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Preliminary 2012 Effluent Guidelines Program Plan

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CONTENTS

	Page
1. EXECUTIVE SUMMARY	1-1
2. BACKGROUND.....	2-1
2.1 The Clean Water Act and the Effluent Guidelines Program.....	2-1
2.2 Effluent Guidelines Planning and Review Requirements.....	2-2
2.3 Effluent Limitation Guidelines and Pretreatment Standards Overview.....	2-3
2.3.1 Best Practicable Control Technology Currently Available (BPT) — CWA Sections 301(b)(1)(A) and 304(b)(1).....	2-4
2.3.2 Best Conventional Pollution Control Technology (BCT) — CWA Sections 301(b)(2)(E) and 304(b)(4)	2-5
2.3.3 Best Available Technology Economically Achievable (BAT) — CWA Sections 301(b)(2)(A) and 304(b)(2).....	2-5
2.3.4 New Source Performance Standards (NSPS) — CWA Section 306	2-5
2.3.5 Pretreatment Standards for Existing Sources (PSES) — CWA Section 307(b).....	2-6
2.3.6 Pretreatment Standards for New Sources (PSNS) — CWA Section 307(c).....	2-6
2.4 Results of the 2010 Annual Reviews.....	2-6
3. EFFLUENT GUIDELINES PLANNING PROCESS AND METHODOLOGY	3-1
3.1 Summary of the 2011 Annual Reviews Methodology.....	3-1
3.1.1 Annual Reviews Procedure.....	3-5
3.1.2 Preliminary Category Review.....	3-6
3.1.3 Preliminary and Detailed Studies	3-7
3.2 Methodology, Data Sources, and Limitations.....	3-7
4. 2011 ANNUAL REVIEW OF EXISTING EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS AND RANKING OF POINT SOURCE CATEGORIES.....	4-1
4.1.1 Categories for Which EPA Is No Longer Considering Developing or Revising ELGs.....	4-1
4.1.2 Categories for Which EPA is Currently Revising ELGs	4-3
4.1.3 Categories for Which EPA Recently Promulgated or Revised ELGs	4-3
4.1.4 Discharges Not Categorizable	4-4
4.1.5 Categories with One Facility Dominating the TWPE.....	4-4
4.1.6 Results of the 2011 Toxicity Ranking Analysis	4-5
4.1.7 Summary of 2011 Preliminary Category Reviews	4-10
5. POTENTIAL CATEGORIES OF INDIRECT DISCHARGERS FOR PRETREATMENT STANDARDS.....	5-1
5.1 Evaluation of Pass-Through and Interference of Toxic and Non-Conventional Pollutants Discharged to POTWs	5-1
6. SUMMARY OF PUBLIC COMMENTS AND INPUT.....	6-1
7. USE OF OTHER EXISTING DATA IN EPA’S 2012 ANNUAL REVIEWS	7-1
8. FINDINGS FROM EPA’S 2011 ANNUAL REVIEWS.....	8-1

CONTENTS (Continued)

	Page
9. 2012 PRELIMINARY EFFLUENT GUIDELINES PROGRAM PLAN CONCLUSIONS	9-1
10. INNOVATION AND TECHNOLOGY IN THE EFFLUENT GUIDELINES PROGRAM	10-1
11. REFERENCES.....	11-1

LIST OF TABLES

	Page
Table 3-1. Overview of SIC and NAICs Code Classification Systems	3-8
Table 3-2. TRI and DMR Data Utility and Limitations.....	3-9
Table 4-1. Point Source Categories That Have Undergone a Recent Rulemaking or Review	4-4
Table 4-2. Point Source Categories with One Facility Dominating the TWPE Discharges	4-6
Table 4-3. Final <i>TRIReleases2009</i> and <i>DMRLoads2009</i> Combined Point Source Category Rankings.....	4-7
Table 8-1. Findings from EPA’s 2011 Annual Reviews of Industrial Categories	8-1

LIST OF FIGURES

	Page
Figure 2-1. Regulations of Direct and Indirect Wastewater Discharges	2-4
Figure 3-1. Annual Review of Existing ELGs in 2011	3-2
Figure 3-2. Further Review of Existing ELGs in 2011	3-3
Figure 3-3. Identification of Possible New ELGs in 2011	3-4

1. EXECUTIVE SUMMARY

This *Preliminary 2012 Effluent Guidelines Program Plan* (“Preliminary 2012 Plan”), which is being prepared pursuant to Clean Water Act (CWA) section 304(m), identifies any new or existing industrial categories selected for effluent guidelines rulemaking and provides a schedule for such rulemaking. It also discusses the results of EPA’s 2011 Annual Reviews of effluent guidelines and pretreatment standards, consistent with CWA sections 301(d), 304(b), 304(g), 304(m) and 307(b). It presents EPA’s 2011 evaluation of indirect discharges without categorical pretreatment standards to identify potential new categories for pretreatment standards under CWA section 307(b). Finally, this Preliminary 2012 Plan provides EPA’s findings and conclusions on specific effluent guidelines actions that the Agency initiated in prior years and introduces the methods used in EPA’s 2012 Annual Reviews.

This Preliminary 2012 Plan and its conclusions are supported by EPA’s *2011 Annual Review Report*, which presents the detailed results of EPA’s 2011 Annual Reviews of existing effluent guidelines and pretreatment standards (U.S. EPA, 2012a). The *2011 Annual Review Report* explains how industry discharges were analyzed for the potential need for new or revised effluent guidelines or pretreatment standards and provides the basis for the conclusions made in this Plan. The Report is a part of the Annual Review record and can be found at <http://water.epa.gov/lawsregs/lawsguidance/cwa/304m/index.cfm> (DCN 07685).

During the 2011 Annual Reviews, EPA determined that discharges from 17 of the top 20 ranked industrial categories were not a hazard priority. These 17 categories were removed from further analysis primarily because of data errors, which dropped them from the rankings, or because the toxic weighted pound equivalent (TWPE) was from one facility and not characteristic of the entire category.

EPA determined that additional review was necessary for three point source categories: Pulp, Paper and Paperboard (40 CFR Part 430), Petroleum Refining (40 CFR Part 419), and Meat and Poultry Products (40 CFR Part 432). Therefore, EPA continued to review these categories’ discharges during the 2012 annual review period and will report findings for these three categories in its Final 2012 Effluent Limitations Guidelines (ELG) Program Plan (Final 2012 Plan).

During 2011, a preliminary study was conducted on regenerated cellulose manufacturers, which were identified during the 2006 and 2010 Annual Reviews as having high carbon disulfide discharges. This study has concluded that a revision to the effluent guidelines for this industry is not necessary for controlling discharges of carbon disulfide (CS₂). The CS₂ discharges are primarily a single-facility issue that can be dealt with effectively and more appropriately through permitting.

With respect to ongoing effluent guidelines revisions, EPA is proposing to delist from the effluent guidelines plan the chlorine and chlorinated hydrocarbons (CCH) manufacturing industry and to discontinue this rulemaking (See Section 4.1.1). EPA is also proposing to delist the coalbed methane extraction industry and to discontinue its rulemaking based on new information regarding the declining prevalence and economic viability of this industry, due in large part to the extraction of natural gas from other sources. After reviewing financial data pertaining to this industry (including natural gas price projections from the U.S. Energy Information Administration), wastewater quality/quantity data and the cost of available

wastewater treatment options, it appears that EPA may not be able to identify a wastewater treatment technology that would be economically achievable for this industrial subcategory (See Section 4.1.1).

EPA also considered public comments and information submitted by stakeholders in response to a solicitation for comments on the Final 2010 Effluent Limitations Guidelines (ELG) Program Plan (Final 2010 Plan), published in the Federal Register on October 26, 2011. The Final 2010 Plan can be found at <http://www.gpo.gov/fdsys/pkg/FR-2011-10-26/html/2011-27742.htm>.

A total of 31 organizations provided comment on the Final 2010 Plan. Most of the public comment and input submitted was focused on expressing opposition or support for the announced rulemakings for shale gas extraction, coalbed methane extraction and dental amalgam. A few comments provided a small amount of information and ideas on the 304(m) planning process in general, nanomaterial discharges, the disposal of unused pharmaceuticals and on the ore mining and dressing study report.

Based on the 2011 Annual Reviews and public comment and input, EPA has concluded that no new industrial wastewater discharges present concerns that warrant new or revised effluent guidelines at this time. Therefore at this time, EPA is not identifying any existing effluent guidelines for revision, nor is EPA identifying any new industries for new effluent guidelines, aside from ones currently undergoing rulemakings. EPA is also not identifying the need for any new or revised pretreatment standards at this time, excluding those that are currently under development.

EPA conducted its 2012 Annual Reviews during calendar year 2012 and will incorporate its findings, along with the results of the 2011 Annual Reviews and respective public comment and input, into its Final 2012 Plan.

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

EPA’s Office of Water is responsible for developing the programs and tools authorized under the Clean Water Act (CWA), which enables EPA and the states to protect and restore the Nation’s waters. These programs and tools are generally focused on one of two types of controls: (1) water-quality-based controls, such as water quality standards and water-quality-based effluent limitations; or (2) technology-based controls, such as effluent guidelines and technology-based effluent limitations.

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

On a parallel track to water quality standards, EPA also develops technology-based effluent limitation guidelines and standards (ELGs), based on currently available technologies for controlling industrial wastewater discharges. 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) then must incorporate these guidelines and standards into discharge permits as technology-based effluent limitations where applicable (U.S. EPA, 2010). While technology-based effluent limitations in discharge permits are sometimes as stringent as, or more stringent than water-quality-based effluent limits, the effluent guidelines program is not specifically designed to ensure that the discharge from each facility meets the water quality standards of its receiving water body. For this reason, the CWA also requires states to establish water-quality-based permit 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, effluent guidelines 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 CWA marked a distinct change in Congress’s efforts “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (see CWA section 101(a), 33 U.S.C. 1251(a)). Before 1972, the CWA focused principally on water quality standards. This approach was challenging, however, because it was very difficult to determine where a specific discharger, or combination of dischargers, was responsible for decreasing the water quality of its receiving stream.

The 1972 CWA directed EPA to promulgate effluent guidelines that reflect pollutant reductions that can be achieved by categories or subcategories of industrial point sources through the implementation of available treatment and prevention technologies. The effluent guidelines 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, effluent guidelines 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 best pollution control technologies or pollution prevention practices for an industrial category or subcategory as a whole; (2) the economic achievability of those technologies, which can include consideration of the affordability of achieving the reduction in pollutant discharge; (3) the cost of achieving effluent reductions; (4) non-water-quality environmental impacts (including energy requirements); and (5) such other factors as the EPA Administrator deems appropriate.

Creating a single national pollution control requirement for each industrial category based on the best technology the industry can afford was seen by Congress as a way to reduce the potential creation of “pollution havens” and to set the nation’s sights on eliminating the discharge of pollutants to waters of the U.S., and attaining the highest possible level of water quality in the nation’s waters. Consequently, EPA’s goal in establishing national effluent guidelines is to ensure that industrial facilities with similar characteristics, regardless of their location or the nature of their receiving water, will at a minimum meet similar effluent limitations representing the performance of the best pollution control technologies or pollution prevention practices.

In addition to establishing technology-based effluent limits, effluent guidelines provide the opportunity to promote pollution prevention and water conservation. This may be particularly important in controlling persistent, bioaccumulative, and toxic pollutants discharged in concentrations below analytic detection levels. Effluent guidelines and standards also control pollutant discharges at the point of discharge from industrial facilities and cover discharges directly to surface water (direct discharges) and discharges to publicly owned treatment works (POTWs) (indirect discharges).

2.2 Effluent Guidelines Planning and Review Requirements

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(g), and 307(b). This document explains how EPA uses reported discharge data and other factors to conduct this review. EPA also reviews industries consisting of direct-discharging facilities not currently subject to effluent guidelines to identify potential candidates for effluent guidelines rulemakings, pursuant to CWA section 304(m)(1)(B). Finally, EPA reviews industries consisting entirely or almost entirely of indirect-discharging facilities that are not currently subject to pretreatment standards to identify potential candidates for pretreatment standards development under CWA sections 307(b).

CWA section 304(m)(1)(A) requires EPA to publish an Effluent Guidelines Program Plan (Plan) every two years that establishes a schedule for the annual review and revision, in accordance with section 304(b), of the effluent guidelines that EPA has promulgated under that

section. EPA's 2011 Annual Review Report presents the results of the section 304(b) reviews (U.S. EPA, 2012a). EPA works to coordinate its annual reviews of existing effluent guidelines under section 304(b) with its publication of the preliminary and final plans under CWA section 304(m). In other words, in odd-numbered years, EPA works to complete its annual reviews upon publication of the preliminary plan that EPA publishes for public review and comment under CWA section 304(m)(2). In even numbered years, EPA works to complete its annual reviews upon the publication of the final plan. EPA's 2011 Annual Reviews represent the review cycle conducted during calendar year 2011.

