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Preliminary 2005 Review of Prioritized Categories of Industrial Dischargers

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1.0 INTRODUCTION

EPA conducted its 2005 annual review of the existing effluent guidelines it has promulgated for 56 categories of industrial dischargers. The first component of EPA's annual review was a screening-level analysis of all promulgated effluent guidelines. During the screening-level analysis, EPA estimated the pounds of toxic pollutants discharged by industrial categories with existing effluent guidelines. The second component of EPA's annual review is a more extensive review of certain categories prioritized based on their high estimated toxic discharges. EPA is conducting detailed studies of the two categories with the highest estimated toxic discharges, as well as a less detailed preliminary review for 11 additional categories.

This report describes the results of EPA's 2005 preliminary review of prioritized categories of industrial dischargers. EPA will continue evaluating these categories during its 2006 annual review, as it prepares the 2006 Effluent Guidelines Program Plan.

This section presents background information about the 2005 preliminary category review, in the following subsections:

A. Selection of Categories for Review;
B. Purpose and Scope of Preliminary Category Review;
C. Data Sources;
D. Category Review During 2003 and 2004 Annual Reviews;
E. Structure of this Report; and
F. References.

A. Selection of Categories for Review

EPA ranked point source categories according to the reported discharges of toxic and nonconventional pollutants, based primarily on data from EPA's Toxics Release Inventory (TRI) and EPA's Permit Compliance System (PCS). EPA calculated the discharge loads in units of toxic-weighted pound equivalents (TWPE) by multiplying the reported pounds of pollutant discharged by pollutant-specific toxic weighting factors (TWFs). EPA estimated TWPE for each of the 56 industrial categories with existing effluent guidelines using data in PCS and TRI. The

TRI loadings reflect direct and indirect dischargers, while the PCS loadings reflect only major direct dischargers. EPA combined the two estimates into a single loading for each category by adding the TWPE calculated with PCS data to the TWPE calculated with TRI data.

As it developed category rankings, EPA eliminated categories currently subject to an effluent guidelines rulemaking and categories for which effluent guidelines regulations were promulgated or revised within the last seven years.

EPA also excluded certain data from the category rankings development. First, because it is in the process of developing or revising effluent guidelines for discharges from facilities that produce vinyl chloride and/or that produce chlorine by the chlor-alkali process, EPA subtracted the TWPE from facilities that produce these chemicals from the TWPE for the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) and Inorganic Chemicals Manufacturing Point Source Categories. EPA also subtracted the TWPE associated with a single facility that dominates (>95%) the toxic pollutant discharges for an entire industrial category, because these anomalous discharges are not likely to be representative of the entire category.

After making these adjustments, EPA prioritized the 13 categories cumulatively discharging 95% of total TWPE for further review. These categories are listed in Table 1-1. EPA's process used to prioritize categories for further review is detailed in the *2005 Screening-Level Analysis Report*. [1]

Table 1-1. Categories Identified for Additional Review, Ranked According to Combined PCS and TRI TWPE

40 CFR Part	Point Source Category	Rank
430	Pulp, Paper, and Paperboard	1
423	Steam Electric Power Generation	2
414	Organic Chemicals, Plastics, and Synthetic Fibers	3
419	Petroleum Refining	4
455	Pesticide Chemicals	5
421	Nonferrous Metals Manufacturing	6
440	Ore Mining and Dressing	7

Table 1-1 (Continued)

40 CFR Part	Point Source Category	Rank
415	Inorganic Chemicals	8
428	Rubber Manufacturing	9
410	Textile Mills	10
418	Fertilizer Manufacturing	11
463	Plastics Molding and Forming	12
466	Porcelain Enameling	13

Source: *2005 Screening-Level Analysis Report.* [1]

B. Purpose and Scope of Preliminary Category Review

EPA selected the two highest ranking categories, Pulp, Paper, and Paperboard and Steam Electric Power Generation, for detailed studies. The purpose of the detailed studies is to confirm that the category discharges present potential harm to human health and the environment and to identify possible remedies. Preliminary results of the two detailed studies are presented in separate reports. [2, 3]

EPA is conducting preliminary reviews of the remaining categories in Table 1-1. During the preliminary category review, EPA first seeks to verify the TRI- and PCS-reported discharges. This verification entails additional data analysis (e.g., looking at multiple year discharge monitoring reports in PCS) and communication with individual reporting facilities to verify TRI- and PCS-reported 2002 discharges. EPA may also review data from additional sources, to identify the potential process source(s) of discharged pollutants and potential pollution control alternatives.

Preliminary category review may lead to one of the following EPA decisions:

- Additional study is not warranted at this time;
- Detailed study should be undertaken in the next planning cycle; or
- The category's existing effluent guidelines should be revised.

This report describes the status of the preliminary category reviews as of July 1, 2005. EPA is making progress in verifying TRI- and PCS-reported discharges with industrial facilities, and is beginning to review additional information to identify and understand potential pollutant sources and control alternatives.

C. Data Sources

The 2005 annual review, including the preliminary category reviews discussed in this report, builds upon EPA's 2003, 2004, and earlier annual reviews. In the 2003 and 2004 annual review, EPA used PCS and TRI data to construct two databases using a relationship between Standard Industrial Classification (SIC) codes and point source categories along with EPA's TWFs. The databases, using year 2000 TRI and year 2000 PCS discharge information, were named *TRIReleases2000_v4* and *PCSLoads2000_v6*, respectively.

EPA constructed similar databases for the 2005 annual review, except the new databases were based on discharge data for 2002. The development of the databases EPA used for the 2005 annual review, *TRIReleases2002* and *PCSLoads2002*, is described in detail in the *2005 Screening-Level Analysis Report*. [1] In addition to updating the discharge information, EPA made three major types of changes to the databases:

- *TWFs used to calculate TWPE were revised.* Changes to EPA's TWFs are described in *Toxic Weighting Factor Development in Support of the CWA 304(m) Planning Process.* [4] For example, the TWF for benzo(a)pyrene was decreased from 4,284 to 101. Because EPA uses the benzo(a)pyrene TWF to estimate the TWPE for the chemical category polycyclic aromatic compounds (which is commonly reported to TRI), this change had a significant effect on estimated category TWPEs. The impacts of the changes are discussed in Section 4 of the *2005 Screening-Level Analysis Report*. [1]

- *The relationship between SIC codes and point source categories was refined.* In the previous databases, only pesticide discharges from SIC code 2879, Pesticide and Agricultural Chemicals, were included in the Pesticide Chemicals category. For the 2002 databases, EPA included pesticide discharges from facilities with SIC codes for organic and inorganic chemical manufacturing activities because the Pesticide Chemicals category regulations apply to these discharges. The relationship between SIC codes and point source categories is described in Section 5 of the *2005 Screening-Level Analysis Report*. [1]

- *Potential new subcategory loads were included in the total loads for existing categories.* EPA determined that, because of the similarity of operations and wastewater characteristics, several industries with SIC codes not clearly subject to existing effluent guidelines should be considered as potential new subcategories of existing effluent guidelines. For the 2005 screening-level analysis, EPA included pollutant loadings from the potential new subcategories in the totals for the similar industrial category with existing effluent guidelines. For example, the pollutant loadings from petroleum bulk stations and terminals (SIC code 5171) were included in the pollutant loadings for the Petroleum Refining Point Source Category (40 CFR 419). The relationship between SIC codes and potential new subcategories is described in Section 5 of the *2005 Screening-Level Analysis Report*. [1]

D. Category Review During 2003 and 2004 Annual Reviews

Similar to the approach used for the 2005 annual review, EPA prioritized its 2003 and 2004 reviews of industries with existing effluent guidelines based on the results of a screening-level analysis. EPA conducted detailed studies of the two highest ranking categories, OCPSF and petroleum refining, and conducted preliminary reviews for several other categories. Table 1-2 lists the categories EPA is reviewing as part of its 2005 annual review, the level of review they received during EPA's 2003 and 2004 annual reviews of existing effluent guidelines, and the section of EPA's *Technical Support Document for the 2004 Effluent Guidelines Program Plan* [5] in which the results of those reviews are reported.

Table 1-2. 2003 and 2004 Category Reviews

Category	Level of 2003 and 2004 Review	TSD Section
Organic Chemicals, Plastics, and Synthetic Fibers	Detailed study	6.0
Petroleum Refining	Detailed study	7.0
Pesticide Chemicals	No category review	5.7
Nonferrous Metals Manufacturing	Preliminary category review	5.3.2
Ore Mining and Dressing	Preliminary category review	5.4.2
Inorganic Chemicals	Preliminary category review	5.3.1
Rubber Manufacturing	No category review	5.7
Textile Mills	Preliminary category review	5.4.5
Fertilizer Manufacturing	Preliminary category review	5.4.1
Plastics Molding and Forming	No category review	5.7
Porcelain Enameling	No category review	5.7

Source: *Technical Support Document for the 2004 Effluent Guidelines Program Plan.* [5]

As described in Section B, as of July 1, 2005, EPA is continuing to verify TRI- and PCS-reported 2002 discharges with individual facilities. As the 2002 discharges are verified, EPA will compare the issues identified with the 2002 discharge data to the issues identified during earlier category reviews and determine if they continue to be issues. The Agency will locate and analyze additional information to understand potential pollutant sources and control alternatives.

E. Structure of this Report

The remainder of this report is divided into 11 sections, one for each of the categories listed in Table 1-2. Each section includes the following:

A. Industry Description;
B. Existing Effluent Limitations Guidelines and Pretreatment Standards;
C. Results of Screening Level Analysis;
D. Potential New Subcategories;
E. Pollutants of Concern;
F. Issues Identified and Additional Review; and
G. References.

F. References

1. U.S. EPA. *2005 Screening-Level Analysis Report*. August 2005. Docket OW-2004-0032. DCN 02173.

2. U.S. EPA. *Preliminary Engineering Report: Pulp, Paper, and Paperboard Detailed Study*. August 2005. Docket OW-2004-0032. DCN 02177.

3. U.S. EPA. *Preliminary Engineering Report: Steam Electric Detailed Study*. August 2005. Docket OW-2004-0032. DCN 02176.

4 U.S. EPA. *Toxic Weighting Factor Development in Support of the CWA 304(m) Planning Process*. August 2005. Docket OW-2004-0032. DCN 02013.

5 U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA-821-R-04-014. Washington, D.C. August 2004. Docket OW-2003-0074. DCN 01088A01.

2.0 ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS (40 CFR 414)

In 2004, EPA conducted a detailed study of the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) Point Source Category; see 69 FR 53712 (Sept. 2, 2004). EPA found that dioxin is, by far, the pollutant primarily responsible for the OCPSF industry's large toxic-weighted pollutant discharge. EPA believes that the manufacture of ethylene dichloride (EDC), vinyl chloride monomer (VCM), and polyvinyl chloride (PVC), referred to collectively as vinyl chloride (VC) manufacturing, are sources of dioxin discharges. EPA found that the largest dioxin discharges occurred at large integrated facilities that also operated chlor-alkali plants. In addition, EPA found that dioxin discharges from stand-alone chlor-alkali plants are significant. As a result, EPA identified VC manufacturing, which is subject to the OCSPF (Part 414) Point Source Category, and chlor-alkali (CA) manufacturing, which is subject to the Inorganic Chemicals Manufacturing (Part 415) Point Source Category, for possible effluent guidelines revisions.

