. After applying a data change for one facility, the 2013 Carbon Black Category TWPE decreased from 63,800 to 38,500. This change would drop the category outside the top 95 percent of TWPE that EPA prioritized for preliminary review as part of the 2015 Annual Review. Therefore, EPA has determined that the

¹¹ EPA recently reviewed coal bed methane facilities. Additionally, EPA is currently engaged in a rulemaking process for unconventional oil and gas extraction facilities. Therefore, coal bed methane and unconventional oil and gas extraction facilities were not further reviewed in EPA's review of the Oil and Gas Extraction Category in the 2015 Annual Review.

discharges do not warrant further review of the Carbon Black Manufacturing Category.

- **Grain Mills (40 CFR Part 406).** EPA determined that the estimated toxicity of the Grain Mills Category discharges resulted primarily from hydrogen sulfide releases reported to TRI. One facility contributed over 98 percent of the category's 2013 TRI hydrogen sulfide releases. The facility contact indicated that the release may be attributed to anaerobic wastewater treatment at the facility, and not to the manufacturing process. Because the majority of the hydrogen sulfide releases are attributed to one facility, EPA determined that they are not representative of the category, and therefore, the data do not warrant further review of the Grain Mills Category.
- **Iron and Steel Manufacturing (40 CFR Part 420).** EPA determined that the estimated toxicity of the Iron and Steel Manufacturing Category discharges resulted primarily from polychlorinated biphenyls (PCBs), cyanide, fluoride, and lead reported on DMRs, and nitrate compound, lead and lead compound, manganese and manganese compound and copper and copper compound releases reported to TRI. From its preliminary category review of the Iron and Steel Manufacturing Category, EPA determined the following:
 - **PCBs.** One facility accounts for 100 percent of the DMR PCB discharges. The facility is working to determine the source of PCB discharges, but believes the discharges are from historical production activities on the site. Additionally, the facility's PCB discharges have decreased in recent years. For these reasons, EPA does not consider the facility's PCB discharges to be representative of discharges across the category.
 - **Cyanide.** Two facilities account for 76 percent of the DMR cyanide discharges. EPA identified a data correction for one facility, however, some discharges still exceed the facility's permit limits; therefore, the facility may require facility-specific compliance assistance to address the cyanide discharges. The second facility has discharges below permit limits. Because the majority of cyanide discharges result from two facilities, they are not representative of discharges across the category.
 - **Fluoride.** Four facilities account for 94 percent of DMR fluoride discharges. For two of the top fluoride discharging facilities, EPA concluded that the fluoride concentrations are generally below those achievable by current technologies. One facility received a revised permit in 2014 that includes fluoride limits for an additional outfall; therefore, EPA expects fluoride discharges will decrease on future DMRs for this facility. The remaining facility has discharges above permit limits; therefore, facility-specific compliance assistance may be appropriate to address fluoride discharges from this facility.
 - **Lead.** EPA identified and corrected a data error for one facility that accounted for 19 percent of the TRI lead and lead compound releases. The correction decreased the facility's lead and lead compound TRI TWPE from 4,360 to

1,100. After the facility correction, EPA determined that all facilities with lead discharges in the 2013 DMR and TRI databases contributed less than 2,300 TWPE each. However, 133 facilities reported releases of lead and lead compounds to TRI and 33 facilities reported lead discharges on DMRs in 2013. Therefore, EPA determined that further investigation of this pollutant is appropriate to evaluate if the discharges are adequately controlled by the existing ELGs.

- **Nitrate.** The individual facility TWPE associated with nitrate appears to be relatively low (less than 3,200); however, 56 facilities reported releases of nitrate to TRI in 2013. Nitrate is not a regulated pollutant under the Iron and Steel Manufacturing ELGs. Because 56 facilities report releases of nitrate to TRI in 2013 and nitrate is not a regulated pollutant, EPA determined that further investigation of this pollutant is appropriate to evaluate if the discharges are adequately controlled by the existing ELGs.
- **Manganese and Copper.** Manganese and manganese compounds, and copper and copper compounds, not regulated by the Iron and Steel Manufacturing Category ELGs, contribute a small amount of TWPE relative to the other top pollutants (less than 6,000 TWPE each). However, because 114 and 79 facilities reported manganese and manganese compound and copper and copper compound releases, respectively, to TRI in 2013, EPA determined that further investigation is appropriate to evaluate if the discharges are adequately controlled by the existing ELGs.

In summary, from its preliminary category review, EPA determined that further review is appropriate for the Iron and Steel Manufacturing Category, specifically related to discharges of four pollutants: manganese and manganese compounds, copper and copper compounds, lead and lead compounds and nitrate compounds.

- **Landfills (40 CFR Part 445).** EPA determined that the estimated toxicity of the Landfills Category discharges resulted primarily from cadmium, selenium, and iron reported on DMRs. From its preliminary category review of the Landfills Category, EPA determined the following:
 - **Cadmium.** One facility accounts for more than 99 percent of the 2013 DMR cadmium discharges. The large discharge was attributed to a single sampling event that was performed after a leachate tank flood, and was not representative of typical operating conditions at the facility. For this reason, EPA does not consider these discharges to be representative of the Landfills Category and they do not warrant further review.
 - **Selenium.** One facility accounts for more than 99 percent of the 2013 DMR selenium discharges. EPA identified and corrected a data entry error for the facility's selenium concentrations, decreasing the facility's selenium TWPE from 40,600 to 40.4. Therefore, this pollutant does not warrant further review.
 - **Iron.** Two facilities accounted for over 85 percent of the iron discharges in the 2013 DMR data. EPA identified and corrected a data entry error for one facility's iron discharges, decreasing the facility's iron TWPE from 9,620 to

0.015. EPA determined that facility-specific compliance assistance may be appropriate to address iron discharges from the other top facility.