EPA is coordinating 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 the results of each year of review can inform the content of the preliminary and final plans (e.g., by identifying candidates for ELG revision for which EPA can schedule rulemaking in the plans, or by identifying point source categories for which EPA has not promulgated effluent guidelines). Second, even though it is not required to do so under either section 304(b) or section 304(m), EPA believes it can serve the public interest by periodically presenting to the public a description of the annual reviews (including the review process used) and the results of the reviews. Doing so at the same time as publishing the preliminary and final plans makes both processes more transparent. Third, by requiring EPA to review all existing effluent guidelines each year, Congress appears to have intended for each successive review to build upon the results of earlier reviews. Therefore, by describing the 2011 Annual Reviews along with the Preliminary 2012 Plan, EPA is able to gather and receive information that can be used to inform its 2012 Annual Reviews and the Final 2012 Plan.

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

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

EPA has issued effluent guidelines for 57 industrial categories; 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. The regulations have prevented the discharge of more than 700 billion pounds of toxic pollutants each year.

2.3 Effluent Limitation Guidelines and Pretreatment Standards Overview

The national clean water industrial regulatory program is authorized under sections 301, 304, 306, and 307 of the CWA.

The CWA directs EPA to promulgate categorical regulations through six levels of control:

1. Best practicable control technology currently available (BPT);
2. Best available control technology economically achievable (BAT);
3. Best conventional control technology (BCT);

4. New source performance standards (NSPS);
5. Pretreatment standards for existing sources (PSES); and
6. Pretreatment standards for new sources (PSNS).

For point sources that discharge pollutants directly into the waters of the United States (direct dischargers), the limitations and standards promulgated by EPA are implemented through National Pollutant Discharge Elimination System (NPDES) permits. See CWA sections 301(a), 301(b), and 402. For sources that discharge to POTWs (indirect dischargers), EPA promulgates pretreatment standards that apply directly to those sources and are enforced by POTWs and state and federal authorities. See CWA sections 307(b) and (c). Figure 2-1 illustrates the relationship between the regulation of direct and indirect dischargers.

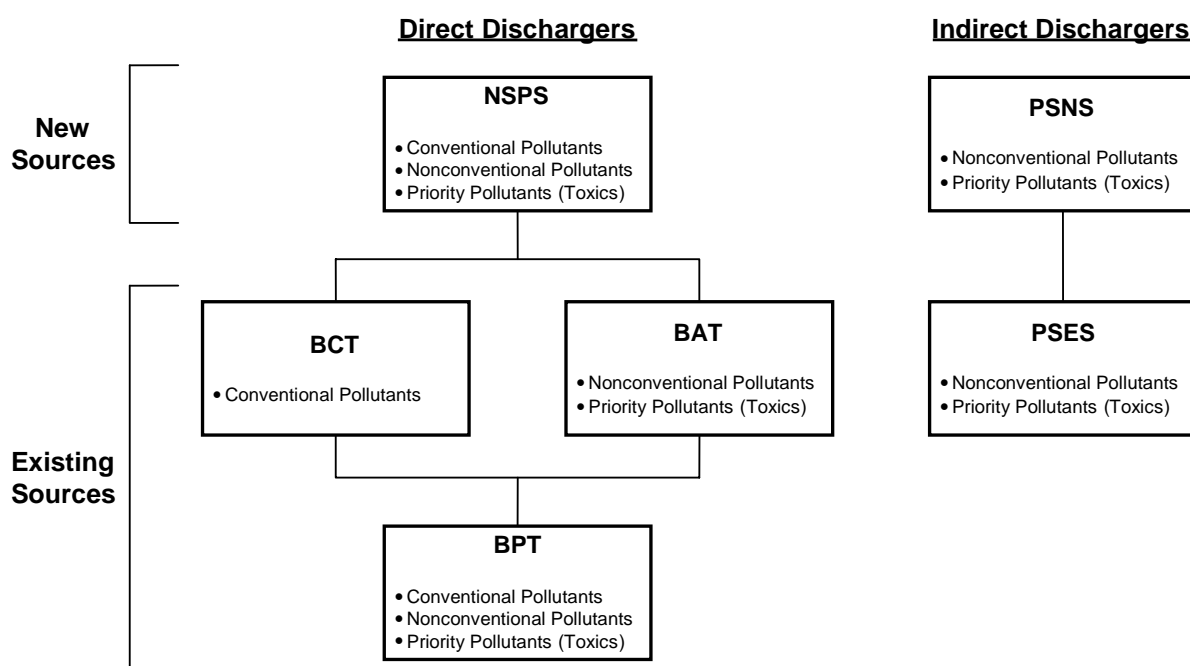


Figure 2-1. Regulations of Direct and Indirect Wastewater Discharges

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 pollutants, of which 126 specific substances have been designated priority toxic pollutants. See Appendix A to Part 423, reprinted after 40 CFR Part 423.17. All other pollutants are considered to be nonconventional.

In specifying BPT, EPA looks at a number of factors. EPA first considers the total cost of applying the control technology in relation to the effluent reduction benefits. The Agency 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 based on the average of the best performances of facilities within the industry of various ages, sizes, processes, or other common characteristics. Where existing performance is uniformly inadequate, BPT may reflect higher levels of control than currently in place in an industrial category if the Agency 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 consideration of a two-part “cost-reasonableness” test. EPA explained its methodology for the development of BCT limitations in 1986 (see 51 FR 24974, July 9, 1986).

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

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

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

NSPS reflect effluent reductions based on the best available demonstrated control technology. New sources have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent controls attainable through the application of the best available demonstrated control technology for all pollutants (i.e., conventional, nonconventional, and priority pollutants). In establishing NSPS, EPA takes into consideration 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.

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 into their plants the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

2.4 Results of the 2010 Annual Reviews

EPA published its 2010 Annual Reviews of existing ELGs as part of the Final 2010 Plan on October 26, 2011 (76 FR 27742). In view of the annual nature of its reviews of existing ELGs, EPA believes that the annual reviews can and should influence succeeding annual reviews (e.g., by indicating data gaps, identifying new pollutants or pollution reduction technologies, or otherwise highlighting industrial categories for more detailed scrutiny in subsequent years). EPA used the findings, data, and comments on the Final 2010 Plan to inform its 2011 Annual Reviews. The 2010 Annual Reviews built on the previous reviews by continuing to use the toxicity ranking analysis and incorporating some refinements in assigning discharges to categories. EPA made similar refinements to the 2011 Annual Reviews.

3. EFFLUENT GUIDELINES PLANNING PROCESS AND METHODOLOGY

This section provides a summary of the process EPA used in the 2011 Annual Reviews to identify industrial categories for potential development of new or revised effluent limitations guidelines and pretreatment standards (ELGs) and the data sources and limitations used to complete this review. In future years in which EPA publishes a preliminary plan (i.e., odd-numbered years), EPA intends to use this same process. This process consists of (1) reviewing existing ELGs each year to identify candidates for revision, (2) identifying new categories of direct dischargers for possible development of effluent guidelines, and (3) identifying new categories of indirect dischargers for possible development of pretreatment standards. These components are illustrated in Figure 3-1 through Figure 3-3 and discussed below.

3.1 Summary of the 2011 Annual Reviews Methodology

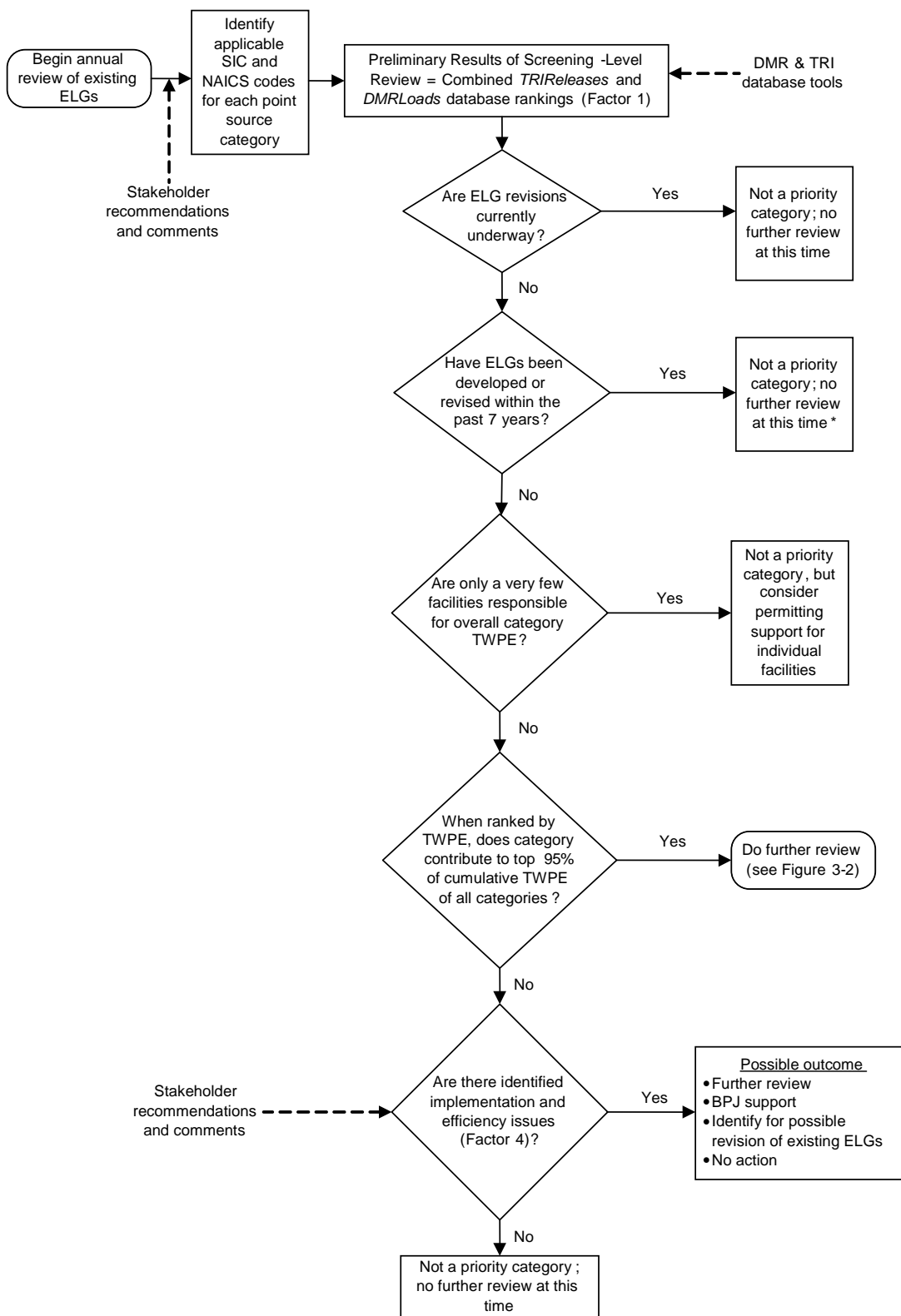
In the effluent guidelines planning process, EPA is guided by the following goals:

- Restore and maintain the chemical, physical, and biological integrity of the nation's waters; and
- Provide transparent decision-making and involve stakeholders early and often during the planning process.

EPA uses four major factors in prioritizing existing effluent guidelines or pretreatment standards for possible revision.