EPA reviewed two additional sectors of the OCPSF Point Source Category for the 2004 detailed study: aniline and dye manufacturers and coal tar refiners. Aniline and dye manufacturers contributed the majority of aniline discharges reported to TRI for 2000. EPA learned that most of these facilities discharge their wastewater to POTWs. Aniline is highly treatable in biological systems and receiving POTWs indicated no interference issues with these discharges. The coal tar refiners contributed the majority of PACs discharges reported to TRI for 2000. EPA learned that the coal tar industry was declining, and that the polycyclic aromatic compounds (PACs) discharges were at concentrations near or at treatability levels. As a result, EPA determined that, based on the information available at that time, it was not appropriate to select the aniline and dye manufacturing and coal tar refining sectors of the OCPSF Point Source Category for possible effluent guidelines revision at that time.

This section describes the results of EPA's 2005 preliminary review of the OCPSF Point Source Category.

A. Industry Description

The OCPSF category includes many chemical industries producing a wide variety of end products, such as polypropylene, vinyl chloride and PVC, chlorinated solvents, rubber precursors, styrofoam additives, and polyester. Some OCPSF facilities are extremely complex and produce hundreds of chemicals, while others are simpler, producing one or two end products. This category is divided into five SIC codes, as shown in Table 2-1; however, EPA is considering including operations from five other SIC codes as potential new subcategories of the OCPSF Point Source Category. See the Potential New Subcategories section (Section D) for more details.

Table 2-1. Number of OCPSF Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2821 Plastic Materials, Synthetic Resins, and Non-vulcanized Elastomers	688	403	137	529	429	156
2823 Cellulosic Man-made Fibers	8	5	4	6	5	4
2824 Synthetic Organic Fibers, Except Cellulosic	94	40	9	100	22	7
2865 Cyclic Crudes and Intermediates, Dyes and Organic Pigments	217	106	33	195	107	34
2869 Industrial Organic Chemicals NEC	3,215	469	189	740	429	191
Total OCPSF	**4,222**	**1,023**	**372**	**1,570**	**992**	**392**
Potential New Subcategories						
2842 Specialty Cleaning, Polishing	604	138	3	727	97	6
2844 Perfumes, Cosmetics, Toilet Preparations	1,586	43	10	737	39	12
2891 Adhesives and Sealants	585	185	14	694	158	17
2899 Chemicals and Chemical Preparations, NEC	3,582	339	45	1,157	284	47
5169 Chemicals and Allied Products, NEC	54,314	464	20	11,571	380	19

Table 2-1 (Continued)

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
Total Potential New Subcategory	**60,671**	**1,169**	**92**	**14,886**	**958**	**101**

Source: U.S. Economic Census, 1997 and 2002 [1, 2]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000*.
[1]Releases to any media.
[2]Major and minor dischargers.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges from OCPSF facilities are regulated under 40 CFR Part 414: Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category. This category consists of eight subcategories that apply to the manufacture of products and product groups, as shown in Table 2-2 with the corresponding SIC codes and applicability.

Table 2-2. Applicability of Subcategories in the OCPSF Point Source Category

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
B	Rayon Fibers	2823 Cellulosic Manmade Fibers	Cellulosic manmade fiber (Rayon) manufactured by the Viscose process.
C	Other Fibers	2823 Cellulosic Manmade Fibers 2824 Synthetic Organic Fibers, Except Cellulosic	All other synthetic fibers (except Rayon) including, but not limited to, products listed in Section 414.30.
D	Thermoplastic Resins	28213 Thermoplastic Resins	Any plastic product classified as a Thermoplastic Resin including, but not limited to, products listed in Section 414.40.
E	Thermosetting Resins	28214 Thermosetting Resins	Any plastic product classified as a Thermosetting Resin including, but not limited to, products listed in Section 414.50.
F	Commodity Organic Chemicals	2865 Cyclic Crudes and Intermediates, Dyes and Organic Pigments 2869 Industrial Organic Chemicals, NEC	Commodity organic chemicals and commodity organic chemical groups including, but not limited to, products listed in Section 414.60.

Table 2-2 (Continued)

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
G	Bulk Organic Chemicals	2865 Cyclic Crudes and Intermediates, Dyes and Organic Pigments 2869 Industrial Organic Chemicals, NEC	Bulk organic chemicals and bulk organic chemical groups including, but not limited to, products listed in Section 414.70.
H	Specialty Organic Chemicals	2865 Cyclic Crudes and Intermediates, Dyes and Organic Pigments 2869 Industrial Organic Chemicals, NEC	All other organic chemicals and organic chemical groups including, but not limited to, products listed in the OCPSF Development Document (Vol. II, Appendix II-A, Table VII).

Source: *Product and Product Group Discharges Subject to Effluent Limitations and Standards for the Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category - 40 CFR 414,* Table 2-2 [3].
NEC - Not Elsewhere Classified.

EPA first promulgated the effluent guidelines for the OCPSF Point Source Category in 1987, which established limitations for BOD_5, TSS, and pH in Subparts B through H. The regulation also includes limitations and/or pretreatment standards for certain toxic pollutants in three additional subparts:

- Subpart I - Direct Discharge Point Sources that use End-of-Pipe Biological Treatment;
- Subpart J - Direct Discharge Point Sources that do not use End-of-Pipe Biological Treatment; and
- Subpart K - Indirect Discharge Point Sources.

C. Results of Screening-Level Analysis

Table 2-3 compares the OCPSF Point Source Category TWPE estimated for 2000 and 2002 using TRI and PCS data. In addition, the table presents the amount of TWPE contributed by the VC sector of the OCSPF category and the TWPE associated with potential new subcategories.

Table 2-3. OCPSF Point Source Category TWPE

	TRI 2000	TRI 2002	PCS 2000	PCS 2002
Total TWPE	7,611,790	3,424,127	1,803,291	1,726,088
VC Sector Contribution[1] (% of total)	5,932,973 (78)	2,796,270 (82)	31,653 (1.8)	15,083 (0.87)
Potential New Subcategories Contribution (% of total)	76,466 (1.0)	50,910 (1.5)	35,356 (2.0)	16,902 (0.98)
TWPE w/o Potential New Subcategories and VC Sector	1,602,351	576,947	1,736,282	1,694,103

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]The VC sector of the OCPSF category includes facilities that manufacture EDC, VCM, and/or PVC and reported a primary SIC code associated with OCPSF (see Section 2.A). This sector may include facilities that also perform chlor-alkali manufacturing operations.

EPA is currently considering revisions to effluent guidelines for discharges from facilities in the VC sector. Because a rulemaking for this sector is underway, the Agency excluded discharges from these facilities from further consideration for the OCPSF review under the current planning cycle.

Table 2-4 presents the total TRI and PCS discharges for 2000 and 2002 from OCPSF facilities, including new potential subcategories. The table compares the number of facilities reporting TWPE greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. As explained above, EPA subtracted the TWPE loads from facilities that are considered part of the VC sector from the OCPSF loads. Even without the loads from the VC sector, this category ranked in the top three categories in both 2002 TRI-reported TWPE and 2002 PCS-reported TWPE. As a result of the high TRI and PCS TWPE, the OCPSF Point Source Category ranked third in combined TWPE. Because of this high ranking, EPA selected this category for preliminary review.

As part of the preliminary review, EPA compared TRI and PCS data for 2002 to the 2000 data used for the detailed study to see if there were any major changes in discharges or number of dischargers. As shown in Table 2-4, the number of reporters to TRI and PCS remained somewhat constant. PCS data, however show a large decrease in pounds discharged from 2000 to 2002.

Table 2-4. OCPSF Point Source Category TRI and PCS Discharges for 2000 and 2002[1]

	Number of Facilities Reporting Nonzero TWPE	Total Pounds Discharged (million lbs.)	TWPE
2002 TRI	792	54,528,174	627,857
2002 PCS	239	1,053,253,290	1,711,005
2002 Total[2]		**1,107,781,464**	**2,338,862**
2000 TRI	801	54,284,140	1,678,817
2000 PCS	230	2,320,381,376	1,771,637
2000 Total[2]		**2,374,665,516**	**3,450,454**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.
[1]Presents the total TRI and PCS discharges for OCPSF facilities and facilities in potential new subcategories.
[2]Totals may include some double counting if facilities reported the same pollutant discharges to both TRI and PCS.

D. Potential New Subcategories

EPA reviewed industries with SIC codes not clearly subject to existing effluent guidelines. EPA concluded the processes, operations, wastewaters, and pollutants of facilities in the SIC codes listed in Table 2-5 are similar to those of the OCPSF category. Table 2-5 shows the total TRI and PCS combined TWPE for each SIC code that is a potential new subcategory. The discharges for these SIC codes contribute a negligible percentage of the total OCPSF category TWPE. Consistent with the conclusions drawn during the 2004 detailed study [4], EPA found that the majority of these facilities do not discharge wastewater and a small number discharge significant TWPE. In addition, discharges associated with SIC code 2899 decreased over 40% from 2000 to 2002.

Table 2-5. Pollutant Loadings From Potential New Subcategories

SIC Code	SIC Description	Combined TRI and PCS 2002 TWPE	Percentage of Total Category TWPE
2842	Specialty Cleaning, Polishing	1,048	0.04
2844[1]	Perfumes, Cosmetics, Toilet Prep	6,909	0.30
2891	Adhesives and Sealants	199	0.008
2899	Chemicals & Chem Prep, NEC	59,070	2.53
5169	Chemicals and Allied Products	587	0.03

Source: *TRIReleases2002*; *PCSLoads2002*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Some operations at facilities that report SIC code 2844 may be subject to Pharmaceutical Manufacturing effluent limitations guidelines and standards, if they manufacture products containing FDA-regulated pharmaceutical active ingredients using certain manufacturing processes (see 40 CFR 439).
NEC - Not Elsewhere Classified.

E. Pollutants of Concern

TRI Discharges

During the 2004 detailed study of the OCPSF category [4], EPA identified three pollutants of concern based on high TWPE discharges reported in TRI for 2000: aniline, PACs, and dioxin and dioxin-like compounds. EPA reviewed the 2002 data to determine if these pollutants still drove the OCPSF TWPE and if there were any changes in the reported discharges. Table 2-6 presents the TRI releases of these pollutants for 2000 and 2002.

Table 2-6. Pollutants of Concern from 2004 Detailed Study of the OCPSF Category

	2000 TRI[1]			2002 TRI[1]		
Chemical Name	Number of Facilities Reporting Chemical	Total Pounds Released	TWPE	Number of Facilities Reporting Chemical	Total Pounds Released	TWPE
PACs[2]	7	2,021	940,703	8	46	4,613
Sodium nitrite	37	725,517	270,860	43	670,855	250,452
Dioxin and dioxin-like compounds[2]	8	0.0294	120,858	9	0.0225	152,200
Aniline[2]	25	85,637	120,397	21	46,820	321

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
[1]TRI releases do not include releases from VC facilities.
[2]During the 2004 detailed study, EPA selected dischargers of dioxin, PACs, and aniline for focused review.

For the 2004 analysis, EPA examined the highest pollutant discharges at the SIC code level and determined that:

- Facilities that reported PACs to TRI under SIC code 2865 all perform coal tar refining. As shown in Table 2-6, TRI releases of PACs decreased significantly from 2000 to 2002. Based on this, EPA concluded that coal tar refining was a declining industry.