In summary, for the Landfills Category, EPA determined that the data do not support further review.

- **Meat and Poultry Products (40 CFR Part 432).** EPA determined that the estimated toxicity of the Meat and Poultry Products Category discharges resulted primarily from nitrate compounds and hydrogen sulfide releases reported to TRI. From its preliminary category review of the Meat and Poultry Products Category, EPA determined the following:
 - **Nitrate.** Fifteen facilities accounted for the majority of TRI nitrate compound releases. EPA previously reviewed many of these in recent annual reviews. For the 2015 Annual Review EPA focused its review on five facilities whose nitrate compound TWPE increased from 2009 to 2013. Three of these facility permits include current total nitrogen ELGs. A fourth permit is currently under revision and is expected to include total nitrogen limitations specified in the ELGs. EPA determined that facility-specific permitting action may be appropriate to address nitrate compound releases from the fifth facility. While nitrate is regulated by the existing ELGs, if this category continues to rank high in future reviews primarily due to nitrate compound releases, EPA may evaluate whether technologies are available to reduce these discharges further.
 - **Hydrogen Sulfide.** Four facilities accounted for the majority of the hydrogen sulfide discharges. All four facilities reported direct releases of hydrogen sulfide to TRI. Three of the four facilities estimated their hydrogen sulfide releases by using soluble sulfide sampling data collected at the facilities. EPA determined that the other facility used published emission factors to estimate hydrogen sulfide releases. EPA is uncertain as to how representative the data are of actual releases; therefore, as new data become available, EPA may continue to review them to determine whether they potentially represent a category-wide issue.

In summary, EPA did not identify the Meat and Poultry Category for further review at this time but may do so in the future for nitrate and hydrogen sulfide as additional data become available.

- **Mineral Mining and Processing (40 CFR Part 436).** EPA determined that the estimated toxicity of the Mineral Mining and Processing Category discharges resulted primarily from chloride, aluminum, and fluoride discharges reported on DMRs. From its preliminary category review of the Mineral Mining and Processing Category, EPA determined the following:
 - **Chloride and Aluminum.** Two facilities account for 96 percent of the 2013 DMR chloride discharges. At one of the facilities, the chloride discharges can be attributed to large salt piles the facility has on site, but is in the process of removing. This facility also accounts for 95 percent of the 2013 DMR aluminum discharges. EPA expects the discharges from this facility to

decrease in future years. The second top facility with chloride discharges has net limitations for chloride because they withdraw from and discharge to the same saline body of water. Additionally, its chloride discharges have been consistent from 2004 through 2013. EPA does not consider the discharges from this facility to be representative of the Mineral Mining and Processing Category.

- **Fluoride.** One facility accounts for 69 percent of the 2013 DMR fluoride discharges. The facility's discharges have increased from 2011 to 2014. Therefore, facility-specific permitting action may be appropriate to address fluoride discharges.

In summary, for the Mineral Mining Category, EPA determined that the discharges are primarily attributed to single facilities and that no further review is warranted.

- **Nonferrous Metals Manufacturing (NFMM) (40 CFR Part 421).** EPA determined that the estimated toxicity of the NFMM Category discharges resulted primarily from cadmium and fluoride reported on DMRs. From its preliminary category review of the NFMM Category, EPA determined the following:
 - **Cadmium.** One facility accounts for over 99 percent of the 2013 DMR cadmium discharges. The facility's 2013 cadmium discharges are above permit benchmark values for three of their four stormwater outfalls. Facility-specific compliance assistance to address the cadmium discharges from this facility may be warranted.
 - **Fluoride.** Two facilities account for 87 percent of the 2013 DMR fluoride discharges. One of the facilities closed in 2014. The other facility, (discussed for cadmium discharges above), has 2013 fluoride discharges that vary by three orders of magnitude, depending on the month. The facility currently has reporting requirements for fluoride, but no specific limits. Facility-specific compliance assistance to address fluoride discharges from this facility may be warranted.

In summary, for the NFMM Category, EPA determined that the discharges are primarily attributed to one or two facilities and no further review is warranted.

- **Ore Mining and Dressing (40 CFR Part 440).** EPA determined that the estimated toxicity of the Ore Mining Category discharges resulted primarily from copper, selenium, radium-226, and arsenic reported on DMRs; and lead and lead compound and silver and silver compound releases reported to TRI. From its preliminary category review of the Ore Mining and Dressing Category, EPA determined the following:
 - **Copper.** Two facilities account for 76 percent of the 2013 copper discharges. One facility's discharges resulted from contamination at the sample port on the discharge pipe and the facility plans to change the sampling location to avoid contamination; therefore, EPA expects copper discharges from this facility to decrease in future years. The other facility is closed and discharges are from tailings runoff, which fluctuate with yearly rainfall. EPA determined

that these copper discharges are not representative of the Ore Mining and Dressing Category.