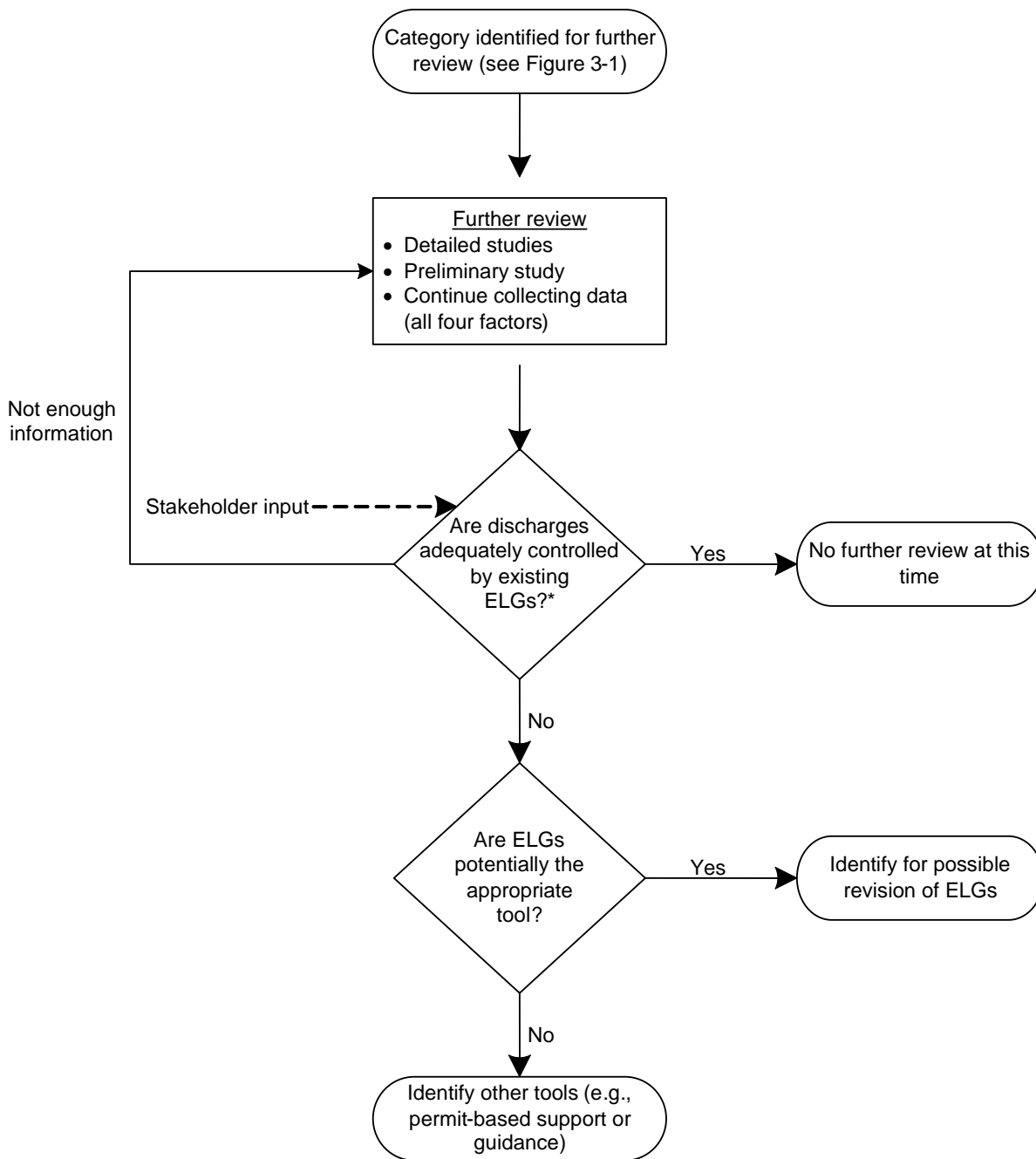
The first factor EPA considers is the amount and type of pollutants in an industrial category's discharge and the relative hazard posed by that discharge. Using this factor enables the Agency to prioritize rulemakings to achieve the greatest environmental and health benefits. EPA estimates the potential hazard of pollutant discharges in terms of toxic weighted pollutant equivalent (TWPE) discussed in detail in Section 3.1.3 of EPA's *2011 Annual Review Report* (U.S. EPA, 2012a). To assess the effectiveness of pollution control, EPA examines the removal of pollutants in terms of pounds and TWPE.

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



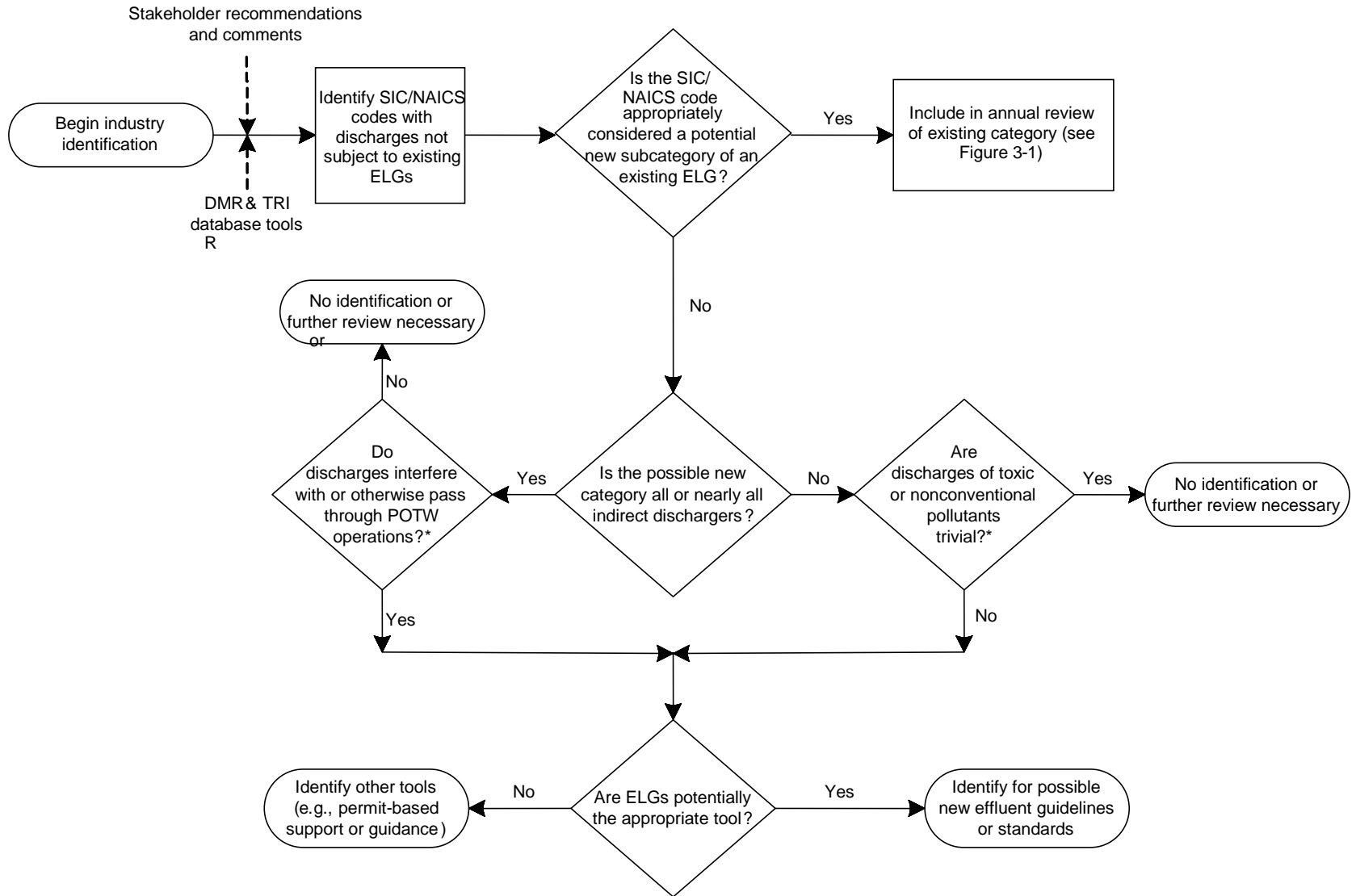
*If EPA is aware of new segment growth within such a category or new concerns are identified , EPA may do further review .

Figure 3-1. Annual Review of Existing ELGs in 2011



*Continue further review if not enough data

Figure 3-2. Further Review of Existing ELGs in 2011



*Continue further review if not enough data.

Figure 3-3. Identification of Possible New ELGs in 2011

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 be difficult to implement stringent new requirements, EPA might conclude that it would be more cost-effective to adopt less stringent, less expensive approaches to reduce pollutant loadings that would better satisfy applicable statutory requirements.

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

EPA has established ELGs to regulate wastewater discharges from 57 point source categories and must annually review the ELGs for all of these categories. EPA first conducts a toxicity ranking analysis of all categories subject to existing ELGs to prioritize the categories for further review. The Agency then conducts another level of review, including possibly an in-depth “detailed study,” a somewhat less intense study – a “preliminary study,” or an even less detailed “preliminary category review,” to identify existing categories for potential ELGs revision.

3.1.1 Annual Reviews Procedure

The toxicity ranking analysis is the first step in the procedure for EPA’s Annual Reviews, which, in prior years, EPA has implemented every year. Starting in 2012, however, EPA began conducting the toxicity ranking analysis every other year - only in the odd-numbered years. In the even years EPA plans to evaluate public comments submitted on preliminary plans and will use additional industrial hazard data sources, treatment technology information and other sources of industrial wastewater information to supplement the toxicity ranking analysis to identify unregulated industrial discharges or categorical regulations that should be considered for revision. Where more data or analyses are needed for specific industrial categories, EPA will continue its reviews of categories on an ongoing basis.

Section 3.2 of this report and Section 3 in the *2011 Annual Review Report* provide details on the methodology used in the toxicity ranking analysis (U.S. EPA, 2012a). EPA uses this step to prioritize industrial categories for potential further review. In conducting the toxicity ranking analysis, EPA considers the amount and toxicity of pollutants in a category’s discharges and the extent to which these pollutants pose a hazard to human health or the environment (Factor 1).

EPA conducts its toxicity ranking analysis using data from the Toxics Release Inventory (TRI) and data from discharge monitoring reports (DMRs) contained in the Permit Compliance System (PCS) and the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES). EPA combines the DMR data from both PCS and ICIS-NPDES in a database called *DMRLoads*. The *Revised Quality Assurance Project Plan for the 2009 Annual Screening-Level Analysis of TRI, ICIS-NPDES, and PCS Industrial Category Discharge Data* describes in detail the quality criteria EPA used to evaluate the TRI and DMR data (ERG, 2009). TRI and DMR data do not identify the effluent guideline(s) applicable to a particular facility. However, TRI includes information on a facility’s North American Industry

Classification System (NAICS) code, while DMR data include information on a facility's Standard Industrial Classification (SIC) code. Therefore, the first step in EPA's toxicity ranking analysis is to relate each SIC and NAICS code to an industrial category.¹ The second step is to use the information reported in TRI and DMR, for a specified year, to calculate the annual pollutant discharges in pounds, including toxic, nonconventional, and conventional pollutants. For indirect dischargers, EPA adjusts the facility discharges to account for removals at the POTW. The third step is to apply TWFs² to the annual pollutant discharges to calculate the total discharge of toxic and nonconventional pollutants (reported in units of TWPE). EPA then sums the TWPE for each facility in a category to calculate a total TWPE per category for that year. EPA calculates two TWPE estimates for each category: one based on data in TRI and one based on DMR data. EPA combines the estimated discharges of toxic and nonconventional pollutants calculated from TRI and DMR data to estimate a single TWPE value for each industrial category. EPA takes this approach because it found that combining the TWPE estimates from TRI and DMR data into a single TWPE number offered a clearer perspective of the industries with the most toxic pollution.³

EPA then ranks point source categories according to their total TWPE discharges. In identifying categories for further review, EPA prioritizes categories accounting for 95 percent of the cumulative TWPE from the combined databases (see Section 4.1.6). As Figure 3-1 shows, EPA also excludes from further review categories for which an effluent guidelines rulemaking is currently underway or for which effluent guidelines have been promulgated or revised within the past seven years. EPA chose seven years because this is the typical length of time for the effects of effluent guidelines or pretreatment standards to be fully reflected in pollutant loading data and TRI reports. EPA also considers the number of facilities responsible for the majority of the estimated toxic-weighted pollutant discharges associated with an industrial activity. Where only a few facilities in a category account for the vast majority of toxic-weighted pollutant discharges, EPA typically does not prioritize the category for additional review. In this case, EPA believes that revising individual permits may be more effective in addressing the toxic-weighted pollutant discharges than a national effluent guidelines rulemaking because requirements can be better tailored to these few facilities and because individual permitting actions may take considerably less time than a national rulemaking.

3.1.2 Preliminary Category Review

EPA may conduct a preliminary category review when it lacks sufficient data to determine whether a regulatory revision would be appropriate and when it is further assessing pollutant discharges before starting a preliminary study or detailed study. During preliminary category reviews, EPA typically examines the following: (1) wastewater characteristics and

¹ For more information on how EPA related each SIC and NAICS code to an industrial category, see Section 5.0 of the *2009 Technical Support Document for the Annual Review of Existing Effluent Guidelines and Identification of Potential New Point Source Categories* (U.S. EPA, 2009).

² For more information on toxic weighting factors, see *Toxic Weighting Factor Development in Support of CWA 304(m) Planning Process* (U.S. EPA, 2006).

³ 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 have theoretically led to double-counting, EPA's review of the data indicates that because the two databases focus on different pollutants, double-counting is minimal and does not affect the order of the top-ranked industrial categories.

pollutant sources, (2) the pollutants driving the toxic-weighted pollutant discharges, (3) availability of pollution prevention and treatment, (4) the geographic distribution of facilities in the industry, (5) any pollutant discharge trends within the industry, and (6) any relevant economic factors. First, EPA attempts to verify the toxicity ranking results and to fill in data gaps (Factor 1). Next, EPA considers costs and performance of applicable and demonstrated technologies, process changes, or pollution prevention alternatives that can effectively reduce the pollutants in the point source category's wastewater (Factor 2). Finally, and if appropriate based on the other findings, EPA considers the affordability or economic achievability of the technology, process change, or pollution prevention measure identified using the second factor (Factor 3). These assessments provide an additional level of quality assurance on the reported pollutant discharges and number of facilities that represent the majority of toxic-weighted pollutant discharge.