- Facilities that reported aniline to TRI under SIC code 2865 either manufacture aniline or produce dyes. Most discharges are indirect. Based on contact with POTWs, EPA concluded that the aniline discharge was not interfering with POTW operations. Pounds of aniline discharged decreased 45% from 2000 to 2002.

- Facilities that reported releases of dioxin and dioxin-like compounds to TRI under SIC codes 2821 and 2869 were mainly manufacturers of ethylene dichloride, vinyl chloride monomer, and/or polyvinyl chloride, with some also having co-located chlor-alkali plants. For this review, EPA selected these operations for possible ELG revision and removed their discharges from the OCPSF category. The remaining eight dioxin dischargers are manufacturers of "other organics," which were not selected for revision. These eight facilities contribute all of the OCPSF dioxin discharges to TRI in 2000 in Table 2-6. For 2002, nine facilities reported dioxin discharges to TRI. Table 3-9 lists these facilities and the products they manufacture. Pounds of dioxin discharged decreased 23% from 2000 to 2002.

The specific pollutants driving the total TWPE estimate for this industry using the 2002 TRI data are similar to those identified in the previous study. Table 2-7 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 2-7. OCPSF Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI[1]				2000 TRI[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sodium Nitrite	1	43	670,855	250,452	2	39	725,674	270,918
Dioxin and Dioxin-like Compounds	2	9	0.022	152,200	3	8	0.029	120,858
Hexachloro-benzene	3	4	30	59,272	11	3	12	8,724
Chlorine	4	25	58,937	30,009	6	24	60,152	29,293
Dinitrotoluene	5	2	39,985	25,661	8	2	47,068	19,503

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Discharges from VC facilities are not included for 2000 or 2002.

Sodium nitrite and dioxin and dioxin-like compounds were large contributors to the TRI TWPE for both 2000 and 2002. Table 2-9 at the end of this section presents the dioxin releases reported to TRI for 2000 and 2002 and the products manufactured at each facility.

One facility contributed 41% of the sodium nitrite TWPE for the OCPSF Point Source Category. EPA contacted this facility and learned that their sodium nitrite releases reported to TRI are based on releases of nitrite. The facility calculated releases of nitrite by performing a nitrogen balance on their biological treatment system. The facility assumes that the difference in nitrogen concentration between the treatment system influent and effluent has been converted to nitrate, and then applies a nitrite/nitrate ratio to calculate the amount of nitrite released. This amount is reported to TRI as sodium nitrite. [5]

One facility contributed 77% of the chlorine TWPE for the OCPSF Point Source Category. EPA contacted this facility to determine the basis of estimate for chlorine releases. The facility stated that TRI-reported chlorine releases are based on the maximum concentration of free available chlorine. [6]

PCS Discharges

Table 2-8 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals. Hexachlorobenzene discharges accounted for 64% of the PCS TWPE for 2002. The dramatic increase from 2000 to 2002 in hexachlorobenzene TWPE is largely due to EPA correcting the TWF for this chemical[1]. Hexachlorobenzene, a priority pollutant, is regulated under OCPSF with limitations of 15 ug/L (monthly average) for direct dischargers with biological treatment and 196 ug/L (monthly average) for indirect dischargers and direct dischargers without biological treatment.

Table 2-8. OCSPF Point Source Category, Top PCS Chemicals for 2000 and 2002

	2002 PCS				2000 PCS[1]			
Chemical	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Hexachloro-benzene	1	16	560	1,090,485	13	19	477	22,355
Dioxin	2	1	0.00025	178,624	8	1	0.00011	46,394
Chlorine	3	60	171,029	87,082	2	62	192,045	93,522
Lead	4	40	29,313	65,661	11	47	11,563	25,901
Nitrogen, Nitrite Total as (N)	5	4	115,292	43,042	NA[2]	2	34,975	NA

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.
[2]The screening-level review for 2004 did not include a TWF for nitrite.

One facility reported nonzero discharges of dioxin to PCS for 2000 and 2002. The parameter measured by this facility is "chlorinated dibenzo-p-dioxin effluent." This facility is the only one that reported this parameter to PCS for 2000 or 2002.

[1]For the analysis of 2002 discharges, EPA made a correction to the database used to link PCS parameters to CAS numbers. As a result of this correction, the TWF that links to hexachlorobenzene changed form 46.9 to 1,948. [7]

F. Stakeholder Outreach

Overview of Comments on OCPSF Effluent Guidelines

Congress has directed the Office of Management and Budget (OMB) to prepare an annual report to Congress on the costs and benefits of Federal regulations. See 68 FR 64375 (February 20, 2004). In the 2004 draft report to Congress, OMB also solicited public comment for "nominations of promising regulatory reforms relevant to the manufacturing sector, particularly those relevant to the welfare of small and medium-sized enterprises." In particular, OMB requested suggestions on "specific reforms to rules, guidance documents or paperwork requirements that would improve manufacturing regulation by reducing unnecessary costs, increasing effectiveness, enhancing competitiveness, reducing uncertainty and increasing flexibility." [8]

In response to this solicitation two commenters suggested revisions to the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) effluent guidelines (40 CFR 414). The commenters suggest that OCPSF facilities are discouraged by existing OCPSF effluent guidelines from installing water re-use and reduction technologies and pollution prevention practices and are penalized by more stringent limits because NPDES permit writers recalculate lower mass-based permit limits based on the reduced wastewater flow rates when re-issuing NPDES permits. The commenters suggest that OCPSF facilities should be able to retain mass limits of the original stringency, established prior to wastewater flow reduction, when process wastewater flows are reduced for purposes of water conservation. The commenters also stated that if process wastewater flows are decreased for other reasons, the mass-based limits should continue to be adjusted pursuant to the current rule.

Current Effluent Guidelines Requirements

Following is a brief discussion of the current approach under the existing OCPSF effluent guidelines for direct dischargers. OCPSF effluent guidelines require NPDES permit writers to establish flow-normalized mass-based permit limits for OCPSF facilities (see e.g., 40 CFR

414.91(a). "Any point source subject to this subpart must achieve discharges not exceeding the quantity (mass) determined by multiplying the process wastewater flow subject to this subpart times the concentrations in the following table.") EPA explained how to calculate mass-based permit limits for OCPSF facilities in the proposed and final OCPSF effluent guidelines. See 48 FR 11828 (March 21, 1983), 52 FR 42566 (November 5, 1987), 58 FR 36890 (July 9, 1993) and the supporting OCPSF Technical Development Document [9]. Mass limits for NPDES permits are developed by multiplying the effluent guidelines limitations (when expressed as a concentration) by the permittee's actual long-term average daily flow rate (i.e., not the design flow rate). The objective in using the permittee's actual long-term average daily flow rate for this calculation is to develop a single estimate of the average daily flow rate, which can reasonably be expected to prevail during the next term of the permit. [10] Thus, it is necessary for the permit writer to determine the facility's actual wastewater flow, based on information supplied by the facility in the permit application.

Historically, EPA uses flow-normalized mass-based permit limits derived from concentration-based effluent guidelines and a reasonable measure of the permittee's actual long-term average daily wastewater flow rate because these limits encourage efficient water use, reduce pollutant discharges, and discourage attempts to meet concentration-based limits through use of dilution as a substitute for treatment. Facilities whose wastewater discharges are controlled by flow-normalized mass-based permit limits may elect to control their wastewater discharges through wastewater control technologies and pollution prevention practices or water conservation practices, or both. When facilities reduce their long-term average daily wastewater flow rates, they often maintain the same or better treatment efficiencies and pollutant concentrations in the discharged effluents, thus leading to reductions in the mass of pollutants discharged. For example, the record supporting the OCPSF effluent guidelines states: "[A] good activated sludge plant will usually discharge 20 to 40 mg/L of BOD whether the influent BOD concentration is 100 mg/L or 500 mg/L, if the plant is well designed and the design loadings are not exceeded. Similarly, activated carbon adsorption of an organic pollutant will usually produce a fairly constant effluent concentration over a wide range of influent concentrations as long as the contact time is adequate and the carbon capacity has not been exhausted." [11] Case studies demonstrating that reductions in wastewater flow may lead to commensurate reductions

in pollutant loadings are presented in the docket. [12] For example, one facility installed water conservation and re-use technologies and was able to reduce its water consumption by approximately 60 percent (20,000 gallons per day) and also reduce effluent discharges by approximately 85 percent.

Options for Promoting Water Conservation Through the Use of OCPSF Mass-based Limits

As part of the Agency's commitments in the President's Manufacturing Initiative, EPA began an evaluation of options for promoting water conservation through the use of mass-based limits as part of its 2005 annual review of existing effluent guidelines. [13] EPA strongly supports water conservation and encourages all sectors, including municipal, industrial, and agricultural, to achieve efficient water use. EPA does not intend for its regulations to present a barrier to efficient water use in any industrial sector.

EPA proposed, and is currently considering finalizing, greater flexibility for control authorities to convert concentration-based pretreatment standards to flow-normalized mass-based permit limits for indirect dischargers where necessary to facilitate adoption of water conservation technologies, provided there is no increase in the discharge of pollutants to the environment. See 64 FR 39563 (July 22, 1999). EPA requests comment on whether it should consider a rulemaking or other ways that would extend greater flexibility to permitting authorities to retain mass-based limits based on current wastewater flows for direct discharges where necessary to facilitate the prospective adoption of water conservation technologies. EPA is particularly interested in specific, detailed examples of situations where the adoption of water conservation technologies and practices have or have not made the achievement of new flow-normalized mass-based permit limits based on the reduced wastewater flow more difficult.

Request for Comment

EPA solicits comment on the suggested revisions to the OCPSF effluent guidelines raised by commenters. In particular, EPA requests comment on the likely advantages and

disadvantages of the commenters' suggestion (*i.e.*, allowing NPDES permittees to keep flow-normalized mass-based permit limits established at the beginning of the prior permit term before possible water re-use and reduction technologies and pollution prevention practices may have been implemented). EPA requests data to evaluate the costs, benefits, and impacts of water conservation practices advocated by commenters. EPA also solicits comment on whether the commenters' suggestion could have a broader application to other industrial categories with flow-normalized mass-based NPDES permit limits.

In particular, EPA requests paired influent and effluent regulated pollutant concentration and flow data where available, before and after implementation of the increased water conservation technologies and practices, to determine wastewater treatment performance (*i.e.*, percent pollutant removals) and the discharged effluent pollutant concentrations for OCPSF (and other) facilities that they believe may or may not have adversely impacted their ability to achieve existing effluent guidelines. EPA also solicits other data on these water re-use and reduction technologies and pollution prevention practices which may include:

- The main reasons why these technologies and practices were adopted, and whether these technologies and practices are transferrable to other facilities.
- Detailed process flow diagrams including wastewater flows from each industrial unit operation; typical pollutant concentration wastewater data from each industrial unit operation; descriptions of the water conservation technologies and practices employed at each of these industrial unit operations; and data and descriptions on whether these water conservation technologies and practices reduce the amount of wastewater volume or the mass of wastewater pollutants resulting from an industrial unit operation or both.
- Detailed descriptions of the wastewater treatment and the annual costs of operating wastewater treatment to maintain compliance with the effluent guidelines. Detailed descriptions of the capital and annual costs associated with implementing water conservation technologies and practices and any cost savings resulting from water conservation technologies and practices.