- **Selenium.** One facility accounts for 89 percent of the selenium discharges. The facility’s permit was reissued in 2012 and included a schedule of compliance for selenium discharges. The facility plans to implement new on site treatment technologies to meet revised permit limits for selenium by 2017; therefore, EPA expects decreases in selenium discharges from this facility on future DMRs.
- **Radium-226.** One facility accounts for over 99 percent of the radium-226 discharges. The 2013 radium-226 DMR discharge resulted from one measured concentration from an outfall where the facility discharges process water from the mine’s waste dump. The facility confirmed the 2013 discharge resulted from a major flood at the site; the facility has had no other radium-226 discharges from 2011 through 2014, indicating that the 2013 discharge was an outlier. Therefore, the radium-226 discharges are not representative of typical discharges from this facility or from the Ore Mining Category.
- **Arsenic.** One facility accounts for 69 percent and 66 percent of the DMR and TRI arsenic discharges, respectively. The facility is a large, integrated copper mining facility; the 2013 DMR arsenic discharges are below the NPDES monthly average and daily maximum permit limits. The facility’s high arsenic TWPE likely results from the relatively high level of industrial activity at the site. Therefore, EPA does not consider the facility’s arsenic discharges to be representative of facility discharges across the category.
- **Lead.** Three mines account for 91 percent of the TRI lead and lead compound releases. All three mines are covered under a consent decree; therefore, EPA expects discharges to decrease in future years.
- **Silver.** Two facilities account for over 99 percent of the 2013 silver and silver compound releases. Both facilities are part of a large, integrated copper mining facility that bases its reported TRI releases on conservative estimates not confirmed with sampling data. Therefore, EPA cannot assess how representative they are of actual silver and silver compound releases from the facility.

In summary, for the top pollutants identified from the 2015 Annual Review, EPA determined that the discharges are primarily attributed to one or two facilities, the discharges are anomalies, or are not representative of the Ore Mining and Dressing Category. Therefore, EPA determined no further review of this category is warranted.

- **Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) (40 CFR Part 414).** EPA determined that the estimated toxicity of the OCPSF Category discharges resulted primarily from PACs, total residual chlorine, hexachlorobenzene, and dioxin reported on DMRs, and PACs, dioxin and dioxin-like compound, carbon disulfide, and nitrate compound releases reported to TRI. From its preliminary category review of the OCPSF Category, EPA determined the following:

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- **PACs.** Two facilities account for 94 percent of the 2013 DMR benzo[a]pyrene and benzo[k]fluoranthene discharges (both are PACs). Additionally, two facilities account for 96 percent of the 2013 TRI PACs releases. EPA determined DMR benzo[a]pyrene and benzo[k]fluoranthene discharges were originally reported in error and should have been reported as below detection. Correcting these data decreased the OCPSF Category benzo[a]pyrene TWPE from 59,800 to 3,230, and the benzo[k]fluoranthene TWPE from 18,200 to 971. The top facility reporting TRI PACs releases is meeting its PACs permit limits, which form the basis of its reported TRI releases, and its permit is being updated to add increasingly stringent limits. EPA also expects the TRI PACs releases from the second top facility to decrease in future years, as the facility refines its estimation method for reporting PACs releases. For these reasons, EPA has determined that PACs releases for the OCPSF Category do not represent a hazard priority at this time.
 - **Total Residual Chlorine.** Total residual chlorine is not a regulated pollutant under the OCPSF ELGs. Ninety-seven facilities submitted DMRs with total residual chlorine discharges in 2013; four facilities account for over 60 percent of those discharges. EPA reviewed the DMR data submitted by the top four facilities and found that all four met their permit limits in 2013; however, three of the facilities had minimum chlorine permit limits. EPA did not conduct a facility-level review of the total residual chlorine discharges for the remaining 93 facilities because no facility individually contributed more than 5,000 TWPE. However, due to the number of facilities with total residual chlorine discharges in the 2013 DMR database, and an indication that three of the top four facilities reporting total residual chlorine discharges have minimum total residual chlorine limits in their permits, EPA determined that further investigation of this pollutant is appropriate to determine whether control technologies are available to further reduce these discharges.
 - **Hexachlorobenzene.** Two facilities account for 93 percent of the 2013 DMR hexachlorobenzene discharges. EPA determined that hexachlorobenzene discharges from one facility will likely continue to decrease due to the implementation of more stringent permit limits. The other facility's hexachlorobenzene discharges are below its current permit limits. As a result, EPA determined that hexachlorobenzene discharges for the OCPSF Category do not represent a hazard priority at this time.
 - **Dioxin.** One facility accounts for over 99 percent of the 2013 DMR 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin (TCDD) discharges. Two facilities account for over 93 percent of the 2013 TRI dioxin and dioxin-like compound releases. Two of the top DMR and TRI dioxin discharging facilities indicated that the dioxin discharges are associated with historical processes on site. EPA identified a data correction for the remaining top discharging facility, which, once applied, decreased the OCPSF category dioxin and dioxin-like compound TRI TWPE from 69,700 to 22,500. As a result, EPA has determined that dioxin discharges for the OCPSF Category do not represent a hazard priority at this time.

- **Carbon Disulfide.** Three cellulose products manufacturing facilities account for 97 percent of the 2013 TRI carbon disulfide releases for the OCPSF Category. EPA reviewed the releases from one of the top three facilities and determined that the carbon disulfide discharges are likely overestimated because of the high probability that the pollutant volatilizes over the long distance between the sampling point and final discharge point. EPA determined that the carbon disulfide releases do not represent a category-wide issue.
- **Nitrate.** One hundred twenty-one facilities reported releases of nitrate compounds to TRI in 2013; two facilities account for 38 percent of those releases. EPA confirmed that both facilities base their nitrate compound TRI releases on monitoring data. One facility's nitrate compound releases have remained similar from 2010 through 2013, while the other facility's nitrate compound releases have decreased from 2010 through 2013. EPA did not conduct a facility-level review of the remaining 119 facilities with reported TRI nitrate compound releases in 2013, as the majority contribute less than 1,000 TWPE each. However, 121 facilities reported releases of nitrate compounds to TRI. Therefore, EPA determined it is appropriate to evaluate whether control technologies are available to reduce nitrate discharges further.