During a preliminary category review, EPA may consult data sources including, but not limited to: (1) the U.S. Economic Census, (2) TRI and DMR data, (3) trade associations and reporting facilities that can verify reported releases and facility categorization, (4) regulatory authorities (states and EPA regions) that can clarify how category facilities are permitted, (5) NPDES permits and their supporting fact sheets, (6) EPA effluent guidelines technical development documents, (7) relevant EPA preliminary data summaries or study reports, and (8) technical literature on pollutant sources and control technologies.

3.1.3 Preliminary and Detailed Studies

After conducting the preliminary category reviews, EPA may next conduct either preliminary or detailed studies on industry categories to obtain more information on the hazard posed, availability and cost of technology options, and other factors in order to determine if it would be appropriate to identify the category for possible effluent guidelines revision. During preliminary or detailed studies, EPA typically examines the factors and data sources listed above for preliminary category reviews. However, during a detailed study, EPA's examination of a point source category and available pollution prevention and treatment options is generally more rigorous than the analyses conducted during a preliminary category review or a preliminary study.

3.2 Methodology, Data Sources, and Limitations

As discussed in Section 2.1, the CWA requires EPA to do an annual review of existing ELGs. It also requires EPA to identify industrial categories without applicable ELGs. EPA's methodology for the 2011 Annual Reviews and new point source category identification involves several components, as discussed in Section 3.1.

In performing the toxicity ranking analysis of existing ELGs and identifying industrial categories without ELGs, EPA relies on DMR data (contained in PCS and ICIS-NPDES) and TRI. This section discusses these databases, related data sources, and their limitations.

EPA has developed two toxicity ranking tools, the *TRIRelases* and *DMRLoads* databases, to facilitate analysis of TRI and PCS/ICIS-NPDES data. EPA previously explained the creation of these tools in the *Technical Support Document for the Annual Review of Existing Effluent Guidelines and Identification of Potential New Point Source Categories* (2009 Screening-Level Analysis (SLA) Report) (U.S. EPA, 2009). The 2009 SLA Report provides the

detailed methodology used to process thousands of data records and generate national estimates of industrial effluent discharges.

The two toxicity ranking analyses categorize and calculate pollutant loadings using the SIC and NAICS codes and toxic weighting factors (TWFs) in conjunction with DMR and TRI data. EPA’s Office of Water, Engineering and Analysis Division, maintains a Toxics Database compiled from over 100 references for more than 1,900 pollutants. The Toxics Database includes aquatic life and human health toxicity data, as well as physical and chemical property data. EPA calculates TWFs from these data to account for differences in toxicity across pollutants and to provide the means to compare mass loadings of different pollutants. For more information on TWFs, see EPA’s Toxic Weighting Factors Methodology (U.S. EPA, 2012d). In its analyses, EPA multiplies a mass loading of a pollutant in pounds per year by a pollutant-specific weighting factor to derive a “toxic-equivalent” loading. (Throughout this document, the toxic-equivalent is also referred to as TWPE.) EPA summed the estimated TWPE discharged by each facility in a point source category to understand the potential hazard of the discharges from each category. Table 3-1 provides information on the use of SIC and NAICS codes.

Table 3-1. Overview of SIC and NAICS Code Classification Systems

Data Source	Primary Purpose	Use	ELG Applicability
SIC code	Developed to help with the collection, aggregation, presentation, and analysis of data from the U.S. economy.	System used by many government agencies, including EPA, to promote data comparability.	Regulations for an individual point source category may apply to one SIC code, multiple SIC codes, or a portion of the facilities in a SIC code. Therefore, EPA linked each four-digit SIC code to an appropriate point source category.
NAICS code	Developed to better represent the economic structure of countries participating in the North American Free Trade Agreement and to respond to criticism about the SIC code system.	System used for industrial classification purposes at many government agencies, including EPA.	Regulations for an individual point source category may apply to one NAICS code, multiple NAICS codes, or a portion of the facilities in a NAICS code. Therefore, EPA linked each six-digit NAICS code to an appropriate point source category.

Sources: <http://www.census.gov/epcd/www/sic.html> and <http://www.census.gov/eos/www/naics/>.

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 facilities in all SIC codes
Includes discharge data from manufacturing NAICS codes and some other industrial categories	Includes data on conventional pollutants, for most facilities
	Includes data on nitrogen and phosphorus, for most facilities
Limitations of Data	
Small establishments and those that don't meet reporting requirements are not included in the database	Data systems contain data only for pollutants in the facility permit
Some releases are based on estimates due to TRI reporting guidance, some facilities may over- or under-estimate releases	Limited discharge data on minor ^b discharges
Certain chemicals are reported as class, not individual compounds, ^a which can inaccurately estimate 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	The majority of pollutant parameters are reported as a group parameter, ^c not individual compounds; this can inaccurately estimate the toxicity of chemical releases
	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 provide average concentrations or quantities, which results in an overestimation if only maximum values are used

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

b – EPA developed a major/minor classification system for industrial and municipal wastewater discharges. The distinction was made initially to assist EPA and states in setting 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 PCS and ICIS-NPDES databases. (U.S. EPA, 2010)

c – Pollutants reported as a group parameter include total Kjeldahl nitrogen, oil and grease, etc.

For the 2011 Annual Reviews, EPA made no changes to the calculation methodology of the *TRIReleases* and *DMRLoads* databases. However, EPA identified numerous facility-specific corrections for PCS and ICIS-NPDES data during previous toxicity ranking analyses reported for

calendar years 2000, 2002, 2004, and 2006–2008. The types of corrections previously identified apply to the 2009 DMR data, which were used for the 2011 review. The following list presents the types of corrections typically made to the DMR data during the annual toxicity ranking analysis. For a detailed list of all corrections made to the 2009 DMR data, see Section 3.3.7 in EPA's *2011 Annual Review Report* (U.S. EPA, 2012a).

- Re-categorization of discharges, based on SIC codes, at a facility or pollutant level for a specific point source category;
- Identification and deletion of internal monitoring points to avoid overestimation of discharges;
- Identification and correction to the number of days for intermittent discharges to avoid overestimation of monthly discharges;
- Exclusion of pollutant parameters that are reported in units that cannot be converted to mg/L or kg/day for the load calculation (e.g., temperature, pH, fecal coliform, whole effluent toxicity);
- Pollutant corrections made to discharges of specific pollutants resulting from reasonable checks of the PCS CNVRT⁴ output (e.g., mercury total low-level concentrations reported with incorrect units);
- Corrections resulting from evaluation of the completeness, accuracy, reasonableness, and comparability of the PCS CONVRT and ICIS_NPDES Convert Module outputs, load calculator routines (accuracy checks for database queries in the DMR Loadings Tool), and the *DMRLoads2009* database output; and
- Corrections of facility-specific discharges resulting from the review of previous database corrections, checking hand-calculated pollutant loads to determine accuracy, and the review of PCS and ICIS-NPDES pipe description from EPA's online Envirofacts data system, ICIS-NPDES supporting tables, or facilities' NPDES permits and permit fact sheets.

Similar to the PCS and ICIS-NPDES data, EPA identified typical database errors in the *TRIReleases* databases through previous years of toxicity ranking analyses from 2002 through 2008. Several of these corrections similarly apply to the 2009 TRI data, which were used for the 2011 review. The following list presents the types of corrections typically made to the TRI data. For a detailed list of all corrections made to the 2009 TRI data, see Section 3.4.4 in EPA's *2011 Annual Review Report* (U.S. EPA, 2012a).

- Re-categorization of discharges, based on NAICS codes, at a facility or pollutant level for a specific point source category and for facilities that are not identified by a specific NAICS code;

⁴ For more information on the PCS CNVRT and ICIS-NPDES model outputs, see Sections 3.2.2 and 3.2.3 of the 2009 SLA Report (U.S. EPA, 2009).

- Corrections to specific pollutants based on previous screening-level reviews for metal compounds, sodium nitrite, and phosphorus (yellow or white);
- Corrections as a result of a quality review of the *TRIReleases* database based on completeness, accuracy, reasonableness, and comparability; and
- Facility-specific load corrections resulting from the review of previous database corrections, the review of discharges from previous TRI reporting years, the review of corresponding DMR data in PCS and ICIS-NPDES, if available, and contacting the facility to verify pollutant discharges.

After incorporating the changes discussed above, EPA generated the final versions of the *TRIReleases* and *DMRLoads* databases used for the 2011 toxicity ranking analysis: *TRIReleases2009_v2* and *DMRLoads2009_v2*. Section 4.1.6 provides more detailed information on the 2011 final rankings.

4. 2011 ANNUAL REVIEW OF EXISTING EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS AND RANKING OF POINT SOURCE CATEGORIES

For the 2011 Annual Reviews, EPA did the following:

- Conducted the 2011 toxicity ranking analysis and preliminary category reviews.
- Updated the reviews from previous years (i.e., revised the 2010 Annual Reviews results with new or corrected data);
- Performed new research (i.e., contacted industry to verify discharges, conducted literature searches, and collected additional data from site visits and state permitting agencies); and
- Solicited and received information from stakeholders through public comments and other stakeholder outreach (e.g., meetings with industry trade groups).

For the 2011 toxicity ranking analysis, EPA used the combined results of the *TRIRelases2009_v2* and the *DMRLoads2009_v2* databases, discussed in Section 3.2 of this document. When combining the results of these databases, EPA eliminated from further consideration the results for the following:

- Discharges from industrial categories for which EPA is currently developing or revising effluent limitations guidelines (ELGs);
- Discharges from point source categories for which EPA has recently (within past seven years) promulgated or revised ELGs;
- Discharges from facilities that require an NPDES permit but do not fall into an existing or new point source category or subcategory (eg, Superfund sites); and
- Discharges from facilities determined not to be representative of their category.

Sections 4.1.1 through 4.1.5 discuss the rationale for EPA's decisions regarding existing point source categories. Section 4.1.6 presents the final combined database rankings, which represent the results of the 2011 toxicity ranking analysis.

4.1.1 Categories for Which EPA Is No Longer Considering Developing or Revising ELGs

In prior year reviews, EPA considered revisions to ELGs for the Organic Chemicals, Pesticides, and Synthetic Fibers (OCPSF) (40 CFR 414) and Inorganic Chemicals Manufacturing (40 CFR 415) point source categories for facilities that produce chlorine and chlorinated hydrocarbons (CCH). Concurrent with the Preliminary 2012 Plan, EPA is proposing to discontinue a revised ELG for facilities that produce chlorine and chlorinated hydrocarbons (CCH).

The CCH Manufacturing Industry ELGs development began in March 2005 after being selected in the 2004 304m Plan. In the 2004 304m plan, EPA selected the vinyl chloride (a type of chlorinated hydrocarbon) manufacturing segment of the organic chemicals industry for

possible revision because preliminary analysis showed that the segment discharged significant quantities of toxic weighted pound-equivalents. In addition, because many chlorine manufacturers are co-located with vinyl chloride manufacturing and because these facilities discharge significant quantities of TWPEs, EPA also selected the chlorine manufacturing segment of the inorganic chemicals industry for possible revision. Also, polyvinyl chloride (PVC) manufacturers were considered to be part of the vinyl chloride manufacturing segment due to frequent co-location.

As part of the initial industry assessment, both industry and EPA sampled dioxins being generated and discharged in the wastewater at CCH facilities. First, EPA completed 13 site visits to determine sampling possibilities at facilities with potential BAT wastewater treatment technology. Ultimately, four sampling episodes were completed by EPA. Additionally, 12 sampling episodes were completed by the Vinyl Chloride Producers (VCP) as part of the voluntary plan established in February 2007 as an alternative to completing an EPA questionnaire or further EPA sampling. EPA designed the sampling plans for each of the 12 facilities.

After thoroughly reviewing all of the dioxin sampling data, EPA is proposing not to move forward with the development of effluent limitations guidelines for the CCH manufacturing industry. Very low TWPE annual discharges were calculated for all PVC manufacturers for which data were available. Similarly, very low TWPE annual discharges were calculated for all but one of the chlorine manufacturing facilities for which data were collected. Although the chlorinated hydrocarbon manufacturers that manufacture vinyl chloride discharge a maximum of 1.1 million TWPEs, one facility accounts for the vast majority of this TWPE and the associated discharge of dioxins. Also, almost all chlorinated hydrocarbon manufacturing facilities that manufacture vinyl chloride already have wastewater treatment technology that would potentially represent "best available technology" for the industry. EPA therefore believes that it would be best to address the few facilities with significant dioxin discharges through permitting rather than through the development of national effluent guidelines (U.S. EPA, 2012b).