Additionally, EPA solicits estimates of the amount of increased water conservation and the number of facilities that would adopt more advanced water conservation technologies and practices as a sole result of: (1) implementing the commenters' suggestion; or (2) other factors (*e.g.*, limitations on water source availability, potential costs savings). EPA would be

particularly interested in specific, detailed examples of situations where the adoption of water conservation technologies and practices have or have not made the achievement of new flow-normalized mass-based permit limits based on the reduced wastewater flow more difficult for both direct and indirect dischargers. EPA solicits comment on how and when NPDES permit writers are calculating flow-normalized mass-based permit limits when facilities reduce their wastewater flow. EPA solicits comment on whether the commenters' suggestion is more or less relevant to certain industries, treatment technologies, or pollutants. If EPA were to address the commenters' suggestion, should any rule or guidance changes be limited to one or a few industries (*e.g.*, OCPSF) or more broadly applicable. EPA solicits comment on whether there are differences between direct and indirect dischargers that might suggest that different approaches are warranted.

Comments and data provided to EPA will be evaluated in the context of the CWA factors required for consideration of effluent guidelines. Were EPA to make any effluent guidelines revisions, they would need to be supported by an administrative record following an opportunity for public comment based on available data.

G. Issues Identified and Additional Review

EPA's estimate of the toxicity of OCPSF Point Source Category discharges is due to high TWPE from both TRI- and PCS-reported discharges. The largest contributors to TRI TWPE are sodium nitrite and dioxin. The PCS TWPE is driven by discharges of hexachlorobenzene, which is also a top pollutant in the 2002 TRI data. In addition, as explained in Section IX.G of the Federal Register notice announcing the Preliminary 2006 Effluent Guidelines Program Plan (see http://www.epa.gov/guide/plan.html), as part of its 2005 review of this category, EPA began an evaluation of options for promoting water conservation through the use of mass-based limits for this category. Further review of this category may focus on the following issues:

- Analysis of the hexachlorobenzene dischargers, including potential process sources, review of monthly measurement data in PCS, methods used to estimate TRI-reported discharges, and verification of annual loads;

- Analysis of a single dioxin reporter in PCS, including the method of analysis for chlorinated dibenzo-p-dioxin effluent;

- Review of dioxin reporters in TRI (see Table 2-9) to determine potential process sources and methods used to estimate reported discharges;

- Further review of other top pollutants in TRI and PCS, including methods of estimation and reported concentrations; and

- Further evaluation of options for promoting water conservation through mass-based limit.

H. References

1. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

3. U.S. EPA. *Product and Product Group Discharges Subject to Effluent Limitations and Standards for the Organic Chemicals, Plastics, and Synthetic Fibers Point Source Category - 40 CFR 414*. Washington, D.C. 2005.

4. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA 821-R-04-014. Washington, D.C. August 2004. Docket OW-2003-0074. DCN 01088A01.

5. Telephone conversation with Dr. Wayne Appleton of DuPont, Belle, WV, and Meghan Kandle of ERG. "Sodium Nitrite Discharges Reported to TRI." May 23, 2005.

6. Telephone conversation with Jeff Barnwell of Sterling Chemical, Texas City, TX, and Meghan Kandle of ERG. "Chlorine Discharges Reported to TRI." May 23, 2005.

7. U.S. EPA. *2005 Screening-Level Analysis Report*. Washington, D.C. August 2005. Docket OW-2004-0032. DCN 02173.

8. Office of Management and Budget. *2004 Draft Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities*. Washington, D.C. 2004. Available online at: http://www.whitehouse.gov/omb/inforeg/draft_2004_cbreport.pdf.

9. U.S. EPA. *Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemical, Plastics, and Synthetic Fibers Point Source Category - Final*. EPA 440-1-87-009. Washington, D.C. October 1987. Page IX

10. U.S. EPA. *NPDES Permit Writers' Manual*. EPA-833-B-96-003. Washington, D.C. December 1996.

11. U.S. EPA. *Development Document for Effluent Limitations Guidelines and Standards for the Organic Chemical, Plastics, and Synthetic Fibers Point Source Category - Proposed*. EPA 440-1-83-009-b. Washington, D.C. February 1983. Page IX-3.

12. Memorandum to Public Record for the 2006 Effluent Guidelines Program Plan EPA Docket Number OW-2004-0032 (www.epa.gov/edockets/) from Carey Johnston, U.S. EPA. "Options for Promoting Water Conservation Through the Use of Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) Mass-based Limits". August 5, 2005. Docket OW-2004-0032-0029. DCN 02100.

13. Office of Management and Budget. *Regulatory Reform in of the U.S. Manufacturing Sector*. Washington, D.C. March 9, 2005. Available online at: http://www.whitehouse.gov/omb/inforeg/reports/manufacturing_initiative.pdf.

14. Lyondell Chemical Company Web Site. July 18, 2005. Available online at: http://www.lyondell.com.

Table 2-9. Dioxin Discharges Reported to TRI by OCPSF Facilities

TRI ID	Facility Name	Location	2000 TRI			2002 TRI			Products
			Pounds	TWPE	Basis of Estimate[1]	Pounds	TWPE	Basis of Estimate[1]	
77536FNLND1818B	Atofina Petrochemicals Inc.	LaPorte, TX	0.00017	1,162	O	0.0031	57,489	O	Polypropylene [4]
B8108VLSOL11OOW	Velsicol Chemical Corp.	Memphis, TN	0.0091	16,872		0.0039	37,068		Benzoate esters, polymerics, and monomerics [4]
48667THDWCMICHI	Dow Chemical Midland Ops	Midland, MI	0.013	52,421	O	0.0095	25,502	M	Wide range of chemical products [4]
70669VSTCHOLDSP	Sasol NA Lake Charles Complex	Westlake, LA	0.00044	2,974	O	0.00088	17,183	M	Alcohols, alumina, ethylene, linear alkyl benzene, solvents, paraffins, ethoxylates [4]
06492MRCNCSOUTH	Cytec Industries Inc.	Wallingford, CT	0.0066	44,092	O	0.00020	13,460	O	Aliphatic isocyanate resins, polyurethane, meta diisopropenybenzene, adhesion polymers, formaldehyde resins, crosslinking monomers, aerosol surfactants, coating chemicals [4]
24124HCHSTRT460	Celanese Acetate Celco Plant	Narrows, VA	0.000030	200	O	0.000030	941	O	Cellulose acetate, flake, filament, and tow [4]
08023DPBNTCRT130	DuPont Chambers Works	Deepwater, NJ	0.00044	2,939	O	0.0023	334	O	Fluorochemicals, elastomers, Hytrel polyester elastomer [4]
70669RCCHM900A1	Lyondell Chemical Co.[2]	Westlake, LA	NA[3]	NA[3]	NA[3]	0.0025	219	M	Toluene diisocyanate [14]
21226VSTCH3441F	Sasol NA Inc.	Baltimore, MD	0.000022	147	M	0.000037	3.26	O	Aluminum chloride, linear alkyl benzene, muriatic acid (hydrochloric acid), specialty alkylates. [4]
	Total		**0.029**	**120,858**		**0.023**	**152,200**		

Source: *TRIReleases2002*; *TRIReleases2000_v4*.

[1]M - Monitoring data/measurements and O - Other approaches (e.g., engineering calculations).

[2]Lyondell Chemical was not included in OCPSF Focus Group 3 for the 2004 detailed study because the facility did not report dioxin to TRI until 2001.

[3]Facility did not report dioxin releases to surface water to TRI for 2000.

3.0 PETROLEUM REFINING (40 CFR 419)

In 2004, EPA conducted a detailed study of the Petroleum Refining Point Source Category; see 69 FR 53714 (Sept. 2, 2004). EPA found that dioxins and PACs are the pollutants primarily responsible for the petroleum refining industry's large toxic-weighted pollutant discharge. EPA found that petroleum refining facilities may produce dioxins in high concentrations during catalytic reforming and catalyst regeneration operations. However, based on the information available at that time, EPA concluded that dioxins are discharged infrequently and at concentrations close to the analytical minimum level. EPA also found that there is little evidence that PACs are present in concentrations above the detection limit in refinery wastewater discharges. Therefore, EPA determined that, based on the information available, there was no need to revise the effluent guidelines for the Petroleum Refining Point Source Category at that time.

This section describes the results of EPA's 2005 preliminary review of the Petroleum Refining Point Source Category.

A. Industry Description

The petroleum refining industry includes facilities that produce gasoline, kerosene, distillate fuel oils, residual fuel oils, and lubricants through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, cracking, or other processes. This industry is represented by one SIC code, 2911, as shown in Table 3-1; however, EPA is considering including operations from four other SIC codes as new subcategories of the Petroleum Refining Point Source Category; see Section D, Potential New Subcategories, for more detail. Because the U.S. Economic Census reported data by the NAICS code and TRI and PCS reported data by SIC code, EPA reclassified the NAICS data under the equivalent SIC code to standardize the results. Note that because SIC code 5171 does not translate directly to a NAICS code, EPA could not determine the number of facilities reported for SIC code 5171 for the 2002 U.S. Economic Census data.

Table 3-1. Number of Petroleum Refining Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2911 Petroleum Refining	199	163	153	242	175	159
Potential New Subcategories						
2992 Lubricating Oils and Greases	407	144	21	414	98	23
2999 Products of Petroleum and Coal, NEC	74	22	17	66	20	19
4612 Crude Petroleum Pipelines	271	0	23	382		22
5171 Petroleum Bulk Stations and Terminals	NA[3]	599	446	9,104	503	498
Total for Potential New Subcategories	**>752**	**765**	**660**	**9,966**	**621**	**721**

Source: U.S. Economic Census, 2002 and 1997 [1, 2]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]Poor bridging between NAICS and SIC codes.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the petroleum refining industry are regulated under 40 CFR Part 419: Petroleum Refining Point Source Category. This category consists of five subcategories. EPA first promulgated effluent guidelines for the Petroleum Refining Point Source Category in 1985, including BPT, BAT, BCT, PSES, NSPS, and PSNS for all subcategories. EPA established numerical limitations for the toxic pollutants ammonia as nitrogen, hexavalent chromium, phenolic compounds, sulfide, and total chromium in at least one subcategory. For more information on the existing regulations for the Petroleum Refining Point Source Category, see the 2004 Technical Support Document. [3]

C. Results of Screening-Level Analysis

Table 3-2 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting TWPE discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. The discharges in Table 3-2 include loadings

from facilities in SIC codes EPA determined are potential new subcategories of the Petroleum Refining Point Source Category. Between 2000 and 2002, the number of facilities reporting to PCS increased by 15 (14%), while the number reporting to TRI increased by 19 (6%). While the TRI and the PCS TWPE are both large, the TRI TWPE is more than three times larger than the PCS TWPE for both 2000 and 2002. As a result of the high TRI and PCS TWPE, the Petroleum Refining category ranked fourth in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 3-2. Petroleum Refining Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting Nonzero TWPE	Total Pounds Discharged	TWPE
2002 TRI	352	18,512,185	503,802
2002 PCS	107	7,606,670,158	166,045
2002 Total		**7,625,182,343**	**669,847**
2000 TRI	333	19,961,016	993,911
2000 PCS	107	1,449,784,899	198,994
2000 Total		**1,469,745,915**	**1,192,905**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA reviewed industries with SIC codes not clearly subject to existing ELGs. EPA concluded the processes, operations, wastewaters, and pollutants of facilities in the SIC codes listed in Table 3-3 are similar to those of the Petroleum Refining category. Table 3-3 shows the total TRI and PCS combined TWPE for each SIC code that is a potential new subcategory. As shown in the table, the discharges for the potential new subcategory SIC codes are a negligible percentage of the total Petroleum Refining category TWPE. Consistent with the conclusions drawn during the 2004 detailed study [3], EPA found that large numbers of these facilities discharge no wastewater and a small number of facilities discharge significant TWPE.