In summary, from its preliminary category review, EPA determined that further review is appropriate for the OCPSF Category, specifically related to discharges of two pollutants: total residual chlorine and nitrate compounds.

- **Pulp, Paper, and Paperboard (40 CFR Part 430).** EPA determined that the estimated toxicity of the Pulp, Paper, and Paperboard (Pulp and Paper) Category discharges resulted primarily from releases reported to TRI of the following pollutants: hydrogen sulfide, dioxin and dioxin-like compounds, manganese and manganese-like compounds, lead and lead compounds, and mercury and mercury compounds. From its preliminary category review of the Pulp and Paper Category, EPA determined the following:
 - **Hydrogen Sulfide.** Seven facilities account for 80 percent of the hydrogen sulfide releases, with the top facility accounting for 27 percent of the releases. The top facility confirmed the 2013 TRI hydrogen sulfide release data, but stated that wastewater treatment system improvements such as dredging treatment basins of accumulated solids to increase the available aeration zone, led to decreased hydrogen sulfide discharges in 2014. EPA contacted industry trade associations regarding the reported releases of hydrogen sulfide as well, and determined that pulp and paper mills may calculate their hydrogen sulfide releases to TRI using total sulfide, rather than dissolved sulfide concentrations. Industry trade associations suggest this may result in an overestimate. One trade association has developed a new sampling system that may allow measurement of dissolved sulfides, and believes the new sampling system may mitigate the overestimation of hydrogen sulfide releases in TRI. Due to the number of facilities with hydrogen sulfide releases in the TRI database (97 facilities) and possible overestimation of hydrogen sulfide

releases in TRI data due to the current sampling convention, EPA determined that it may be appropriate to continue to monitor releases of this pollutant to determine whether they potentially represent a category-wide issue warranting further evaluation.

- **Dioxin.** The majority of dioxin and dioxin-like compound releases result from five facilities. Data from three of the facilities required data changes. Correcting the data decreased the dioxin and dioxin-like compound TWPE for the Pulp and Paper Category from 1,090,000 to 158,000. EPA determined the remaining two facilities either had discharges below the method minimum levels or decreasing discharges in recent years. As a result, EPA determined that discharges of dioxin and dioxin like compounds do not warrant further review at this time.
- **Manganese.** In 2013, 112 facilities reported releases of manganese and manganese compounds with none contributing more than five percent of the 2013 manganese and manganese compound TRI TWPE for the Pulp and Paper Category. Further, it has been nearly 10 years since EPA conducted the Pulp and Paper Detailed Study in which it evaluated manganese and manganese compound concentrations compared to treatable levels. For these reasons, EPA determined that further investigation of this pollutant is appropriate to determine whether concentrations are present in facility effluent at levels that warrant further treatment.
- **Lead and Mercury.** Lead and lead compounds and mercury and mercury compounds, not regulated by the Pulp and Paper Category ELGs, represent a small percentage (3.4 percent combined) of the 2013 TRI TWPE for the Pulp and Paper Category. However, because 172 and 84 facilities reported lead and lead compound and mercury and mercury compound releases, respectively, to TRI in 2013, EPA determined that further investigation is appropriate to determine if concentrations are present in facility effluent at a level that may warrant further treatment.

In summary, from its preliminary category review, EPA determined that further review is appropriate for the Pulp and Paper Category, specifically related to discharges of four pollutants: lead and lead compounds, hydrogen sulfide, mercury and mercury compounds and manganese and manganese compounds.

- **Textile Mills (40 CFR Part 410).** EPA determined that the estimated toxicity of the Textile Mills Category discharges resulted primarily from toxaphene and sulfide reported on DMRs. From its preliminary category review of the Textile Mills Category, EPA determined the following:
 - **Toxaphene.** One facility accounts for 100 percent of the 2013 DMR toxaphene discharges. The facility experienced matrix interferences with analyzing samples in 2013, resulting in false positive results; therefore, the facility's toxaphene discharges do not represent discharges from the Textiles Category.

- **Sulfide.** One facility accounts for over 70 percent of the 2013 DMR sulfide discharges. All 2013 sulfide discharges are below the facility’s permit limits and the facility is performing daily monitoring; therefore, further review of sulfide discharges is not warranted at this time.

In summary, for the Textiles Category, EPA determined the discharges do not support the need for further review.

4.2 Findings from EPA’s Review of Additional Industrial Categories and Pollutants

EPA also initiated a review of three additional point source categories that were identified as potential concerns based on public comments: Battery Manufacturing (40 CFR Part 461) and Electrical and Electronic Components (40 CFR Part 469), specifically Subpart B Electronic Crystals. EPA also reviewed in more detail MBT, a chemical compound used in tire manufacturing, which is an industry covered under Subpart A Tire and Inner Tube Plants Subcategory of the Rubber Manufacturing (40 CFR Part 428) ELGs. The findings from these reviews are summarized below.

- **Battery Manufacturing (40 CFR Part 461).** Battery technologies have greatly changed since the promulgation of the Battery Manufacturing ELGs in 1984, with the advent of rechargeable batteries, including lithium ion, vanadium redox and other types of batteries. The 1984 ELGs apply to discharges from battery manufacturing facilities if the battery type they manufacture is listed as one of six manufacturing subcategories. Each subcategory is based on the type of metal used to manufacture the battery anodes. Given the different types of anode materials used, the existing ELGs may not cover discharges from the manufacture of the newer types of batteries.