In its Final 2010 ELG Plan, EPA also indicated it was initiating rulemakings to revise ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 135) to address discharges from coalbed methane and shale gas extraction. At this time EPA is proposing to delist the coalbed methane extraction industry from the effluent guidelines plan based on new information regarding the declining prevalence and economic viability of this subcategory, due in large part to the increasing prevalence of natural gas extraction from other sources, such as shale formations (U.S. EPA, 2013a; U.S. EPA, 2013b). The initial decision to identify this industry for rulemaking was based on the results of a detailed industry study and comments from the public indicating at that time that coalbed methane extraction was a growing industry and that there were available treatment technologies to address pollutants discharged by the industry. However, since initiating the rulemaking, the data appear to be indicating otherwise. After reviewing financial data pertaining to this industry (including natural gas price projections from the U.S. Energy Information Administration), wastewater quality/quantity data and the cost of available wastewater treatment options, it appears that EPA may not be able to identify a wastewater treatment technology that would be economically achievable for this industrial subcategory. Although potential treatment technologies may exist, these technologies do not appear to be economically achievable due, in part, to the decrease in gas prices as a result of the

recent boom in development of shale gas resources. The data EPA evaluated to come to this decision are available for review in the Federal Data Management System Docket EPA-HQ-OW-2010-0824, available at www.regulations.gov.

4.1.2 Categories for Which EPA is Currently Revising ELGs

EPA is currently working to revise ELGs for the Steam Electric (40 CFR 423) Point Source Category. Because the Steam Electric rulemaking is underway, EPA excluded discharges from these facilities from consideration under the 2011 Annual Reviews. EPA also promulgated ELGs for wastewater from airport deicing, a new industrial category and is working on pretreatment requirements for discharges of mercury from the Dental industry.

- EPA also indicated in its Final 2010 ELG Plan that it was initiating two separate rulemakings to revise ELGs for the Oil and Gas Extraction Point Source Category (40 CFR Part 435) to address discharges from coalbed methane and shale gas extraction. As discussed in Section 4.1.1 above, EPA is now proposing to delist the coalbed methane extraction industry from the effluent guidelines plan.

The following is EPA’s current schedule for ELG actions:

Airport Deicing:	
-Final ELG Rule	Issued April 25, 2012
 Steam Electric Power Generation:	
-Proposed Rule	April 2013
-Final Rule	May 2014
 Dental Amalgam:	
-Proposed Rule	TBD
-Final Rule	TBD
 Unconventional Extraction in the Oil and Gas Industry	
-Proposed Rule	2014

4.1.3 Categories for Which EPA Recently Promulgated or Revised ELGs

For the 2011 Annual Reviews and development of category rankings, EPA excluded point source categories for which ELGs were recently established or revised but not yet fully implemented, or were recently reviewed in a rulemaking context but for which EPA decided to withdraw the proposal or select the “no action” option. In general, EPA removed an industrial point source category from further consideration during a review cycle if EPA established, revised, or reviewed the category’s ELGs within seven years prior to the Annual Reviews. This seven-year period allows time for the ELGs to be incorporated into NPDES permits. Table 4-1 lists the categories EPA excluded from the 2011 reviews due to this seven-year period.

Removing a point source category from further consideration in the development of the rankings does not mean that EPA eliminates the category from Annual Reviews. If EPA is aware of the growth of a new segment within such a category or new concerns are identified based on previously unevaluated pollutants discharged by facilities in the category, EPA will more closely

scrutinize the discharges from the category in deciding whether to consider it further during the current review cycle. For example, EPA conducted the detailed study of the Coal Mining Category (40 CFR Part 434) based on comments received on the Preliminary 2006 Plan, although the Coal Mining ELGs were revised in January 2002.

Table 4-1. Point Source Categories That Have Undergone a Recent Rulemaking or Review

40 CFR Part	Point Source Category	Date of Rulemaking
450	Construction and Development	December 1, 2009
122 and 412	Concentrated Animal Feeding Operations (CAFOs)	November 20, 2008

4.1.4 Discharges Not Categorizable

EPA identified discharges that are not categorizable into existing or new point source categories or subcategories. In particular, EPA reviewed high TWPE discharges from a Superfund site (Auchterlonie, 2009). Direct discharges from Superfund sites, whether made onsite or offsite, are subject to NPDES permitting requirements (U.S. EPA, 1988a, 1988b). For the reasons discussed below EPA determined that these discharges do not represent a point source category and excluded these TWPE from the 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, these discharges 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); and
- Types of facilities causing groundwater contamination (e.g., wood treatment facilities, metal finishing and electroplating facilities, drum recycling facilities, mine sites, mineral processing facilities, radium processing facilities).

Moreover, the duration and volume of these direct discharges vary significantly due to differences in aquifer characteristics and the magnitude, fate, and transport of contaminants in aquifers and vadose zones. Currently at Superfund sites, permit writers determine technology-based effluent limits using their best professional judgment (BPJ). EPA selects the remedial technology and derives numerical effluent discharge limits. The permit must also contain more stringent effluent limitations when required to comply with state water quality standards. EPA finds that the current site-specific BPJ approach is workable and flexible within the context of a Superfund cleanup.

4.1.5 Categories with One Facility Dominating the TWPE

EPA identified point source categories with significant TWPE where only one facility was responsible for more than 95 percent of the TWPE reported to be discharged (see Table 4-2). EPA identified 9 source categories where a single facility dominated the TWPE in the category.

EPA investigated these facilities to determine if their discharges were representative of the category. Based on EPA's knowledge of the production, practices, raw materials used and sources, wastewater characteristics, treatment, sampling data, and other information from the literature, along with past examinations and experiences with the industry, EPA determined that all of the pollutants discharged from these individual facilities were representative of their respective industries. Therefore, the TWPE from those individual facilities were included in the TWPE for the industrial category. If EPA had found an individual facility's releases to not be representative of the pollutants discharged by the industrial category, the TWPE from that single facility would be subtracted from the total category TWPE and the industrial category's ranking would be recalculated.

4.1.6 Results of the 2011 Toxicity Ranking Analysis

After adjusting the category TWPE totals and rankings as described in Sections 4.1.1 through 4.1.5, EPA consolidated the 2009 DMR and TRI rankings into one set using the following steps:

- EPA combined the two lists of point source categories by adding each category's *DMRLoads2009* TWPE and *TRIRelases2009* TWPE⁵.
- EPA then ranked the point source categories based on total *DMRLoads2009* and *TRIRelases2009* TWPE.

Table 4-3 presents the combined *DMRLoads2009* and *TRIRelases2009* rankings. These are the final category rankings, accounting for all corrections made to the databases during the 2011 toxicity ranking analysis and removal of any categories and discharges as discussed in Sections 4.1.1 through 4.1.5.

⁵ EPA notes that this may result in "double-counting" of chemical discharges a facility reported to both PCS/ICIS-NPDES and TRI, and "single-counting" of chemicals reported in only one of the databases. Further, the combined databases do not count chemicals that may be discharged but are not reported to PCS/ICIS-NPDES or TRI. See also Footnote #3.

Table 4-2. Point Source Categories with One Facility Dominating the TWPE Discharges

Point Source Category	Facility With Over 95% of Category TWPE	Facility Location	Data Source	Pollutant Driving TWPE	Facility TWPE	Percentage of Total Category TWPE	Action
Coil Coating	Latasde Aluminio Reynolds	Guayama, PR	DMR 2009	Sulfur	218	100.0	Did not remove load from category TWPE.
Battery Manufacturing	New Eagle Picher Tech LLC	Joplin, MO	DMR 2009	Silver	176	95.3	Did not remove load from category TWPE.
Paint Formulating	Cook Composites & Polymer	North Kansas City, MO	DMR 2009	Copper	66	98.4	Did not remove load from category TWPE.
Porcelain Enameling	State Ind-Ashland Cty	Ashland City, TN	DMR 2009	Lead	35.1	100.0	Did not remove load from category TWPE.
Tobacco Products	The Sustainability Park LLC	Chesterfield County, VA	DMR 2009	Ammonia as N	4.55	100.0	Did not remove load from category TWPE.
Asbestos Manufacturing	Honeywell Friction Materials	Green Island, NY	DMR 2009	Aluminum	3.55	97.8	Did not remove load from category TWPE.
Industrial Laundries	Meritex, Inc - Hilton Hotels	Portage, IN	DMR 2009	Ammonia as N	0.212	100.0	Did not remove load from category TWPE.
Photographic Processing	USGS—Eros Data Center	Sioux Falls, SD	DMR 2009	Ammonia as N	0.0242	100.0	Did not remove load from category TWPE.
Ferroalloy Manufacturing	Eramet Marietta Inc	Marietta, OH	TRI 2009	Manganese And Manganese Compounds	10,400	98.8	Did not remove load from category TWPE.

Sources: DMRLoads2009_v2 and TRIRelases2009_v2.

Table 4-3. Final *TRIR*Releases2009 and *DMR*Loads2009 Combined Point Source Category Rankings

40 CFR Part	Point Source Category	<i>TRIR</i> Releases2009 TWPE	<i>DMR</i> Loads2009 TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
430	Pulp, paper and paperboard	956,000	287,000	1,240,000	20.4%	1
418	Fertilizer manufacturing	9,550	902,000	912,000	35.5%	2
419	Petroleum refining	436,000	295,000	731,000	47.5%	3
414	Organic chemicals, plastics and synthetic fibers	146,000	541,000	687,000	58.8%	4
433	Metal finishing	86,100	197,000	283,000	63.5%	6
435	Oil & gas extraction	NA	238,000	238,000	67.4%	7
420	Iron and steel manufacturing	96,200	134,000	230,000	71.2%	8
445	Landfills	2,750	219,000	222,000	74.8%	9
421	Nonferrous metals manufacturing	40,500	174,000	215,000	78.4%	10
440	Ore mining and dressing	68,900	139,000	208,000	81.8%	11
463	Plastics molding and forming	89,300	87,500	177,000	84.7%	12
415	Inorganic chemicals manufacturing	72,500	51,300	124,000	86.8%	13
429	Timber products processing	29,700	91,200	121,000	88.8%	14
436	Mineral mining and processing	5,430	80,100	85,500	90.2%	15
432	Meat and poultry products	53,800	17,200	71,000	91.3%	16
434	Coal mining	1,010	65,800	66,800	92.4%	17
437	Centralized waste treatment	10,500	40,500	51,000	93.3%	18
455	Pesticide chemicals	35,700	10,000	45,700	94.0%	19
467	Aluminum forming	5,920	33,800	39,700	94.7%	20
410	Textile mills	1,910	37,200	39,100	95.3%	21
444	Waste combustors	10,500	27,900	38,400	96.0%	22
458	Carbon black manufacturing	31,600	66	31,700	96.5%	23
471	Nonferrous metals forming and metal powders	24,700	4,330	29,000	97.0%	24
439	Pharmaceutical manufacturing	6,600	14,400	21,000	97.3%	25
451	Concentrated aquatic animal production	NA	18,600	18,600	97.6%	26
411	Cement manufacturing	957	17,000	18,000	97.9%	27
464	Metal molding and casting (foundries)	6,970	6,180	13,200	98.1%	28

Table 4-3. Final *TRIR*Releases2009 and *DMR*Loads2009 Combined Point Source Category Rankings

40 CFR Part	Point Source Category	<i>TRIR</i> Releases2009 TWPE	<i>DMR</i> Loads2009 TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
469	Electrical and electronic components	2,580	9,660	12,200	98.3%	29
422	Phosphate manufacturing	229	11,200	11,400	98.5%	30
424	Ferroalloy manufacturing	10,500	575	11,100	98.7%	31
428	Rubber manufacturing	7,470	3,510	11,000	98.9%	32
NA	Miscellaneous foods and beverages	3,900	6,260	10,200	99.1%	33
409	Sugar processing	215	9,840	10,100	99.2%	34
406	Grain mills	6,190	2,900	9,090	99.4%	35
468	Copper forming	4,730	2,270	7,000	99.5%	36
407	Canned and preserved fruits and vegetables processing	4,130	670	4,800	99.6%	37
405	Dairy products processing	3,560	1,110	4,670	99.6%	38
408	Canned and preserved seafood processing	180	3,020	3,200	99.7%	39
413	Electroplating	2,870	NA	2,870	99.7%	40
461	Battery manufacturing	1,680	185	1,870	99.8%	41
NA	Printing & publishing	71.2	1,740	1,810	99.8%	42
417	Soap and detergent manufacturing	1,710	88	1,800	99.8%	43
460	Hospital	NA	1,760	1,760	99.9%	44
438	Metal products and Machinery	1,390	54	1,440	99.9%	45
442	Transportation equipment cleaning	NA	1,360	1,360	99.9%	46
425	Leather tanning and finishing	1,240	6.94	1,250	99.9%	47
443	Paving and roofing materials (tars and asphalt)	744	220	964	99.9%	48
NA	Independent and stand alone labs	80	868	948	100.0%	49
457	Explosives manufacturing	22.1	670	692	100.0%	50
426	Glass manufacturing	335	284	619	100.0%	51
465	Coil coating	164	218	382	100.0%	52
454	Gum and wood chemicals manufacturing	52.3	317	369	100.0%	53
NA	Food service establishments	NA	305	305	100.0%	54

Table 4-3. Final *TRIRelases2009* and *DMRLoads2009* Combined Point Source Category Rankings

40 CFR Part	Point Source Category	<i>TRIRelases2009</i> TWPE	<i>DMRLoads2009</i> TWPE	Total TWPE	Cumulative Percentage of Total TWPE	Rank
446	Paint formulating	202	67	269	100.0%	55
466	Porcelain enameling	18.7	35.1	53.8	100.0%	56
NA	Tobacco products	22.9	4.55	27.5	100.0%	57
447	Ink formulating	4.37	2.06	6.43	100.0%	58
427	Asbestos manufacturing	NA	3.63	3.63	100.0%	59
NA	Industrial laundries	NA	0.212	0.212	100.0%	60
459	Photographic	NA	0.0242	0.0242	100.0%	61
NA	Photo processing	NA	0.0242	0.0242	100.0%	62
	Total	2,280,000	3,790,000	6,070,000		

Sources: *TRIRelases2009_v2* and *DMRLoads2009_v2*.