Table 3-3. Pollutant Loadings From Potential New Subcategories

SIC Code	SIC Description	Combined TRI and PCS 2002 TWPE	Percentage of Total Category TWPE
2992	Lubricating Oils and Greases	3,836	0.57
2999	Prod of Petroleum & Coal, NEC	1,915	0.29
4612	Crude Petroleum Pipelines	247	0.04
5171	Petroleum Bulk Stations & Terminals	1,551	0.23

Source: *TRIReleases2002*; *PCSLoads2002.*
NEC - Not Elsewhere Classified.

E. Pollutants of Concern

TRI Discharges

Table 3-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 3-4. Petroleum Refining Point Source Category, Top TRI Chemicals for 2000 and 2002

	2002 TRI				2000 TRI			
Chemical Name	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Dioxin and Dioxin-Like Compounds[1]	1	17	0.011	295,598	1	17	0.021	723,818
PACs	2	61	3,309	88,473	2	25	528	141,488
Sodium Nitrite	3	3	121,788	45,468	5	3	41,838	15,619
Mercury and Mercury Compounds	4	68	124	14,465	6	20	101	11,768
Lead and Lead Compounds	5	97	5,644	12,643	7	15	1,634	3,660

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]The dioxin value for TRI 2000 was recalculated using updated TWF values for the 17 congeners and differ from values in the Technical Support Document for the 2004 Effluent Guidelines Program Plan. The value in the table can be seen in the Memorandum: Revisions to TWFs for Dioxin and its Congeners and Recalculated TWPEs for OCPSF and Petroleum Refining. [4]

Discharges of dioxin and PACs contributed the majority of the TWPE for both 2000 (87%) and 2002 (76%), according to the TRI data. The pounds of dioxin reportedly released by petroleum refineries in 2002 is about half of the amount reportedly released in 2000. The PACs TWPE decreased from 2000 to 2002, even though the pounds reportedly released increased, due to a decrease in the TWF assigned by EPA.. [3] Metals discharged by petroleum refineries account for 8.7% of the total TRI TWPE.

Dioxins. As was the case with the 2004 detailed study, EPA found that most petroleum refineries do not monitor for dioxins. Only 17 refineries reported dioxin discharges to TRI in 2002. Fifteen of these 17 refineries also reported dioxin discharges to TRI in 2000. Table 3-5, at the end of this section, lists the petroleum refineries reporting dioxin discharges to TRI 2002, the reported 2000 and 2002 discharges, the basis of estimate for the discharge, and any information collected from the facilities. The majority of the discharge loads are estimated as flow multiplied by half the detection limit, or through the use of industry-derived emission factors. Only 3 of the 17 dioxin discharges reported for 2002 are based on analytical data with measurements above the detection limit. Conoco Phillips (Wilmington, CA) measured and detected all 17 dioxin congeners being discharged from the catalytic reformer regeneration unit, which EPA believes is a source of dioxin discharges. This facility has a wastewater treatment facility, and the wastewater is then transferred to a POTW. [5] BP Toledo (Oregon, OH) sampled its effluent once in September 2000. The facility detected nine congeners, including the most toxic form, 2,3,7,8-TCDD; however, no dioxins were detected above the lower calibration limit. [6] Tesoro Northwest (Anacortes, WA) measured its effluent four times between 2000 and 2001, and each sample was analyzed by two independent analytical laboratories. The facility detected between 6 and 14 dioxin congeners in its final effluent, several of which were detected below the lower calibration limit. The most toxic congener, 2,3,7,8-TCDD, was detected by one laboratory for one of the samples. [7] The pounds of dioxin reported by petroleum refineries decreased by about 50% and the TWPE decreased by about 60% from 2000 to 2002. This is due to changes in the pounds reported and the congeners reported released by refineries.

PACs. Thirty-nine refineries reported PACs discharges to TRI in 2002. Twenty of the 39 refineries also reported PACs discharges to TRI in 2000. One facility, Flint Hills Resources

(Corpus Christi, TX), accounts for 54% of the PACs TWPE. EPA contacted Flint Hills and learned that they did not detect any PACs in their refinery effluent. In 2002, their reported PACs discharge was based on ½ the detection limit times the effluent flow. [8] Table 3-6, at the end of this section, lists the petroleum refineries reporting PACs discharges to TRI for 2002, the reported 2000 and 2002 discharges, the basis of estimate for the discharge, and any information collected from the facilities. The pounds of PACs released by petroleum refineries in 2002 increased by a factor of about six compared to the amount released in 2000; however, the TWPE released in 2002 decreased compared to 2000. The increase in the amount of pounds released is due to an increase in the number of facilities; there are 19 more facilities that reported PACs in 2002 than in 2000, including Flint Hills. The decrease in the TWPE released is due to a decrease in the calculated petroleum refining PAC TWF, which decreased from 230.5 to 26.3. [3] EPA has verified that one refinery, Marathon Ashland (Detroit, MI), did detect five PACs above the detection limit in the refinery's final effluent. Other than this one facility, there is little evidence that PACs are present in concentrations above the detection limit and there is no obvious source of PACs releases to refinery wastewaters.

Metals. The total metals discharged in TRI 2002, based on TWPE, is almost half as much as the metals discharged in TRI 2000. One reason for this change is that the TWF for vanadium decreased from 0.62 to 0.035. Vanadium contributed 66% of the TRI metals TWPE in 2000, but only contributes 8.1% of the TRI metals TWPE in 2002, even though the pounds of vanadium released increased. The TWPE for lead is almost 3.5 times larger in 2002 than 2000; however, the number of facilities reporting lead in 2002 increased by a factor of almost 5. Other metals reported in TRI by petroleum refineries did not show any significant increases or decreases in TWPE. In the 2004 detailed study, EPA concluded that the concentrations of metal pollutants in refinery wastewaters is at or near treatable levels, leaving little to no opportunity to reduce metals discharges through conventional end-of-pipe treatment. EPA will continue to review the reported metals discharges for 2002.

PCS Discharges

Table 3-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals. Sulfide accounted for 50% of the 2000 and 2002 PCS TWPE. The total silver discharge was 12 times larger in 2002 than in 2000. This increase is due to one facility, Premcor Refining Group (Port Arthur, TX), that discharged zero pounds of silver in 2000, but 752 pounds in 2002. EPA is in the process of contacting this facility.

Table 3-5. Petroleum Refining Point Source Category, Top PCS Chemicals for 2000 and 2002

	2002 PCS				2000 PCS[1]			
Chemical	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sulfide	1	77	29,851	83,626	1	72	36,048	100,954
Chlorine	2	17	45,011	22,918	2	15	52,267	25,453
Fluoride	3	12	406,609	14,231	3	11	462,807	16,198
Silver	4	7	769	12,669	17	5	65	1,073
Selenium	5	17	7,560	8,477	4	18	8,068	9,041

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.

Sulfide. Sulfide comprised 50% of the PCS TWPE for both 2000 and 2002. As mentioned in Section B, sulfide is currently regulated by the petroleum refining effluent guidelines. Petroleum refineries are currently achieving final effluent concentrations less than baseline values and less than existing limits at 40 CFR Part 419. EPA will continue to review the reported sulfide discharges for 2002 compared to existing effluent guidelines and permit limits.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of the Petroleum Refining category discharges is largely due to the TRI-reported discharges of dioxins and PACs. Further review of this category may focus on the following issues:

- Additional analysis of the TRI-reported dioxin discharges, including methods used to estimate reported discharges, and process sources;
- Additional analysis of the TRI-reported PACs discharges, such as the methods used to estimate reported discharge, and process sources;
- Additional analyses of the TRI-reported metal discharges, such as the methods used to estimate reported discharges, and process sources;
- Additional analysis of the TRI-reported sodium nitrite discharges, such as the methods used to estimate reported discharge, and process sources;
- Additional analysis of the PCS-reported sulfide and silver discharges, such as process sources, review of monthly measurement data, and concentrations discharged; and
- Pollution control technologies available to reduce dioxin, PACs, and sulfide discharges.

G. References

1. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

2. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

3. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA-821-R-04-014. Washington, D.C. August 2004. Docket OW-2003-0074. DCN 01088A01.

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5. Telephone conversation with Ernie Hamann and Brian Christlieb of Conoco Phillips, Wilmington, CA, and TJ Finseth of ERG. "Dioxin Releases from Conoco Phillips Wilmington CA to TRI 2002." June 13, 2005.

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7. Telephone conversation with Rebecca Spurling of Tesoro Northwest Co., Anacortes, WA, and TJ Finseth of ERG. "Tesoro Northwest Dioxin Discharges in TRI 2002." June 29, 2005.

8. Telephone conversation with Jan Golden of Flint Hills Resources, Corpus Christi, TX, and TJ Finseth of ERG. "Flint Hills PACs Discharges in TRI 2002." May 23, 2005.

9. Telephone conversation with Reed Marton of Conoco Phillips Lake Charles Refinery, Westlake, LA, and TJ Finseth of ERG. "Conoco Phillips Dioxin and PACs Discharges in TRI 2002 and Sulfide Discharge in PCS 2002." May 20, 2005.

10. Pierce, D.W. 2005. Chevron Dioxin and PACs Wastewater Discharges. Letter communication to T.J. Finseth (July).

11. Telephone conversation with David Beener of Exxonmobil Joliet Refinery, Channahon, IL, and TJ Finseth of ERG. "Exxonmobil Joliet Dioxin Discharges in TRI 2002." May 20, 2005.

12. Telephone conversation with Honor Sheard of Marathon Ashland, Detroit, MI, and TJ Finseth of ERG. "Marathon Ashland, Detroit, MI, Dioxin and PACs Discharges." February 3, 2005.

13. Gulf Coast Waste Disposal Authority (GCA). 2003 Peak Performance Award Application.

14. Telephone conversation with Toni Bennett of Calcasieu, Lake Charles, LA, and TJ Finseth of ERG. "Calcasieu PACs Discharges in TRI 2002." May 31, 2005.