Currently, 25 battery manufacturing facilities have active NPDES permits for wastewater discharges and it appears the battery manufacturing industry in the U.S. is growing. Tesla Motors is currently building a very large battery manufacturing plant in Nevada, which will manufacture lithium ion batteries. It is estimated, when at full capacity, this plant will manufacture 95 percent of the world’s rechargeable batteries.

Given these factors, EPA has determined that further review of the Battery Manufacturing industry is appropriate to fully understand the state of the industry, the new battery technologies, the applicability of the existing ELGs, and the potential for new pollutants in the industry’s wastewater discharges.

- **Electrical and Electronic Components (40 CFR Part 469).** Sapphire crystals are used in an increasing number of electronic devices. Stakeholders recently raised questions regarding the applicability of the Electrical and Electronic Components ELGs (E&EC ELGs) to the manufacture of sapphire crystals. Further, stakeholders identified new pollutants, specifically the use of nanomaterials in the manufacturing of electronics, which EPA did not consider during the development of the E&EC ELGs.

Subpart B of the E&EC ELGs applies to discharges resulting from the manufacture of electronic crystals. While the definition of “electronic crystals” does not specify sapphire crystals, EPA determined that growing sapphire crystals and producing

sapphire crystal wafers meet the definition of manufacture of electronic crystals, as the crystals are used in the manufacture of electronic devices because of their unique structural and electronic properties. Therefore, 40 CFR Part 469 Subpart B covers wastewater discharges generated from growing sapphire crystals and producing sapphire crystal wafers.

EPA's review identified that sapphire crystal wafer production usually generates wastewater in the form of slurries and acids. The chemicals used in the preparation of sapphire wafers have not been thoroughly studied, so available information is limited. As a result, EPA has not yet determined the pollutants of concern or current wastewater management practices, though it has confirmed that nanodiamonds are used in sapphire crystal polishing slurries. EPA also identified a number of facilities in the U.S. that are likely manufacturing sapphire crystals and wafers. As a result of the investigation into sapphire crystal manufacturing, EPA determined continued review of the E&EC ELGs is appropriate.

- **2-Mercaptobenzothiazole (MBT).** MBT is an organic vulcanization accelerator used in the manufacture of rubber tires. Subpart A, Tire and Inner Tube Plants, of the Rubber Manufacturing ELGs (40 CFR Part 428), covers discharges from tire manufacturing. EPA did not identify any DMR or TRI discharges of MBT from tire manufacturers. Further, EPA's review of MBT indicates that concerns and research regarding its release into the environment have centered on dust from the abrasion and wear of tires, which is not under the purview of the ELG program. For these reasons, EPA is not pursuing further review of the discharge of MBT as an effluent guidelines issue at this time.

5. INDUSTRIES FOR WHICH EPA IS CURRENTLY UNDERTAKING AN ELG RULEMAKING

EPA is currently undertaking a rulemaking for the Canned and Preserved Seafood Category (covering the Alaskan seafood processing subcategories), dental practices (specifically, relating to the discharge of mercury found in dental amalgam to POTWs), and for the Oil and Gas Extraction Category (specifically related to the discharge of pollutants in wastewaters from unconventional oil and gas extraction facilities to POTWs). This section presents updates and EPA's current schedule for these actions. EPA is not soliciting comment on these ongoing rulemakings or schedules as part of this *Preliminary 2016 Effluent Guidelines Program Plan*.

EPA is 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. For further information, see [EPA's Alaskan Seafood Processing Effluent Guidelines webpage](#).

EPA is currently engaged in a rulemaking related to 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 recently signed a rule which will revise the ELGs for the Oil and Gas Extraction Point Source Category by adding pretreatment standards for existing and new onshore unconventional oil and gas extraction facilities. This rule will 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.

5.1 EPA's Current Schedule for ELG Actions

Pretreatment Standards for the Dental Category:

- | | |
|-----------------|------------------|
| - Proposed Rule | October 22, 2014 |
| - Final Rule | December 2016 |

Pretreatment Standards for Unconventional Oil and Gas Extraction:

- | | |
|-----------------|---------------|
| - Proposed Rule | April 7, 2015 |
| - Final Rule | June 2016 |

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

- Notice of Data Availability
- Final Rule

November 7, 2013

Spring 2017

6. ONGOING EPA STUDIES OF INDUSTRIAL DISCHARGES

As discussed in the *Final 2014 Effluent Guidelines Program Plan* (Final 2014 Plan), EPA continued studies of the Centralized Waste Treatment (CWT) Category (40 CFR Part 437), Petroleum Refining Category (40 CFR Part 419), and Metal Finishing Category (40 CFR Part 433) (U.S. EPA, 2015a).

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

In the Final 2012 and Preliminary 2014 Plan, EPA announced its initiation of a detailed study of petroleum refineries (40 CFR Part 419) (U.S. EPA, 2014). EPA continues work on this study to determine if changes to the existing ELGs or pretreatment standards are appropriate for this industry. In particular, the detailed study is investigating the effects of heavier crudes and new wet air pollution control on wastewater discharges. Also, the detailed study is investigating pollution prevention or wastewater treatment methods available to reduce pollutants present in petroleum wastewater.

The following sources of information were reviewed as part of the detailed study:

- Updated profile information 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
- NPDES Permit information
- Information from site visits to petroleum refineries
- Information from industry, other EPA programs, EPA regions and states and literature sources

After analyzing the information collected from the sources listed above, EPA has determined that a targeted information collection request to the industry and wastewater sampling data is appropriate to determine if changes to the existing ELGs or pretreatment standards are warranted. EPA plans to send a targeted information request, including a request for self-sampling data, to 9 or fewer companies. EPA will also continue to collect detailed information from NPDES permits, industry, EPA regions, states and literature sources as part of the detailed study.