NA: Not applicable.

4.1.7 Summary of 2011 Preliminary Category Reviews

EPA identified 20 industrial categories that cumulatively discharge more than 95 percent of the combined *DMRLoads2009* and *TRIRelases2009* total TWPE. Below is a summary of the findings from the 2011 preliminary category reviews, as explained in detail in the *2011 Annual Review Report*, starting with the highest-ranking category TWPE. EPA will incorporate into the 2012 Annual Review Report and Final 2012 Plan the results of any additional review and assessments that it conducted during the 2012 annual review period related to these categories where noted below.

- **Pulp and Paper (40 CFR Part 430).** EPA identified and corrected database errors for discharges of aluminum (a top pollutant). EPA determined that discharges of manganese and sulfide were all measured at concentrations below treatable levels and do not present a hazard based on current data. EPA continued reviewing dioxin for the category. EPA continued to review this category during its 2012 annual review, including an assessment of information collected for this industry related to the review of air pollution regulations.
- **Fertilizer Manufacturing (40 CFR Part 418).** For this category, the top pollutant, in terms of TWPE, is fluoride, which results mainly from two facilities exempt from ELGs. Therefore, EPA believes these discharges do not represent the category as a whole. Excluding these discharges removes the category from the top 95 percent category rankings.
- **Petroleum Refining (40 CFR Part 419).** EPA determined that PACs and sulfide (top pollutants) in petroleum refining wastewater discharges were measured at concentrations below treatable levels determined during the 2004 detailed study and do not present a hazard based on current data. EPA also identified and corrected an error in DMR chlorine (a top pollutant) discharges. EPA continued reviewing dioxin and metals (top pollutants) during its 2012 annual review. EPA also investigated the effect of new air pollution control technologies on wastewater streams at petroleum refiners. EPA continued to review discharges from the petroleum refining category, including using information collected from this industry for air pollution rule development.
- **OCPSF (40 CFR Part 414).** EPA believes that polychlorinated biphenyls (a top pollutant) are a legacy issue and warrant no further review at this time. EPA also believes that discharges of hexachlorobenzene (also a top pollutant) are due to database errors or are at concentrations that do not present a categorical issue. After database corrections, the category TWPE is still high due to the number of facilities and types of discharges. EPA therefore continued to review OCPSF discharges in its 2012 annual review. Separate from rankings determinations, EPA also continued to review a subset of this category for potential discharges of perfluorinated compounds.
 - *Regenerated Cellulose Manufacturers.* As a result of the 2011 preliminary study of the regenerated cellulose manufacturers, EPA will categorize

these discharges under Part 414, OCPSF, for future annual reviews. The preliminary study (DCN 7718) identified seven active regenerated cellulose manufacturers in the United States. These facilities use carbon disulfide in manufacturing regenerated cellulose. Although the study found that carbon disulfide discharges are occurring at only one of these facilities, EPA continued to investigate the question of how significant concentrations of carbon disulfide (non-detectable concentrations to 17.1 mg/L) remain in the water, although carbon disulfide is highly volatile (430 times more volatile than acetone, for example).

- **Metal Finishing (40 CFR Part 433).** EPA identified and corrected database errors for cyanide (a top pollutant) and reviewed silver and polychlorinated biphenyls (also top pollutants), determining that they are likely accurate. PCBs are likely present as a result of remediation activities rather than ongoing manufacturing practices. After database corrections, the category TWPE is still high due to the number of facilities, however, each individual facility's TWPE is low. EPA thus continued to review metal finishing discharges during its 2012 annual review.
- **Oil and Gas Extraction (40 CFR Part 435).** EPA believes that the majority of the sulfide discharges are traceable primarily to one facility, and the permitting authority has determined that their sulfide discharges are unique to that facility's geologic formation. Excluding this discharger removes the category from the top 95 percent category rankings.
- **Iron and Steel Manufacturing (40 CFR Part 420).** EPA identified and corrected database errors for chlorine and chromium (top pollutants). EPA also reviewed cyanide and aluminum (top pollutants) and determined that compliance support or facility-specific permitting is appropriate to manage these discharges. For cyanide, EPA found that one facility's cyanide discharges were beginning to exceed their monthly permit limits. As documented in the Annual Review Report, the exceedances appeared to continue in 2010 but were resolved in 2011 (U.S. EPA, 2012a). For aluminum, the discharges result from stormwater associated with industrial activity, not process wastewater. EPA also found that compliance assistance was necessary to control aluminum discharges. EPA also reviewed fluoride discharges (a top pollutant) and determined that the facility discharges were not a hazard priority at this time. For additional details on the facilities discharging cyanide, fluoride and aluminum, see Sections 9.4, 9.7, and 9.8 of EPA's *2011 Annual Review Report* (U.S. EPA, 2012a). After database corrections, the category TWPE is still high due to the number of facilities. EPA therefore continued to review iron and steel discharges during its 2012 annual review.
- **Landfills (40 CFR Part 445).** EPA identified database errors for copper, fluoride, boron, manganese, and iron (top pollutants). Correcting these errors removes the category from the top 95 percent category rankings.

- **Nonferrous Metals Manufacturing (40 CFR Part 421).** EPA identified and corrected database errors for molybdenum (a top pollutant). EPA also identified fluoride, lead, and calcium (top pollutants) discharges from individual facilities. Fluoride discharges result from one facility, Horsehead Corporation, a zinc smelter. EPA estimated that concentrations in the final effluent are still higher than levels achieved by two-stage chemical precipitation with a lime treatment system and is considering facility-specific permitting support to address this facility's fluoride discharges. EPA continued to review fluoride discharges from Horsehead Corporation.
- Lead discharges result from one facility: Buick Resource Recycling, which exceeded its maximum mass-based lead permit limits for all reporting periods in 2009 for stormwater outfalls 002 and 003. U.S. EPA's Office of Civil Enforcement has identified compliance and operation problems with the Buick facility, owned by Doe Run, and is already addressing the lead discharges.
- Cadmium discharges result from three facilities, Nyrstar Clarksville, Inc., and two Doe Run lead smelters (Glover and Herculanum). EPA's Office of Civil Enforcement already identified compliance and operation problems with the two Doe Run facilities and is already addressing these facilities' discharges. Nyrstar exceeded its monthly average permit limits for one month in 2009, and the back-calculated cadmium concentrations are above levels that can be achieved with treatment. The existing regulations already set limits for cadmium; therefore, EPA recommends facility-specific permitting to control cadmium discharges at this facility.
- **Ore Mining and Dressing (40 CFR Part 440).** EPA has DMR data for 80 of the roughly 2,252 U.S. ore mines. Fourteen of these 80 compose the majority of the pollutant loading, and EPA studied these fourteen in 2010 as part of the Ore Mining and Dressing Preliminary Study (U.S. EPA, 2011b). The 2009 DMR data are consistent with data in the 2010 Preliminary Study, and EPA found that discharges for this category (represented by the small number of facilities) are best managed through facility-specific permitting assistance (U.S. EPA, 2011b).
- **Plastics Molding and Forming (40 CFR Part 463).** EPA reviewed carbon disulfide discharges from cellulose products manufacturers as part of a preliminary study. As a result of the 2011 preliminary study of the regenerated cellulose manufacturers, EPA will categorize these discharges as OCPSF for future annual reviews. These discharges are, therefore, being removed from the Plastics Molding and Forming category.
- **Inorganic Chemicals Manufacturing (40 CFR Part 415).** For this category, the top pollutants, in terms of TWPE, are manganese and dioxin, which result mainly from TRI data from three titanium dioxide manufacturing facilities. Two of the titanium dioxide manufacturers reported large discharges of manganese in the 2009 TRI database, accounting for 65 percent of the manganese TWPE (23,300). One of these has since shut down many operations, including the process

expected to generate manganese and dioxin, and a second facility had a process upset in 2009, causing the manganese release. One titanium dioxide manufacturer reported dioxin discharges that account for 86 percent (11,700) of the category's dioxin TWPE (13,800) in *TRIRelases2009_v2*. As part of its NPDES permit, this facility has installed additional solids removal and is required to further decrease its dioxin releases. Therefore, EPA found that these discharges do not represent the category as a whole and would best be managed by facility-specific permitting and compliance assistance.

- **Timber Products Processing (40 CFR Part 429).** EPA identified and corrected reporting errors for the top facilities reporting discharges of copper and dioxin (top pollutants). Correcting this reporting error removes the category from the top 95 percent category rankings.
- **Mineral Mining and Processing (40 CFR Part 436).** EPA identified and corrected database errors for cadmium and chlorine (top pollutants) discharges. EPA also reviewed fluoride (top pollutant) discharges from mines in North Carolina and Florida. EPA determined that these discharges did not represent the category as a whole, and thus no further review is necessary.
- **Meat and Poultry Products (40 CFR Part 432).** EPA determined that further review of nitrate (a top pollutant) is necessary and, therefore, continued the review of this category during the 2012 annual review period.
- **Coal Mining (40 CFR Part 434).** EPA identified and corrected flow errors for the top facilities reporting discharges of manganese and iron (top pollutants). Correcting these errors removes the category from the top 95 percent category rankings.
- **Centralized Waste Treaters (40 CFR Part 437).** EPA identified and corrected a reporting error for the top facility in Louisiana reporting discharges of hexachlorobenzene (a top pollutant). Correcting this reporting error removes the category from the top 95 percent category rankings. (Also see Section 5.1 for a discussion of EPA's concerns regarding the discharge of unconventional oil and gas extraction wastewaters from CWTs.)
- **Pesticide Chemicals (40 CFR Part 455).** EPA identified and corrected a reporting error for the top facility in Texas reporting discharges of polychlorinated biphenyls (a top pollutant). Correcting this reporting error removes the category from the top 95 percent category rankings.
- **Aluminum Forming (40 CFR Part 467).** EPA identified and corrected a reporting error for the top facility in West Virginia reporting discharges of lead (a top pollutant). Correcting this reporting error removes the category from the top 95 percent category rankings.

- **Textile Mills (40 CFR Part 410).** EPA determined that discharges of sulfide (a top pollutant) from facilities in the Carpet Finishing and Knit Fabric subcategories compose the majority of the discharge TWPE associated with this category. Existing regulations for these subcategories include ELGs for sulfide (best practicable technology currently available, best available control technology economically achievable, and new source performance standards). EPA confirmed that the discharged concentrations of sulfide (as high as 25.89 mg/L) exceed levels that available treatment technologies can achieve. Facility-specific permitting assistance may be warranted to determine if existing ELGs are being properly applied.

5. POTENTIAL CATEGORIES OF INDIRECT DISCHARGERS FOR PRETREATMENT STANDARDS

5.1 Evaluation of Pass-Through and Interference of Toxic and Non-Conventional Pollutants Discharged to POTWs

All indirect dischargers are subject to general pretreatment standards (40 CFR 403), including a prohibition on discharges causing “pass-through” or “interference” (See 40 CFR 403.5). All POTWs with approved pretreatment programs must develop local limits to implement the general pretreatment standards. All other POTWs must develop such local limits where they have experienced pass-through or interference and such a violation is likely to recur. There are approximately 1,500 POTWs with approved pretreatment programs and 13,500 small POTWs that are not required to develop and implement pretreatment programs.

In addition, EPA establishes technology-based national regulations, termed “categorical pretreatment standards,” for categories of industry discharging pollutants to POTWs that may pass through, interfere with, or otherwise be incompatible with POTW operations (Clean Water Act section 307(b)). Generally, categorical pretreatment standards are designed such that wastewaters from direct and indirect industrial dischargers are subject to similar levels of treatment. EPA has promulgated such pretreatment standards for 35 industrial categories.