Table 3-6. 2000 and 2002 Dioxin Discharges Reported to TRI By Petroleum Refineries

TRI ID Number	Refinery	Refinery Location	2000 TRI			2002 TRI			Information Collected by EPA on Dioxin Releases Reported to TRI in 2000 and 2002
			Grams[1]	TWPE	Basis of Estimate[2]	Grams[1]	TWPE	Basis of Estimate [2]	
98221SHLLLWESTM	Tesoro Northwest Co.	Anacortes, WA	5.199947	19,264	M	1.6329	45,504	M	Facility collected two samples of final effluent in both 2000 and 2001. Several congeners detected above the detection limit. [7]
77590MRTHNFOOTO	Marathon Ashland Petroleum LLC	Texas City, TX	2	54,811	O	0.00435	301	O	No comment.
70669CNCLKOLDSP	Conoco Lake Charles Refinery	Westlake, LA	0.5392	14,777	E	0.5392	48,580	O	Estimate based on emission factors. [9]
94802CHVRN841ST	Chevron Prods. Co. Richmond Refinery	Richmond, CA	0.339997	6,785	O	0.76	19,229	O	Based on detection limit. Two samples analyzed (no values above detection limit). [3]
90245CHVRN324WE	Chevron USA Prods. Co.	El Segundo, CA	0.329997	5,477	M	0.109	11,191	M	Wastewater effluent was analyzed for dioxins in 2002. None of the congeners were detected. Estimate based on ½ the detection limit. [10].
43616SHLCM4001C	BP Oil Co. Toledo Refinery	Oregon, OH	0.285997	14,188	M	0.36	51,209	M	One set of samples collected and analyzed: 9 congeners above the detection limit. [6]
07036XXN 1400P	Bayway Refining Co.	Linden, NJ	0.253997	10,322	M	0.25	5,229	M	Based on ½ the detection limit. Treated effluent samples are all ND. [3]
74603CNCPN1000S	Conoco Inc. Ponca City Refinery	Ponca City, OK	0.180878	4,957	O	0.44452	30,803	O	Estimated discharge using nonrefinery-specific data for dioxin in petroleum products. [3]
59101CNCBL401SO	Conoco Inc. Billings Refinery	Billings, MT	0.161558	4,428	O	-	-	-	Estimated discharge using nonrefinery-specific data for dioxin in petroleum products. [3]
08066MBLLCBILLI	Valero Refining Co. New Jersey	Paulsboro, NJ	0.089999	2,467	O	0.088	6,097	O	Reported wastewater release was 0.0002 grams. [3]
00851HSSLVLIMET	Hovensa LLC	Christiansted, VI	0.069341	1,900	C	0.0335	2,321	C	Based on EPA discharge factors. [3]
80022CNCDN5801B	Conoco Denver Refinery	Denver, CO	0.059999	1,644	O	0.095	6,583	E	Internally generated factors per corporate policy. [3]

Table 3-6 (Continued)

TRI ID Number	Refinery	Refinery Location	2000 TRI			2002 TRI			Information Collected by EPA on Dioxin Releases Reported to TRI in 2000 and 2002
			Grams[1]	TWPE	Basis of Estimate[2]	Grams[1]	TWPE	Basis of Estimate [2]	
39567CHVRNPOBOX	Chevron Prods. Co. Pascagoula Refinery	Pascagoula, MS	0.035	959	O	0.086	3,677	O	Facility used monitoring data collected in 2001 from the catalytic reformer units to develop an emission factor. [10]
62454MRTHNMARAT	Marathon Ashland Petroleum LLC	Robinson, IL	0.03	822	O	0.04	2,772	O	No comment.
00654PHLPSPHILI	Chevron Phillips Chemical Puerto Rico	Guayama, PR	0.00218	60	E	-	-	-	No comment.
70602CTGPTHIGHW	Citgo Petroleum Corp	Lake Charles, LA	0.0016	44	E	0.002565	178	E	Based on EPA discharge factors. [3]
79905CHVRN6501T	Chevron USA El Paso Refinery	El Paso, TX	0.019	512	O	-	-	-	Based on ½ the detection limit. [3]
90748NCLLS1660W	Conocophillips Co. La Refinery Wilmington Plant	Wilmington, CA	0.054		M	0.277	22,320	M	Facility used monitoring data collected from catalytic reformer discharge after regeneration. The facility detected all 17 congeners. [5]
60434MBLJLINTER	Exxonmobil Oil Corp. Joliet Refinery	Channahon, IL	-	-	O	0.434	39,602	O	Facility had monitoring data reporting TCDD as not detected. Discharge estimated based on ½ detection limit. [11]
Refineries Not in EPA's Analysis: No Discharge of Dioxins									
48217MRTHN1300S	Marathon Ashland Petroleum LLC	Detroit, MI	1.37	-	NA[3]	1.37	-	O	Facility reported incorrect number: Discharge changed to zero. Refinery submitted TRI correction form for both 2000 and 2002. [12]

Source: *TRIReleases2002*; Memorandum: Revisions to TWFs for Dioxin and its Congeners and Recalculated TWPEs for OCPSF and Petroleum Refining [4]

[1]For indirect dischargers, the mass shown is the mass transferred to the POTW that is ultimately discharged to surface waters, accounting for an estimated 83% removal of dioxins by the POTW.

[2]Refineries reported basis of estimate in 2000 TRI as: M - Monitoring data/measurements; C - Mass balance calculations; E - Published emission factors; and O - Other approaches (e.g., engineering calculations).

[3]No basis of estimate was reported.

Table 3-7. 2000 and 2002 PACs Discharges Reported to TRI By Petroleum Refineries

TRI ID	Refinery	Refinery Location	2000 TRI			2002 TRI			Information Collected by EPA on 2000 and 2002 PAC Discharge Estimates
			Pounds[1]	TWPE	Basis of Estimate[2]	Pounds[1]	TWPE	Basis of Estimate[2]	
77592TXSCTLOOP1	Valero Refining Co. Texas	Texas City, TX	64	14,748	M	69	1,813	M	Estimate based on ½ the detection limit. One sample contained PACs. [3]
94572NCLSNOLDHI	Tosco San Francisco Refinery	Rodeo, CA	57	13,135	M	8	210	M	Estimate based on ½ the detection limit. [3]
70037LLNCRHIGHW	Tosco Refining Co. Alliance Refinery	Belle Chasse, LA	40	9,217	O	31	815	M	Estimate based on ½ the detection limit. [3]
70669CNCLKOLDSP	Conoco Lake Charles Refinery	Westlake, LA	22	5,069	O	31	815	O	Estimate based on emission factors. [9]
96707CHVRN91480	Chevron Prods. Co. Hawaii Refinery	Kapolei, HI	20	4,609	M	277	7,279	M	Estimate based on ½ the detection limit. PACs Sampled from 2000 NPDES Permit renewal were all non-detect. [10]
99611TSRLSMILE2	Tesoro Alaska Co. Kenai Refinery	Kenai, AK	19	4,378	O	19	497	O	No change to estimate.
39567CHVRNPOBOX	Chevron Prods. Co. Pascagoula Refinery	Pascagoula, MS	17	3,917	O	110	2,891	O	Estimates based on EPA's BAT effluent guidelines estimate for PACs. [10]
62454MRTHNMARAT	Marathon Ashland Petroleum L.L.C.	Robinson, IL	15	3,456	O	21	552	O	No comment.
62084SHLLLRTE11	Tosco Wood River Refinery	Roxana, IL	10	2,304	O	9	234	O	Estimate based on ½ the detection limit. [3]
74603CNCPN1000S	Conoco Inc. Ponca City Refinery	Ponca City, OK	9	2,074	O	8	210	O	Refinery estimated discharge using API data for PACs in petroleum products. [3]
84116CHVRN2351N	Chevron USA Prods. Co.	Salt Lake City, UT	8	1,843	O	59	1,550	M	No comment.
80022CNCDN5801B	Conoco Denver Refinery	Commerce City, CO	5	1,152	O	9	237	O	Estimate based on internally generated factors. [3]
70047TRNSM14902	Orion Refining Corp.	New Sarpy, LA	4	922	C	9	237	O	Estimate based on ½ the detection limit. [3]
90744TXCRF2101E	Equilon Enterprises L.L.C. Los Angeles Refining	Wilmington, CA	3.2	731	O	3.2	83	NA[3]	No comment.

Table 3-7 (Continued)

TRI ID	Refinery	Refinery Location	2000 TRI			2002 TRI			Information Collected by EPA on 2000 and 2002 PAC Discharge Estimates
			Pounds[1]	TWPE	Basis of Estimate[2]	Pounds[1]	TWPE	Basis of Estimate[2]	
00851HSSSVLIMET	Hovensa L.L.C	Christiansted, VI	2	461	O	-	-	-	Discharge from accidental spill; monitoring data indicate zero discharge of PACs. [3]
77017LYNDL12000	Lyondell-Citgo Refining L.P.	Houston, TX	175	40,360	NA[3]	163	4,287	M	Indirect discharger - PACs were not detected in the POTW, Gulf Coast Waste Authority, effluent. [13]
77506CRWNC111RE	Crown Central Petroleum Corp. Houston Refinery	Pasadena, TX	7	1,645	NA[3]	5	121	NA[3]	Indirect discharger - PACs were not detected in the POTW effluent. [3]
48217MRTHN1300S	Marathon Ashland Petroleum L.L.C.	Detroit, MI	6	1,374	NA[3]	7	180	NA[3]	Facility detected five PACs in final effluent. [12]
79905CHVRN6501T	Chevron USA El Paso Refinery	El Paso, TX	4	933	NA[3]	2	46	NA[3]	Estimate based on ½ the detection limit. [3]
70606CLCSRWESTE	Calcasieu	Lake Charles, LA	1.1*		M	191	5,019	O	Estimate based on emission factors. [14]
67042TXCRF1401S	Frontier	El Dorado, KS	1.1*		O	1.0	26	O	Not in *TRIReleases2000_v4*: 1.1 lb/yr discharge PACs based on discharges at similar refinery reported to TRI. [3]
78410KCHRFSUNTI	Flint Hills Resources	Corpus Christi, TX	-	-	-	1,771	46,538	M	Estimate based on ½ the detection limit. Facility did not detect any PACs in final effluent. [8]
18 other facilities that reported PAC discharges in 2002, but not in 2000			-	-	-	459	12,058		

Source: *TRIReleases2002; TRIReleases2000_v4*

[1]For indirect dischargers, the mass shown is the mass transferred to the POTW that is ultimately discharged to surface waters, accounting for an estimated 92.64% removal of PACs by the POTW.

[2]Refineries reported basis of estimate in 2000 TRI as: M - Monitoring data/measurements; C - Mass balance calculations; E - Published emission factors; and O - Other approaches (e.g., engineering calculations).

[3]No basis of estimate was reported.

*The facility discharge is not in *TRIReleases2000*; however, industry commented that 1.1 pounds of PACs were reported to TRI in 2000 as discharged.

4.0 PESTICIDE CHEMICALS (40 CFR 455)

This section describes the results of EPA's 2005 preliminary review of the Pesticide Chemicals Point Source Category.

A. Industry Description

The pesticide chemicals industry includes facilities that manufacture pesticide active ingredients and formulate, package, and repackage pesticide products. Although facilities in this industry primarily fall into SIC code 2879, pesticide operations might also occur at facilities that manufacture organic and inorganic chemicals and pharmaceuticals. These facilities might be classified under different SIC codes. Due to the high toxicity associated with most pesticide discharges, EPA identified the discharges of specific pesticides at these combination facilities and included them in the Pesticide Chemicals category review under the current planning cycle. The SIC codes from these other categories are marked with a "P" to indicate that only the pesticide discharges from facilities reporting that SIC code were included in the Pesticide Chemicals Point Source Category review. Table 4-1 presents these SIC codes.