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

EPA has gathered information about CWT facilities across the country and identified those facilities that currently accept or have in the past accepted oil and gas extraction wastewaters. A memorandum is included in the record that identifies these facilities (ERG, 2015). In addition to compiling information on facilities that accept oil and gas extraction wastewaters, EPA collected information on wastewater characteristics, wastewater treatment technology effectiveness and costs, environmental impacts of discharges, and economic aspects of the industry. EPA also conducted site visits at a number of facilities to collect additional, site-specific information and is planning a targeted information collection request as well.

6.3 Continued Preliminary Study of the Metal Finishing Category (40 CFR Part 433)

In the Final 2014 Plan, EPA announced its initiation of a preliminary study of the Metal Finishing Category (40 CFR Part 433) to determine if revisions to the ELGs are warranted (U.S. EPA, 2015). As part of this study, EPA is evaluating facilities that make up the metal finishing industry (including electroplating), their size, and the major markets they serve; the types of metal finishing operations and alternative chemistries used that may potentially introduce new pollutants that are not currently regulated; new sources of metal finishing wastewater that contribute to the overall wastewater characteristics, such as wet air pollution controls or new operations in metal finishing; and advanced technologies that facilities employ for the treatment and subsequent recycle or discharge of metal finishing wastewater. The study is initially focusing on examining existing information that EPA collected or will collect through literature reviews, technical conferences, and discussions with industry experts and stakeholders. EPA also plans to conduct site visits at metal finishing facilities, analyze current available discharge data, and review information collected on the industry during the Metal Products and Machinery (MP&M) Rulemaking development. This information will help EPA answer the key study questions described in the *Preliminary Study of the Metal Finishing Category: 2015 Status Report* (U.S. EPA, 2016b). The report also describes EPA's current study findings and next steps for continuing the preliminary study.

7. OTHER ONGOING EPA REVIEWS

As presented in the Final 2014 Plan, EPA also continued its review of relevant literature to document the performance of new and improved industrial wastewater treatment technologies for inclusion in its IWTT Database, to be used in future annual reviews. Additionally, EPA continued its review of engineered nanomaterials in industrial wastewater. However, EPA did not report on these reviews in its *2015 Annual Effluent Guidelines Review Report* (2015 Annual Review Report), as the evaluations are ongoing and EPA reported on these efforts in the Final 2014 Plan. EPA plans to provide an update on these reviews as part of its 2016 Annual Review Report, or as new information becomes available.

EPA continued its 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 ELGs (40 CFR Part 455). EPA will continue its evaluation of PAIs during future annual reviews as additional data and information become available.

EPA is also continuing its review of the exemption from zero discharge requirements that exist in Subpart D of 40 CFR Part 435 for oil and gas extraction facilities operating in Cook Inlet, Alaska. The Agency expects to have this evaluation completed in the near future, and to announce a decision soon thereafter.

8. OTHER INITIATIVES

Innovation and technology have played key roles in improving the strength of the U.S. economy while at the same time vastly improving public health and the environment. The U.S. leads the way in the environmental technology arena that has become a worldwide market of over \$800 billion. The environmental technology sector employs about 1.7 million Americans.

For an advanced economy such as the U.S., innovation is a wellspring of economic growth and a powerful tool for addressing our most pressing challenges as a nation – such as enabling more Americans to lead longer, healthier lives, and accelerating the transition to a low-carbon economy. In fact, from 1948-2012 over half of the total increase in U.S. productivity growth, a key driver of economic growth, came from innovation and technological change.

That’s why President Obama issued the nation’s first-ever innovation strategy in 2009, updated it in 2011, and issued in October 2015 a final update entitled “*A Strategy for American Innovation*,” prepared by the National Economic Council and Office of Science and Technology Policy.¹²

In addition to the current activities enumerated in the President’s *Strategy*, important new opportunities are described for action to be developed in 2015 and beyond, and include the following new horizon, applicable to the effluent guidelines program:

“Designing Smart Regulation to Support Emerging Technologies

Even the innovation process is changing. Key trends include the drastic reduction in costs to launch and scale technology; the lack of regulatory pathways for the testing and pilot phases of emerging technologies; the reduced role of incumbent, regulated intermediaries; and the shift away from technologies that can be regulated in accordance with stable categories to technologies that enable and require more fluid approaches. As the innovation process evolves, the Federal Government needs to develop new regulatory approaches for both new and existing regulations that protect important public values like health and safety while fostering innovation. Smart regulation can also use cutting-edge technologies to reduce regulatory burden, aid in regulatory analysis, and better solicit public engagement in the regulatory process.”

EPA aims to be a catalyst to promote and support technology innovation to restore, protect and ensure the sustainability of our water resources. In July 2015, the Agency released, “Promoting Innovation for a Sustainable Water Future: A Progress Report” to highlight the advances made in ten key market areas identified in “Promoting Technology Innovation for Clean and Safe Water.”¹³

As a part of this Preliminary 2016 ELG Plan, EPA solicits public and stakeholder comments and input on ideas, approaches and information on how to design smart regulations to support and promote emerging and innovative technologies for industrial wastewater management.

¹² See the National Economic Council and Office of Science and Technology Policy’s [A Strategy for American Innovation](#).

¹³ See [EPA’s Promoting Innovation for a Sustainable Water Future webpage](#).

9. PRELIMINARY 2016 PLAN DECISIONS AND ACTIONS

This section summarizes EPA's decisions and actions resulting from its 2015 Annual Review and from other ongoing studies and investigations of industrial wastewater discharges. EPA invites public comment on these decisions and actions.