One of the tools traditionally used by EPA in evaluating whether pollutants pass through a POTW is a comparison of the percentage of a pollutant removed by POTWs with the percentage of the pollutant removed by discharging facilities applying the best available control technology economically achievable (BAT). Pretreatment standards for existing sources are technology-based and are analogous to BAT effluent limitations guidelines (ELGs). In most cases, EPA has concluded that a pollutant passes through the POTW when the median percentage removed nationwide by representative POTWs (those meeting secondary treatment requirements) is less than the median percentage removed by facilities complying with BAT effluent limitations guidelines for that pollutant.

This approach to the definition of “pass-through” satisfies two competing objectives set by Congress: (1) that standards for indirect dischargers be equivalent to standards for direct dischargers and (2) that the treatment capability and performance of POTWs be recognized and taken into account in regulating the discharge of pollutants from indirect dischargers.

The term “interference” means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both (1) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use, or disposal and (2) therefore is a cause of a violation of any requirement of the POTW’s NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with applicable regulations or permits. See 40 CFR 403.3(k). To determine the potential for interference, EPA generally evaluates the industrial indirect discharges in terms of: (1) the compatibility of industrial wastewaters and domestic wastewaters (e.g., type of pollutants discharged in industrial wastewaters compared to pollutants typically found in domestic wastewaters); (2) concentrations of pollutants discharged in industrial wastewaters that might cause interference with the POTW collection system, the POTW treatment system, or biosolids

disposal options; and (3) the potential for variable pollutant loadings to interfere with POTW operations (e.g., batch discharges or slug loadings from industrial facilities interfering with normal POTW operations).

If EPA determines that a category of indirect dischargers causes pass-through or interference, EPA will then consider the BAT and BPT factors (including “such other factors as the Administrator deems appropriate”) specified in section 304(b) to determine whether to establish pretreatment standards for these activities. Examples of “such other factors” include a consideration of the magnitude of the hazard posed by the pollutants discharged as measured by: (1) the total annual TWPE discharged by the industrial sector and (2) the average TWPE discharged among facilities that discharge to POTWs. Additionally, EPA would consider whether other regulatory tools (e.g., use of local limits under Part 403) or voluntary measures would better control the pollutant discharges from this category of indirect dischargers. For example, EPA relied on a similar evaluation of “pass-through potential” in its prior decision not to promulgate national categorical pretreatment standards for the Industrial Laundries industry. See 64 FR 45071 (August 18, 1999). EPA noted in this 1999 final action that, “While EPA has broad discretion to promulgate such (national categorical pretreatment) standards, EPA retains discretion not to do so where the total pounds removed do not warrant national regulation and there is not a significant concern with pass through and interference at the POTW.” See 64 FR 45077 (August 18, 1999).

EPA reviewed TRI data in order to identify industry categories without categorical pretreatment standards that are discharging pollutants to POTWs that may pass through, interfere with or otherwise be incompatible with POTW operations (see DCN 04247). This review did not identify any such industrial categories (excluding the industrial categories for which the development of pretreatment standards is currently underway). EPA also evaluated stakeholder comments and pollutant discharge information in the previous Annual Reviews to inform this review. In particular, on the 2004, 2006, and 2008 304m plans, commenters raised concerns about discharges of emerging pollutants of concern such as endocrine disruptors and mercury discharges from dentists and health care facilities and urged EPA to consider establishing effluent guidelines and pretreatment standards for such discharges. In response to these comments, EPA initiated the Health Care Industry Detailed Study in its 2006 Annual Review. Since then, EPA announced the dental amalgam rulemaking to regulate mercury discharges from dentists’ offices in the Final 2010 Plan.

In addition, due to new industry developments, EPA announced its intention to develop effluent guidelines and pretreatment standards for unconventional oil and gas extraction (coalbed methane and shale gas extraction) in the Final 2010 Plan. EPA noted in that Plan that when injection and re-use are not viable options for unconventional oil and gas wastewater disposal, operators may dispose of this wastewater by sending it to private centralized waste treatment facilities (CWTs). Many CWTs employ equalization, bulk solids removal and biological treatment similar to POTWs. These treatment technologies are not designed to treat high levels of total dissolved solids (TDS), naturally occurring radioactive materials (NORM), or high levels of metals. EPA is concerned that these pollutants may not be getting adequate treatment by CWTs. In addition, 90% of CWTs discharge to POTWs there by raising concerns of pass-through or interference at the POTWs. EPA will explore potential approaches for addressing

these concerns, including appropriate controls on discharges derived from unconventional oil and gas extraction wastewaters either to or from CWTs.

6. SUMMARY OF PUBLIC COMMENTS AND INPUT

EPA's annual review process considers information provided by stakeholders regarding the need for new or revised effluent limitations guidelines and pretreatment standards. Public comments received on EPA's prior reviews and Plans helped the Agency prioritize its analysis of existing effluent guidelines and pretreatment standards during the preliminary 2012 review.

EPA published the Final 2010 Plan and provided a 30-day public comment period starting on October 26, 2011 (see 76 FRN 27742). The public comment period was re-opened for an additional 60 days from December 27, 2011 to February 27, 2012. The Docket accompanying this notice includes a complete set of all of the comments submitted, as well as the Agency's responses (see DCN 07715). The Agency received 31 sets of comments on the Final 2010 Plan.

Commenting organizations representing industry included the Silver Nanotechnology Working Group, Independent Petroleum Association of America, Coalbed Methane Association of Alabama, American Petroleum Institute, Marcellus Shale Coalition, Range Resources, LAMNIPipe Inc., Cabot Specialty Fluids Limited, Cliffs Natural Resources Inc., National Mining Association, and Reynolds Metals Company.

Three environmental groups commented, including the Coalition for SafeMinds, Natural Resources Defense Council and The Clean Water Action.

Seven sanitation districts or publicly owned treatment works (POTWs) groups also commented, including the Littleton/Englewood Wastewater Treatment Plant, Los Angeles County Sanitation Districts, Sacramento Regional County Sanitation District, Metropolitan Council Environmental Services, National Association of Clean Water Agencies, Southern California Alliance of Publicly Owned Treatment Works, and Metropolitan Sewer District of Greater Cincinnati.

Five states, municipalities, or state representing organizations, also commented, including the City of Tulsa, Oklahoma, the State of Alabama Office of the Attorney General, Wyoming Department of Environmental Quality, the Geological Survey of Alabama and the Association of Clean Water Administrators.

Four organizations, including a Representative of the U.S. Congress, submitted requests for a 60-day comment period extension. EPA received comments from one private citizen, addressing oil and gas issues in parts of Southern California as well as other industrial discharges.

Comments were distributed among the following subject areas, in order of abundance:

- Coalbed Methane and Shale Gas Extraction (16 comments)
- Dental Amalgam (8 comments)
- Nanomaterials (3 comments)
- Health Care Industry – (unused pharmaceuticals) (2 comments)
- Ore Mining and Dressing (2 comments)
- Effluent limitation guidelines (ELGs) and Plan process in general (1 comment)

- Other (3 comments)

For coalbed methane, there were four comments that do not support an ELG rulemaking; three comments that do support an ELG rulemaking; and one comment that provided details on a treatment technology for coalbed methane produced water.

For shale gas extraction, there was one comment that did not support a shale gas extraction ELG rulemaking; five comments supporting a shale gas extraction ELG rulemaking; three comments supporting a rulemaking for shale gas extraction pretreatment standards; and two comments stating that POTWs alone cannot sufficiently treat shale gas extraction wastewater. Of these, one comment urged EPA to consider a faster, non-traditional approach to regulations to both protect the environment and prevent market confusion.

Six commenters asked EPA to consider only best management practices (BMPs) and not implement numerical limits for Dental Amalgam in order to minimize the POTW burden. There were four comments stating that standards should apply only to POTWs which discharge to mercury-impaired receiving waters; four comments stating that dental offices should not be classified as significant industrial users (SIUs); two comments stating that dental offices covered by existing programs should be grandfathered in; two comments suggesting EPA should take a leading role in convening a volunteer National Amalgam Separator Review Committee; two comments stating that the federal pretreatment program design is not flexible enough to be adaptable to state/local resources and that it should not be used for a dental amalgam rule; and one comment stating that state and local programs for regulating dental amalgam already exist, and it is unnecessary to change regulations.

For nanomaterials, there was one comment supporting an ELG to regulate discharges of nanomaterials; one comment not supporting an ELG; and one comment providing nanomaterials data.

For the Health Care industry, in particular the management of unused pharmaceuticals, EPA received one comment stating that old style ELGs should not be used to regulate discharges of unused pharmaceuticals; and one comment that recommended more research on ethyl mercury discharges from unused pharmaceuticals.

For the Ore Mining and Dressing category, there were two comments questioning the data presented in the Ore Mining Preliminary Study; and one comment supporting EPA's decision not to move forward with revision to 40 CFR Part 440 ELGs.

One commenter suggested improvements to the ELGs and 304m process in general, including concerns about shifting away from technology-based regulations because total reliance on water quality standards is not effective; and that the 304m vision should be expanded because all potential problems need to be considered, including those that may be covered by departments other than the Office of Water. The commenter also stated that the metal finishing category should be reexamined due to significant changes in the industry over the last few years.

A more detailed summary table of the comments can be found in the *2011 Annual Review Report* (U.S. EPA, 2012a). EPA carefully considered all public comments and information

submitted in developing the Preliminary 2012 Plan. A comment response document is also available at (DCN 07715).

7. USE OF OTHER EXISTING DATA IN EPA'S 2012 ANNUAL REVIEWS

The current annual review methodology, described in Section 3.1, enables EPA to review and rank category discharges on a national level based on the toxicity of their discharges. Beginning in 2012, EPA initiated a DMR and TRI toxicity ranking analysis every other year, in the odd-numbered years. EPA has determined that the results of the toxicity ranking analysis using DMR and TRI data does not vary much from year to year, as would be expected since TRI data and DMR data does not change much on an annual basis. For the 2012 Annual Reviews, and for subsequent even-year reviews, EPA plans to use additional data sources to enable targeted annual reviews of industrial discharges. For example, EPA investigated four new data sources for its 2012 annual reviews:

- **ID Pass-Through Pollutants: Sewage Sludge.** EPA determined that examining sewage sludge for pollutants associated with industrial activity may identify new pollutants or industry categories that require further review. EPA reviewed the Targeted National Sewage Sludge Survey (TNSSS), which includes data on pollutants of concern in sewage sludge. EPA examined other pollutants⁶ discharged to POTWs from industrial dischargers for potential interference (i.e., land application denials) based on publicly available data. EPA also examined recent contamination issues associated with the beneficial reuse of biosolids (i.e., perfluorinated chemicals). For more information on the TNSSS see- <http://water.epa.gov/scitech/wastetech/biosolids/tnsss-overview.cfm>.
- **ID New Pollutants/Industries Via EPA's Toxic Chemical Control Programs.** EPA reviewed data and plans from its Toxic Chemical Control Programs for new industrial categories or potential new pollutants of concern not currently regulated.
- **Identify New Waste Streams from Air Pollution Control.** Recent changes to air regulations at the federal, state and local level may lead to new air pollution controls. Some air pollution controls have the potential to generate new or changed wastewater streams with new pollutants of interest. For example, the wet scrubbers for flue-gas desulfurization at steam electric generating plants generate a wastewater stream that is not currently regulated by the Part 423 guideline for steam electric. In 2012 EPA assessed implementation of current air programs to determine any similar trends in wet air pollution control and resulting wastewater discharges.
- **Identify New Industries: Potential TRI Expansion Sectors.** EPA examined TRI Program data and information available as part of the consideration of recent expansion sectors. Currently, these sectors include Iron Ore Mining, Phosphate Mining, Steam Generation from Coal and/or Oil, Petroleum Bulk Storage, Solid Waste Combustors and Incinerators, and Large Dry Cleaning. EPA reviewed the

⁶ Pollutants to be examined include: benzo(a)pyrene; 2-methylnaphthalene; bis (2-ethylhexyl) phthalate; fluoride; water-extractable phosphorus; polybrominated diphenyl ethers; and pharmaceuticals, steroids, and hormones.

collected data with previous reviews of applicable industries to consider if further review of these industries is necessary.

Following this approach in 2012, in 2013, EPA will again use TRI and DMR data in the toxicity ranking analysis as the primary basis for the 2013 Annual Reviews. As explained earlier in this Preliminary Plan, the Annual Reviews build on the previous year's reviews, and EPA will consider appropriate and available information to fulfill its annual review requirements.