Table 4-1. Number of Pesticide Chemicals Facilities

SIC Code	Point Source Category	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2879	Pesticide Chemicals	239	124	29	260	35	16
2048P	None[3]	NA[4]	1	0	NA[4]	–[5]	–[5]
2812P	Inorganic Chemicals Manufacturing		1	7			
2816P	Inorganic Chemicals Manufacturing		0	1			
2821P	OCPSF		3	66			
2823P	OCPSF		1	2			
2824P	OCPSF		0	6			
2834P	Pharmaceuticals Manufacturing		1	0			
2842P	OCPSF (CFPR)		1	0			
2844P	OCPSF (CFPR)		0	1			

Table 4-1 (Continued)

SIC Code	Point Source Category	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2865P	OCPSF	NA[5]	2	24	NA[5]	–[5]	–[5]
2869P	OCPSF		13	85			
2891P	OCPSF (CFPR)		1	0			
2899P	OCPSF (CFPR)		6	5			
		239	**154**	**199**	**260**		

Source: U.S. Economic Census, 2002 and 1997 [1, 2]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]SIC 2048 consists of establishments that manufacture prepared feeds and feed ingredients for animals. One facility reported pesticide discharges that are included in the Pesticide Chemicals Point Source Category.
[4]Census totals cannot be separated between pesticide operations and other manufacturing operations.
[5]Pesticide discharges reported to PCS and TRI in 2000 from SIC codes other than 2879 were not included in the 2004 review of the Pesticide Chemicals Point Source Category.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the pesticide chemicals industry are regulated under 40 CFR Part 455: Pesticide Chemicals Point Source Category. This category consists of five subcategories, as shown in Table 4-2 with a description of each subcategory's applicability.

Table 4-2. Applicability of Subcategories in the Pesticide Chemicals Point Source Category

Sub-part	Subpart Title	Subpart Applicability
A	Organic Pesticide Chemicals Manufacturing	Discharges resulting from the manufacture of organic and organo-tin pesticide active ingredients. Intermediates used to manufacture the active ingredients and active ingredients used solely in experimental pesticides are excluded from coverage.
B	Metallo-Organic Pesticide Chemicals Manufacturing	Discharges resulting from the manufacture of metallo-organic pesticide active ingredients containing mercury, cadmium, arsenic, or copper. Intermediates used to manufacture the active ingredients are excluded from coverage.

Table 4-2 (Continued)

Sub-part	Subpart Title	Subpart Applicability
C	Pesticide Chemicals Formulating and Packaging	Discharges resulting from all pesticide formulating, packaging, and repackaging operations except repackaging of agricultural pesticides performed at refilling establishments. Formulation, packaging, and/or repackaging of sanitizer products (including pool chemicals), microorganisms, inorganic wastewater treatment chemicals, specified mixtures, and liquid chemical sterilant products as defined in the Federal Food, Drug and Cosmetic Act and in the Federal Insecticide, Fungicide and Rodenticide Act is excluded. Also excluded is the development of new formulations of pesticide products and the associated efficacy and field testing at on-site or stand-alone research and development laboratories where the resulting pesticide product is not produced for sale.
D	Test Methods for Pesticide Pollutants	Analytical test methods that must be used to determine the concentration of pesticide active ingredients in the wastewater.
E	Repackaging of Agricultural Pesticides Performed at Refilling Establishments	Discharges resulting from all repackaging of agricultural pesticides performed by refilling establishments whose primary business is wholesale or retail sales; and where no pesticide manufacturing, formulating, or packaging occurs. Does not apply to wastewater discharges from custom application or custom blending and repackaging of microorganisms or certain specified mixtures, or non-agricultural pesticide products.

Source: *Pesticide Chemicals Point Source Category - 40 CFR 455*.

The effluent guidelines for the Pesticide Chemicals Point Source Category were first promulgated in 1978 for Subparts A and B. EPA last revised the effluent guidelines for the pesticide chemicals manufacturing industry (Subparts A, B, and D) in 1998 [3, 4] and for pesticide chemicals formulating, packaging, and repackaging (Subparts C and E) in 1996. [5] In addition to BPT, BAT, BCT, and NSPS, Subparts A, C, and E include PSES and PSNS limitations.

All facilities that manufacture pesticide active ingredients are subject to priority pollutant limits under Subpart A. In addition, there are numerical limitations for 49 pesticide active ingredients under BPT. Under Subparts C and E, facilities that formulate, package, or repackage pesticide products are subject to either a zero discharge limit or a pollution prevention alternative that allows a small discharge after implementation of specific pollution prevention techniques and treatment.

C. Results of Screening-Level Analysis

Table 4-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. This table reflects a number of significant changes between 2000 and 2002 that result from EPA's change in methodology for reviewing this category. The 2002 data include pesticide discharges from SIC codes other than 2879, while the 2000 data do not. Even with the additional discharges included in 2002, the PCS TWPE decreased by 72% due to a decrease in the reported discharges of methoxychlor from 168,803 pound-equivalent (lb-eq) (900 pounds) to 52 lb-eq (0.27 pounds). Only one facility, Kincaid Enterprises (Nitro, WV), reported discharges of methoxychlor to PCS in 2000 and 2002. However, the TRI TWPE for 2002 is 39 times larger than the 2000 TWPE due to the inclusion of picloram discharges from two facilities that report primary SIC codes other than 2879.[2] The Pesticide Chemicals Point Source Category ranked fifth in combined PCS and TRI TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 4-3. Pesticide Chemicals Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater Than Zero [1]	Total Pounds Discharged	TWPE
2002 TRI[1]	64	1,754,350	554,485
2002 PCS[1]	203	122,209,015	50,690
2002 Total[1]		**123,963,365**	**605,175**
2000 TRI	35	2,284,136	13,848
2000 PCS	16	246,833,549	178,977
2000 Total		**249,117,685**	**192,825**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]TRI and PCS totals for 2002 include pesticide discharges from SIC codes other than 2879, while 2000 TRI and PCS totals do not.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

[2]These discharges of picloram were previously categorized under OCPSF for the 2004 review.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Pesticide Chemicals Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 4-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 4-4. Pesticide Chemicals Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Picloram	1	2	240,111	498,021	EPA previously included discharges of this chemical under the OCPSF category.			
Dichlorvos	2	1	6.2	34,935	EPA previously included discharges of this chemical under the Pharmaceutical Manufacturing category.			
Diazinon	3	3	12.3	7,685	3	1	5.0	3,111
Cyfluthrin	4	1	26.0	5,463	2	1	22.0	4,585
Merphos	5	1	23.0	1,549	18	1	4.0	100

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.

Picloram contributed the majority of the category TWPE in 2002 (90%), but was not included in the previous screening-level review of the Pesticide Chemicals Point Source Category. The two facilities that reported picloram discharges to TRI in 2002, Dow Chemical (Freeport, TX) and Dow Chemical (Midland, MI), also reported picloram discharges to TRI in 2000. Dow Chemical (Freeport, TX) discharged 99.95% of the total 2002 reported picloram discharges and 99.7% of the total 2000 reported picloram discharges. Picloram does not have

specific limits set under the current regulations for the Pesticides Chemicals Point Source Category.

Dichlorvos contributed 6.3% of the category TRI TWPE in 2002. Only one facility, Boehringer Ingelheim Vetmedica Inc. (Elwood, KS), reported discharges to TRI in 2000 and 2002. Note that in 2000, dichlorvos discharges were included in the Pharmaceutical Manufacturing Point Source Category.

PCS Discharges

Table 4-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 4-5. Pesticide Chemicals Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Carbaryl	1	1	153	42,918	Not reported to PCS in 2000			
Diazinon	2	1	2.1	1,344	Not reported to PCS in 2000			
Hexachloro-cyclohexane (BHC)	3	1	14.8	1,038	Reported to PCS in 2000 under OCPSF and Inorganic Chemicals Manufacturing categories			
Chlorine	4	3	1,608	819	6	4	2,205	1,074
1,3-Dichloro-propene	5	76	1,097	620	Reported to PCS in 2000 under OCPSF and Inorganic Chemicals Manufacturing categories			

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.

Carbaryl accounted for 85% of the 2002 PCS TWPE. Only one facility, Bayer Crop Science Institute (Institute, WV), reported carbaryl discharges to PCS in 2002, with carbaryl accounting for 99.9% of its pesticide discharges. EPA is in the process of contacting the facility to determine the source of carbaryl discharges.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of Pesticide Chemicals Point Source Category discharges are largely due to the TRI-reported discharges of picloram and the PCS-reported discharges of carbaryl. Further review of this category may focus on the following issues:

- Analysis of the TRI-reported picloram discharges, including investigation of the facilities dominating the picloram TWPE, the methods used to estimate reported discharge, and process sources;
- Analysis of the PCS-reported carbaryl discharges, including investigation of the facility dominating the carbaryl TWPE, the methods used to estimate reported discharge, process sources, and concentrations discharged; and
- Analysis of pollution control technologies available to reduce pesticide discharges, including wastewater reuse and treatment prior to discharge.

G. References

1. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

2. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

3. U.S. EPA. *Development Document for Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Pesticide Chemicals Manufacturing Point Source Category (Final).* EPA-821-R-93-016. September 1993.

4. U.S. EPA. *Amendments to the Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Organic Pesticide Chemicals Manufacturing Industry—Pesticide Chemicals Point Source Category; Direct Final Rule and Proposed Rule*. Available online at: http://www.epa.gov/EPA-WATER/1998/July/Day-22/w19514.pdf Accessed July 1, 2005.

5. U.S. EPA. *Pesticide Chemicals Category, Formulating, Packaging and Repackaging Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards; Final Rule*. Available online at: http://www.epa.gov/fedrgstr/EPA-WATER/1996/November/Day-06/pr-21052DIR/pr-21052.pdf. Accessed July 1, 2005.

5.0 NONFERROUS METALS MANUFACTURING (40 CFR 421)

EPA identified the Nonferrous Metals (NFM) Manufacturing Point Source Category for review in the 2004 Effluent Guidelines Program Plan. Section 5 of the Technical Support Document for the Plan [1] summarizes the results of EPA's previous reviews for this industry. This section describes the results of EPA's 2005 preliminary review of the NFM Manufacturing Point Source Category.

A. Industry Description

The NFM manufacturing industry includes facilities that smelt and refine metals other than iron and steel, such as aluminum, copper, and nickel. This industry is divided into five SIC codes, as shown in Table 5-1.

Table 5-1. Number of Nonferrous Metals Manufacturing Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2819N[3] Inorganic Chemicals, NEC	9	3	3	6	4	3
3331 Primary Smelting and Refining of Copper	15	6	3	16	5	3
3334 Primary Production of Aluminum	41	21	23	21	25	23
3339 Primary Smelting of Nonferrous Metals, Except Copper and Aluminum	170	30	11	142	30	13
3341 Secondary Smelting and Refining of Nonferrous Metals	417	182	13	256	172	14
Total	**652**	**242**	**53**	**441**	**236**	**56**

Source: U.S. Economic Census, 2002 and 1997 [2, 3]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]Sites known to perform NFM manufacturing operations.
NEC - Not Elsewhere Classified.