Based on the status of ongoing studies and findings from EPA's 2015 Annual Review, EPA is not identifying any existing effluent guidelines for possible revision, nor is EPA identifying any industries for new effluent guidelines, aside from those currently undergoing rulemakings. EPA is also not identifying any industrial categories for detailed studies beyond those identified previously.

However, EPA is conducting further preliminary review of the following industry categories:

- **Iron and Steel Manufacturing (40 CFR Part 420).** From its preliminary category review of the Iron and Steel Manufacturing Category, EPA identified that further review is appropriate, specifically related to discharges of four pollutants: manganese and manganese compounds, copper and copper compounds, lead and lead compounds, and nitrate compounds. Of these pollutants, the Iron and Steel Manufacturing ELGs currently regulate only lead.

Specifically, EPA plans to evaluate and understand the basis for estimates of reported releases to TRI, and to review available facility-specific concentration data for discharges of these pollutants. EPA plans to contact a subset of facilities and permitting authorities to determine what specific process operations may be generating the pollutants and how the discharges are currently treated. Additionally, EPA plans to review available treatment technologies for these pollutants to determine the level to which the technologies can treat the pollutants compared to the concentrations facilities are currently discharging.

- **Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) (40 CFR Part 414).** From its preliminary category review of the OCPSF Category, EPA identified that further review is appropriate specifically related to discharges of two pollutants: total residual chlorine and nitrate compounds. The OCPSF ELGs do not currently regulate these pollutants.

Specifically, EPA plans to review facility-specific concentration data for nitrate and total residual chlorine discharges, where available. EPA plans to evaluate and understand the basis for estimate of releases reported to TRI and contact specific facilities to determine what process operations may be generating the pollutants and how the discharges are currently treated. For total residual chlorine discharges, EPA also plans to further evaluate the prevalent minimum limits for total residual chlorine in facility permits, and to compare the discharges to total residual chlorine limits established for POTWs. Additionally, EPA plans to review treatment technologies for these pollutants to determine the level to which the technologies can treat the pollutants compared to the concentrations facilities are currently discharging.

- **Pulp, Paper, and Paperboard (40 CFR Part 430).** From its preliminary category review of the Pulp and Paper Category, EPA identified that further review is appropriate, specifically related to discharges of four pollutants: lead and lead compounds, mercury and mercury compounds, hydrogen sulfide, and manganese and manganese compounds. The Pulp and Paper ELGs do not currently regulate any of these pollutants.

Specifically, EPA plans to review facility-specific concentration data for discharges of lead and lead compounds, mercury and mercury compounds, and manganese and manganese compounds, where available. Additionally, EPA plans to further evaluate and understand the basis for estimates of releases reported to TRI; discuss discharges of these pollutants with industry trade associations; and review treatment technologies for these pollutants to determine the level to which the technologies can treat the pollutants.

For hydrogen sulfide, EPA has determined that industry trade associations are actively evaluating discharges from pulp and paper mills and are working on refining methods to improve the accuracy of sampling techniques that will improve the quality of data reported to TRI in the future. EPA plans to continue to work with industry to understand potential releases of hydrogen sulfide, and will continue to monitor releases as new data become available.

- **Battery Manufacturing (40 CFR Part 461).** Given public comments and the lack of information at this time, EPA determined that further review of the new battery technologies is appropriate to better understand the scope and potential for new discharges from battery manufacturing in the U.S. EPA also plans to assess the applicability of existing Battery Manufacturing ELGs relative to the new battery manufacturing technologies to ensure that if wastewater discharges are occurring from these new types of manufacturing, they are adequately covered by the ELGs.

Specifically, EPA plans to review company and industry association websites, the U.S. Economic Census, and business and finance publications to determine the current scope of the battery manufacturing industry in the U.S. and the types of batteries currently manufactured or planned. EPA also plans to review NPDES permit documentation and industrial user agreements to assess how the ELGs are currently applied. Additionally, EPA plans to compare pollutants reported as discharged in DMR and TRI to those regulated in the ELGs to determine how advances in battery manufacturing may impact the types and concentrations of pollutants in resulting wastewater.

- **Electrical and Electronic Components (E&EC) (40 CFR Part 469).** From its review of additional industrial categories and pollutants, EPA determined that additional review of the E&EC ELGs is appropriate to better understand recent technology advancements within the industry that impact production processes and wastewater generation and characteristics. For this review, EPA plans to expand its evaluation to cover the entire E&EC Category. One specific aspect of this evaluation will include whether the manufacture of new types of electronic crystals, including sapphire crystals, may introduce pollutants in wastewater discharges that were not

considered when the ELGs were originally promulgated. EPA also plans to investigate recent advancements in other aspects of electrical and electronic components manufacturing, including the manufacture of semiconductors. In addition, EPA plans to evaluate treatment technologies that target and remove any new pollutants of concern identified.

10. SUMMARY TABLE OF FINDINGS FOR EXISTING GUIDELINE CATEGORIES FROM THE 2015 ANNUAL REVIEW

Table 10-1 summarizes the findings from EPA's 2015 Annual Reviews 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 to identify 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 (1) the category was not among those that cumulatively account for 95 percent of discharges, measured in TWPE, in the 2015 Annual Review; (2) EPA did not determine during the 2015 preliminary category review that revisions to the national effluent guidelines or pretreatment standards are warranted, or (3) EPA did not identify, during the review of additional industrial categories and pollutants, that revisions to the national effluent guidelines or pretreatment standards are warranted.
4. EPA intends to start, or continue to conduct, preliminary category reviews of the pollutant discharges from this category.
5. EPA intends to start or continue either a preliminary or detailed category study of this industry in its 2016 Annual Review to determine whether the category should undergo effluent guidelines rulemaking.
6. EPA is identifying this industry for a potential revision of an existing effluent guideline.