8. FINDINGS FROM EPA'S 2011 ANNUAL REVIEWS

For the 57 existing point source categories, Table 8-1 presents the results of the 2011 annual reviews. EPA uses the following codes to describe the results for each industrial category:

1. Effluent guidelines or pretreatment standards for this industrial category were recently 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 necessary at this time.
2. Revising the national effluent guidelines or pretreatment standards is not the best tool for this industrial category because most of the toxic and non-conventional pollutant discharges result from one or a few facilities in this industrial category. EPA will consider assisting permitting authorities in identifying pollution control and pollution prevention technologies for the development of technology-based effluent limitations during the development of individual permits.
3. Not identified as a priority based on data available at this time (e.g., not among industries that cumulatively compose 95% of discharges as measured in units of TWPE).
4. EPA intends to start or continue either a preliminary or detailed study of this industry in its 2012 Annual Reviews to determine whether to identify the category for effluent guidelines rulemaking.
5. EPA is continuing to conduct a preliminary category review of the pollutant discharges because incomplete data are currently available to determine whether to conduct a preliminary study, a detailed study or to identify the category for possible revision.
6. EPA is identifying this industry for a revision of an existing effluent guideline.

Table 8-1. Findings from EPA's 2011 Annual Reviews of Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
1	Aluminum Forming	467	(3)
2	Asbestos Manufacturing	427	(3)
3	Battery Manufacturing	461	(3)
4	Canned and Preserved Fruits and Vegetable Processing	407	(3)
5	Canned and Preserved Seafood Processing	408	(3)
6	Carbon Black Manufacturing	458	(3)
7	Cement Manufacturing	411	(3)
8	Centralized Waste Treatment	437	(4)
9	Coal Mining	434	(3)
10	Coil Coating	465	(3)
11	Concentrated Animal Feeding Operations (CAFO)	412	(1)

Table 8-1. Findings from EPA’s 2011 Annual Reviews of Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
12	Concentrated Aquatic Animal Production	451	(3)
13	Construction and Development	450	(1)
14	Copper Forming	468	(3)
15	Dairy Products Processing	405	(3)
16	Electrical and Electronic Components	469	(3)
17	Electroplating	413	(3)
18	Explosives Manufacturing	457	(3)
19	Ferrous Alloy Manufacturing	424	(3)
20	Fertilizer Manufacturing	418	(3)
21	Glass Manufacturing	426	(3)
22	Grain Mills	406	(3)
23	Gum and Wood Chemicals	454	(3)
24	Hospitals	460	(1)
25	Ink Formulating	447	(3)
26	Inorganic Chemicals ^a	415	(1) and (3)
27	Iron and Steel Manufacturing	420	(3)
28	Landfills	445	(3)
29	Leather Tanning and Finishing	425	(3)
30	Meat and Poultry Products	432	(5)
31	Metal Finishing	433	(3)
32	Metal Molding and Casting	464	(3)
33	Metal Products and Machinery	438	(3)
34	Mineral Mining and Processing	436	(3)
35	Nonferrous Metals Forming and Metal Powders	471	(3)
36	Nonferrous Metals Manufacturing	421	(2)
37	Oil and Gas Extraction ^b	435	(1) and (3)
38	Ore Mining and Dressing	440	(2)
39	Organic Chemicals, Plastics, and Synthetic Fibers ^a	414	(1), (2), and (3)
40	Paint Formulating	446	(3)
41	Paving and Roofing Materials (Tars and Asphalt)	443	(3)
42	Pesticide Chemicals	455	(3)
43	Petroleum Refining	419	(5)
44	Pharmaceutical Manufacturing	439	(3)
45	Phosphate Manufacturing	422	(3)
46	Photographic	459	(3)
47	Plastic Molding and Forming	463	(3)
48	Porcelain Enameling	466	(3)
49	Pulp, Paper, and Paperboard	430	(5)
50	Rubber Manufacturing	428	(3)

Table 8-1. Findings from EPA’s 2011 Annual Reviews of Industrial Categories

No.	Industry Category (listed alphabetically)	40 CFR Part	Findings
51	Soaps and Detergents Manufacturing	417	(3)
52	Steam Electric Power Generating	423	(1)
53	Sugar Processing	409	(3)
54	Textile Mills	410	(2)
55	Timber Products Processing	429	(3)
56	Transportation Equipment Cleaning	442	(3)
57	Waste Combustors	444	(3)

^a Codes (“(1)” and “(3)”) are used for this category. The first code (“(1)”) refers to the ongoing effluent guidelines rulemaking for the Chlorinated and Chlorinated Hydrocarbons (CCH) manufacturing sector, which includes facilities currently regulated by the OCPSF and Inorganics effluent guidelines. The second code (“(3)”) indicates that the remainder of the facilities in these two categories do not represent a hazard priority at this time.

^b Codes (“(1)” and “(3)”) are used for this category. The first code (“(1)”) refers to the ongoing effluent guidelines rulemaking for shale gas extraction and coalbed methane sectors of the industry (although EPA is proposing to discontinue the ELG revision for coal bed methane). The second code (“(3)”) refers to category discharges of the oil and gas extraction industry, excluding coalbed methane and shale gas extraction, that do not represent a hazard priority at this time.

9. 2012 PRELIMINARY EFFLUENT GUIDELINES PROGRAM PLAN CONCLUSIONS

Based on the 2011 reviews and public comments and input, EPA has not identified any new or existing industrial wastewater discharges that warrant new or revised effluent guidelines at this time. Therefore, EPA is not identifying any existing effluent guidelines for revision, nor is EPA identifying any new industries for new effluent guidelines, excluding those effluent guidelines rulemakings that are currently under development. EPA has also not identified the need for any new or revised pretreatment standards, excluding those that were previously identified and are currently undergoing effluent guidelines actions.

In prior year reviews, EPA considered revisions to ELGs for the Organic Chemicals, Pesticides, and Synthetic Fibers (OCPSF) (40 CFR 414) and Inorganic Chemicals Manufacturing (40 CFR 415) point source categories for facilities that produce chlorine and chlorinated hydrocarbons (CCH). EPA is proposing to delist the chlorine and chlorinated hydrocarbons manufacturing industry from the effluent guidelines plan and to discontinue the rulemaking for this industry as described in more detail in Section 4.1.1.

EPA also considered revisions to ELGs for Oil and Gas Extraction Point Source Category (40 CFR Part 135) to address discharges from coalbed methane. EPA is also proposing to delist the coalbed methane extraction industry from the effluent guidelines plan and to discontinue the rulemaking as discussed in Section 4.1.1 and is soliciting public comment on this.

EPA is working together with the Environmental Council of States (ECOS) on an EPA-State Pilot on Improving Regulatory Implementation. Through the Pilot, EPA and the States plan to work together on the effluent limitations guidelines revisions for unconventional oil and gas extraction. The purpose of the Pilot is to identify potential implementation issues early in the process of EPA regulation development and to identify opportunities for addressing such issues during the regulation development. States are often in a unique position to anticipate such implementation issues and opportunities for dealing with them. Opportunities might consist of tools, processes, analyses, plans, communications, and/or strategies that can be considered or developed during rule development.

During 2011, a preliminary study was conducted on regenerated cellulose manufacturing, identified during the 2010 Annual Reviews as having high carbon disulfide discharges. (In the 2010 Annual Reviews, these facilities were assigned to the Plastic Molding and Forming Category (40 CFR Part 463), but were later correctly defined as regenerated cellulose manufacturers under the OCPSF category due to their process characteristics). This study indicates that a revision to the effluent guidelines for this category is not necessary for controlling discharges of carbon disulfide (CS₂). The CS₂ discharges are primarily a single-facility issue that can be dealt with more appropriately and effectively through permitting.

EPA conducted its 2012 Annual Reviews during calendar year 2012 and will incorporate the findings from the 2012 reviews, along with the findings and results reported in this Preliminary 2012 Plan and the *2011 Annual Review Report*, and from public comment and input, into its Final 2012 Plan.

10. INNOVATION AND TECHNOLOGY IN THE EFFLUENT GUIDELINES PROGRAM

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.

In October, 2011, EPA released the document entitled; *Technology Innovation For Environmental and Economic Progress: An EPA Roadmap*, (U.S. EPA, 2012c) which is intended to accelerate EPA's actions for leading and enabling environmental technology innovation. The Roadmap framed EPA's vision for technology innovation by stating:

"EPA promotes innovation that eliminates or significantly reduces the use of toxic substances and exposure to pollutants in the environment and that also promotes growth of the American economy. Building upon EPA's history of scientific and technological expertise and innovation, the Agency seeks out prospective technological advances that have the greatest potential to help achieve multiple environmental goals. Working in partnership with EPA's diverse set of stakeholders, the Agency speeds the design, development and deployment of the next generation of environmental technologies, creating a cleaner environment and a stronger economy for our nation and the world."

The roadmap lays out a portfolio of policy, regulatory, financial and other actions that, taken together, will institutionalize and promote technology innovation along the entire continuum of technology development and deployment.

This Preliminary 2012 Effluent Guidelines Plan represents an opportunity to advance the dialogue about ways EPA can foster innovative technologies while fulfilling its obligations under Sections 304(m), 301(d), 304(b), 304(g), and 307(b) of the Clean Water Act. EPA is requesting public comment and ideas on this subject. EPA seeks public input and comment on the following questions and related themes:

- Are there new, innovative pollution control or pollution prevention technologies that can be used by any of the existing 57 categories of industry with effluent limitations guidelines?
- Are there innovative manufacturing approaches that can be used by industries to reduce or prevent their wastewater discharges?
- How can EPA's effluent limitations guidelines program enhance technology transfer to catalyze and harness innovation to solve industrial wastewater problems, both now and in the future?
- How can EPA better foster consideration of innovative technologies through the effluent guidelines planning process?

11. REFERENCES

1. Auchterlonie, Steve. 2009. Notes from Telephone Conversation between Steve Auchterlonie, Front St. Remedial Action, and Chris Krejci, Eastern Research Group, Inc. “RE: Verification of magnitude and basis of estimate for dioxin and dioxin-like compounds discharges in PCS.” (March 13). EPA-HQ-OW-2008-0517-0076.
2. ERG. 2009. Eastern Research Group, Inc. Revised Quality Assurance Project Plan for the 2009 Annual Screening-Level Analysis of TRI, ICIS-NPDES, and PCS Industrial Category Discharge Data. Chantilly, VA. (September). EPA-HQ-OW-2008-0517-0507.
3. U.S. EPA. 1988a. CERCLA Compliance with Other Laws Manual: Interim Final. EPA-540-G-89-006. OSWER Publication 9234.1-01. Washington, DC. (August). Available online at: www.epa.gov/superfund/resources/remedy/pdf/540g-89006-s.pdf.
4. U.S. EPA. 1988b. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites. OSWER Directive 9283.1-2. EPA-540-G-88-003. (December). Available online at: <http://www.epa.gov/superfund/policy/remedy/pdfs/540g-88003-s.pdf>.
5. U.S. EPA. 2006. *Toxic Weighting Factor Development in Support of CWA 304(m) Planning Process*. Washington, DC. (June). EPA-HQ-OW-2004-0032-1634.
6. U.S. EPA. 2009. *Technical Support Document for the Annual Review of Existing Effluent Guidelines and Identification of Potential New Point Source Categories*. EPA-821-R-09-007. Washington, DC. (October). EPA-HQ-OW-2008-0517-0515.
7. U.S. EPA. 2010. *U.S. EPA NPDES Permit Writers’ Manual*. Washington, DC. (September). EPA-833-K-10-001. Available online at: http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45.
8. U.S. EPA. 2011a. *Technical Support Document for the 2010 Effluent Guidelines Program Plan*. Washington, DC. (September). EPA-HQ-820-R-10-021.
9. U.S. EPA. 2011b. *Ore Mining and Dressing Preliminary Study Report*. Washington, D.C. (December). EPA-821-R-08-012. EPA-HQ-OW-2008-0517. DCN 07369.
10. U.S. EPA. 2012a. *2011 Annual Review Report*. Washington, DC. (December). EPA-821-R-12-001. EPA-HQ-OW-2010-0824. DCN 07685.
11. U.S. EPA. 2012b. Memorandum to the Record, Subj: Chlorine and Chlorinated Hydrocarbon Data Collection and Analysis Summary. (February). EPA-HQ-OW-2010-0824. DCN CCH00653.
12. U.S. EPA. 2012c. *Technology Innovation For Environmental And Economic Progress: An EPA Roadmap*. (April).

- <http://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100EDIO.PDF>. EPA 190-S-12-003. DCN 07721.
13. U.S. EPA. 2012d. *Toxic Weighting Factors Methodology*. Washington, DC. (March). EPA-HQ-OW-820-R-12-005.
 14. U.S. EPA. 2013a. *Economic Analysis for Existing and New Projects in the Coalbed Methane Industry*. Washington, DC. (July). EPA 820-R-13-006. EPA-HQ-OW-2010-0824. DCN CBM00680.
 15. U.S. EPA. 2013b. *Technical Development Document for the Coalbed Methane (CBM) Extraction Industry*. Washington, DC. (April). EPA 820-R-13-009. EPA-HQ-OW-2010-0824. DCN CBM00669.