Table 10-1. Summary of Findings from EPA's 2015 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	(4)
5	Canned and Preserved Fruits and Vegetable Processing	407	(3)
6	Canned and Preserved Seafood Processing ^a	408	(1) and (3)
7	Carbon Black Manufacturing	458	(3)

Table 10-1. Summary of Findings from EPA’s 2015 Annual Review of Existing Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
8	Cement Manufacturing	411	(3)
9	Centralized Waste Treatment	437	(5)
10	Coal Mining	434	(3)
11	Coil Coating	465	(3)
12	Concentrated Animal Feeding Operations (CAFO)	412	(3)
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	(4)
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	(2)
24	Gum and Wood Chemicals	454	(3)
25	Hospitals	460	(3)
26	Ink Formulating	447	(3)
27	Inorganic Chemicals ^b	415	(1) and (3)
28	Iron and Steel Manufacturing	420	(4)
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	(2)
36	Nonferrous Metals Forming and Metal Powders	471	(3)
37	Nonferrous Metals Manufacturing	421	(2)
38	Oil and Gas Extraction ^c	435	(1) and (3)
39	Ore Mining and Dressing	440	(3)
40	Organic Chemicals, Plastics, and Synthetic Fibers ^d	414	(1) and (4)
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 10-1. Summary of Findings from EPA’s 2015 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	(4)
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	(3)
56	Timber Products Processing	429	(3)
57	Transportation Equipment Cleaning	442	(3)
58	Waste Combustors	444	(3)

- ^a Code (1) refers to the current effluent guidelines rulemaking, which includes Alaskan Seafood Processing facilities. Code (3) indicates that the remainder of the facilities in this category do not represent a hazard priority at this time.
- ^b Code (1) refers to the recent effluent guidelines rulemaking, and subsequent delisting for the CCH manufacturing sector, which includes facilities currently regulated by the OCPSF and Inorganic Chemicals effluent guidelines. Code (3) indicates that the remainder of the facilities in this category do not represent a hazard priority at this time.
- ^c Code (1) refers to the ongoing effluent guidelines rulemaking for unconventional oil and gas extraction facilities and EPA’s review of the coalbed methane extraction sector of the industry. Code (3) refers to category discharges of the oil and gas extraction industry, excluding coalbed methane and unconventional oil and gas extraction facilities that do not represent a hazard priority at this time.
- ^d Code (1) refers to the recent effluent guidelines rulemaking, and subsequent delisting for the CCH manufacturing sector, which includes facilities currently regulated by the OCPSF and Inorganic Chemicals effluent guidelines. Code (4) indicates that further review may be appropriate for the remainder of the facilities in this category.

11. SOLICITATIONS FOR PUBLIC COMMENT AND INPUT

During the 30-day public comment period for this Plan, EPA is soliciting public comment and data and information on the following subjects (see Federal Register Notice):

- The data sources and methodologies used in the 2015 Annual Review. EPA solicits comments on the evaluation factors, criteria, and data sources used in conducting its 2015 Annual Review and in developing the Preliminary 2016 Plan. EPA also solicits comment on other data sources it might use in its annual reviews and biennial planning process.
- The data and information regarding the discharge and treatment of pollutants from Iron and Steel Manufacturing; Organic Chemicals, Plastics, and Synthetic Fibers; Pulp, Paper, and Paperboard; Battery Manufacturing; and Electrical and Electronic Components Manufacturing. EPA solicits data and information regarding the discharge and treatment of pollutants identified in the Preliminary 2016 Plan from these industrial processes, as well as any other information relevant to EPA’s review.
- The information EPA compiled to date in the Centralized Waste Treatment (CWT) study. EPA gathered information about CWT facilities across the country and identified those facilities that currently accept or have in the past accepted oil and gas extraction wastewaters. EPA included a memorandum in the record that identifies these facilities (ERG, 2015). EPA requests comment on the accuracy and completeness of the information contained in this memorandum, as well as any other information relevant to EPA’s study of CWT facilities.
- New data and information on known transfers of wastewater originating from conventional oil and gas extraction facilities to Publicly Owned Treatment Works (POTWs). EPA solicits data and information for the first time on known transfers of wastewater originating from conventional oil and gas extraction facilities to POTWs. In particular, EPA seeks information on the extent to which this practice is occurring, including the identification of conventional oil and gas facilities which discharge to POTWs. EPA also requests information on wastewater volumes transferred to POTWs as well as information on the pollutants in these wastewater (type, concentration, etc.) and any other known characteristics of the pollutants.
- New information on the quantity, composition and purpose of well treatment and workover fluids in produced water discharges authorized under 40 CFR Part 435, Subpart E (Agricultural and Wildlife Water Use Subcategory). EPA solicits information for the first time on the quantity, composition and purpose of well treatment and workover fluids in produced water discharges authorized under 40 CFR Part 435, Subpart E (Agricultural and Wildlife Water Use Subcategory) which, if good enough quality, can be used for wildlife or livestock watering or other agricultural uses, and actually put to such use during periods of discharge. EPA solicits information on both conventional and unconventional oil and gas extraction. For this solicitation, “Well treatment fluids” means any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled. “Workover fluids” means salt solutions, weighted

brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair or abandonment procedures.

- Ideas, approaches and information on how to design smart regulations to support emerging technologies as described in [A Strategy for American Innovation](#), prepared by the National Economic Council and Office of Science and Technology Policy. October 2015.

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