The anomaly in this category is SIC code 2819, which primarily consists of inorganic chemical facilities. However, NFM manufacturing facilities that make refined bauxite, alumina, slug uranium, liquid metals, and several other inorganic metals may sometimes be classified under SIC code 2819. During previous reviews of this industry, EPA identified these facilities, and labeled them with an SIC code of 2819N, as shown in Table 5-1. [1]

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the NFM manufacturing industry are regulated under 40 CFR Part 421: Nonferrous Metals Manufacturing Point Source Category. This category consists of 31 subcategories, which are listed in Table 5-13 of the 2004 Technical Support Document with the related SIC codes [1, 4].

EPA first promulgated effluent guidelines for the NFM Manufacturing Point Source Category in 1984. All subcategories have BPT and BAT limitations, except Bauxite Refining, Primary Copper Smelting, Secondary Indium, Secondary Mercury, and Primary Rare Earth Metals. EPA has promulgated NSPS and PSNS for all 31 subcategories. The most commonly regulated toxic pollutants in the NFM Manufacturing Point Source Category are lead, chromium, copper, arsenic, and zinc.

C. Results of Screening-Level Analysis

Table 5-2 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. The TWPE associated with TRI discharges decreased by more than 93% from 2000 to 2002; however, the PCS TWPE dominates the combined TWPE. As a result of the high PCS TWPE, the NFM Manufacturing Point Source Category ranked sixth in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 5-2. NFM Manufacturing Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater than Zero	Total Pounds Discharged	TWPE
2002 TRI	114	2,342,514	63,694
2002 PCS	53	206,952,208	450,524
2002 Total		**209,294,722**	**514,218**
2000 TRI	113	4,807,761	978,450
2000 PCS	53	321,539,607	434,925
2000 Total		**326,347,368**	**1,413,375**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the NFM Manufacturing Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 5-3 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 5-3. NFM Manufacturing Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Cadmium and Cadmium Compounds	1	7	789	18,245	16	1	336	878
Sodium Nitrite	2	1	21,708	8,104	3	1	93,019	34,727
Phosphorous	3	2	298	6,266	5	2	400	6,648
Arsenic and Arsenic Compounds	4	15	1,492	6,031	14	5	430	1,494
PACs	5	3	48	4,831	1	4	194	831,010

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for cadmium and arsenic and do not include their compounds.

The total TWPE reported in the 2002 TRI decreased drastically from 2000 due to the reduction of the TWF of benzo(a)pyrene, from 4,283 to 100. (The TWF for benzo(a)pyrene is used to estimate the TWPE of PACs.) The 2002 results show that no one pollutant dominates the TWPE of TRI discharges. The top pollutant, cadmium, accounted for 29% of the 2002 category TWPE.

PCS Discharges

Table 5-4 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 5-4. NFM Manufacturing Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Cadmium	1	20	4,282	98,997	13	14	1,220	3,187
Chlorine	2	25	178,125	90,694	2	18	203,081	98,897
Silver	3	9	3,028	49,871	23	3	15	253
PCBs	4	6	1.4	48,550	4	3	2	29,319
Molybdenum	5	5	237,108	47,763	10	4	38,715	7,799

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.

The PCS TWPE increased by a factor of seven from 2000 to 2002. However, no one pollutant dominated the discharges; the top two pollutants cadmium and chlorine accounted for 22% and 20% of the 2002 PCS TWPE, respectively.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of the NFM Manufacturing Point Source Category discharges is a result of the PCS-reported discharges. Further review of this category may focus on the following issues:

- Analysis of the PCS-reported cadmium discharges, including the methods used to estimate reported discharge, process sources, concentrations discharged, and comparison to TRI releases.
- Analysis of the PCS-reported chlorine discharges, including the methods used to estimate reported discharge, process sources, and concentrations discharged.
- Analysis of pollution control technologies available to reduce cadmium and chlorine discharges, including substitution of less toxic chemicals and pretreatment of discharges.
- Analysis of NFM manufacturing facilities reporting to TRI suggesting that over 50% of these facilities discharge no wastewater. It is unknown whether there are best management practices (BMPs), pollution prevention practices, or other "dry"

operations from these facilities that could be transferrable to other discharging facilities in similar subcategories. In addition, metals removal for this industry might be improved using multiple-stage metals precipitation or newer multimedia filtration followed by chemical precipitation technologies. [1] EPA will attempt to identify technologies and practices from zero dischargers that may be transferrable to other discharging facilities in similar subcategories.

G. References

1. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan.* EPA 821-R-04-014. Washington, D.C. August 2004. Docket OW-2003-0074. DCN 01088A01.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

3. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

6.0 ORE MINING AND DRESSING (40 CFR 440)

EPA identified the Ore Mining and Dressing Point Source Category for review in the 2004 Effluent Guidelines Program Plan. Section 5 of the Technical Support Document for the Plan [1] summarizes the results of EPA's previous reviews for this industry. This section describes the results of EPA's 2005 preliminary review of the Ore Mining and Dressing Point Source Category.

A. Industry Description

The ore mining and dressing industry includes facilities that mine, mill, or prepare 23 separate metal ores. This industry is divided into nine SIC codes, as shown in Table 6-1. SIC codes 1011, 1081, and 1094 are not required to report to TRI. Because the U.S. Economic Census reports data by NAICS code and TRI and PCS reported data by SIC code, EPA reclassified the 2002 Census data under the equivalent SIC code to standardize the results. Note that because SIC codes 1061 and 1081 do not translate directly to a NAICS code, EPA could not determine the number of facilities reported for SIC code 1061 for the 1997 U.S. Economic Census data or the number of facilities reported for SIC code 1081 for the 2002 U.S. Economic Census data.

Table 6-1. Number of Ore Mining and Dressing Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
1011 Iron Ores	24	NA[3]	6	32	NA[3]	10
1021 Copper Ores	33	17	15	49	19	13
1031 Lead and Zinc Ores	22	13	27	31	19	29
1041 Gold Ores	180	34	28	300	40	32
1044 Silver Ores	11	3	5	16	5	6
1061 Ferroalloy Ores, Except Vanadium	72	7	6	NR[4]	7	7
1081 Metal Mining Services	NR[4]	NA[3]	0	203	NA[3]	0
1094 Uranium-Radium-Vanadium Ores	17	NA[3]	17	29	NA[3]	23

Table 6-1 (Continued)

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
1099 Miscellaneous Metal Ores, NEC	39	6	6	36	6	7
Total	**>398**	**80**	**110**	**696**	**96**	**128**

Source: U.S. Economic Census, 2002 and 1997 [2, 3]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major dischargers.
[3]Facilities in this SIC code are not required to report to TRI.
[4]Poor bridging between NAICS and SIC codes.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the ore mining and dressing industry are regulated under 40 CFR Part 440: Ore Mining and Dressing Point Source Category. This category consists of 12 subcategories, as shown in Table 6-2 with related SIC codes and descriptions of the subcategories' applicability. EPA matched the SIC codes to the subcategories using the SIC code descriptions from the 2002 U.S. Economic Census and the description of the subcategory applicability. [4, 5] SIC code 1081 does not directly relate to a subcategory in the ore mining and dressing category.

Table 6-2. Applicability of Subcategories in the Ore Mining and Dressing Point Source Category

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
A	Iron Ore	1011 Iron Ores	Iron Ore Mines and Mills using Physical or Chemical Separation or Magnetic & Physical Separation in the Mesabi Range
B	Aluminum Ore	1099 Miscellaneous Metal Ores, NEC	Bauxite Mines to Produce Aluminum Ore
C	Uranium, Radium, & Vanadium Ores	1094 Uranium, Radium, & Vanadium Ores	Open-Pit or Underground Mines and Mills using Acid Leach, Alkaline Leach, or Combined Acid & Alkaline Leach to Produce Uranium, Radium, & By-Product Vanadium
D	Mercury Ore	1099 Miscellaneous Metal Ores, NEC	Open-Pit or Underground Mercury Ore Mines and Mills using Gravity Separation or Froth-Flotation

Table 6-2 (Continued)

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
E	Titanium Ore	1099 Miscellaneous Metal Ores, NEC	Titanium Ore Mines from Lode Deposits and Mills using Electrostatic, Magnetic & Physical Separation, or Flotation; Dredge Mines and Mills for Placer Deposits of Rutile, Ilmenite, Leucoxene, Monazite, Zircon, and Other Heavy Metals
F	Tungsten Ore	1061 Ferroalloy Ores, Except Vanadium	Tungsten Mines and Mills using Gravity Separation or Froth-Flotation
G	Nickel Ore	1061 Ferroalloy Ores, Except Vanadium	Nickel Ore Mines and Mills
H	Vanadium Ore (Mined Alone, not as By-product)	1094 Uranium, Radium, & Vanadium Ores	Vanadium Ore Mines and Mills
I	Antimony Ore	1099 Miscellaneous Metal Ores, NEC	Antimony Ore Mines and Mills
J	Copper, Lead, Zinc, Gold, Silver, & Molybdenum Ores	1021 Copper Ores 1031 Lead and Zinc Ores 1041 Gold Ores 1044 Silver Ores 1061 Ferroalloy Ores, Except Vanadium	Copper, Lead, Zinc, Gold, Silver, & Molybdenum Ore Open-Pit or Underground Mines, except for Placer Deposits, and Mills using Froth-Flotation and/or Other Separation Techniques; Mines and Mills using Dump, Heap, In-Situ Leach, or Vat-Leach to Extract Copper from Ores or Ore Waste Materials; Gold or Silver Mills using Cyanidation; Except for Mines and Mills from the Quartz Hill Molybdenum Project in the Tongass National Forest, Alaska
K	Platinum Ore	1099 Miscellaneous Metal Ores, NEC	Platinum Ore Mines and Mills
M	Gold Placer Mine	1041 Gold Ores	Placer Deposit Gold Ore Mines, Dredges, & Mills using Gravity Separation

Source: *Ore Mining and Dressing Point Source Category - 40 CFR 440*; U.S. Economic Census, 2002 [2]; *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category* [4]; *Development Document for Effluent Limitations and Guidelines for New Source Performance Standards for the Ore Mining and Dressing Point Source Category Gold Placer Mine Subcategory* [5].
NEC - Not Elsewhere Classified.

EPA first promulgated effluent guidelines for the Ore Mining and Dressing Point Source Category in 1982. BAT limitations are set equal to BPT levels for priority pollutants for this category. The priority pollutants arsenic, cadmium, copper, lead, mercury, nickel, and zinc are regulated in at least one subcategory. [1] None of the Subparts include PSES and PSNS limitations.

C. Results of Screening-Level Analysis

Table 6-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. Between 2000 and 2002, the number of facilities reporting to PCS increased by 33%, but the number of facilities reporting to TRI decreased by 17 percent. The PCS-reported TWPE far exceeds the TRI TWPE, both in 2000 and 2002. As a result of its high PCS TWPE, the Ore Mining and Dressing category ranked seventh in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 6-3. Ore Mining and Dressing Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater Than Zero	Total Pounds Discharged	TWPE
2002 TRI	34	541,214	66,544
2002 PCS	73	625,769,753	406,548
2002 Total		**626,310,967**	**473,092**
2000 TRI	41	491,249	52,627
2000 PCS	55	792,003,769	383,560
2000 Total		**792,495,018**	**436,187**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Ore Mining and Dressing Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 6-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 6-4. Ore Mining and Dressing Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Cadmium and Cadmium Compounds	1	10	1,046	24,181	6	8	590	1,541
Lead and Lead Compounds	2	24	5,672	12,705	2	17	7,187	16,099
Arsenic and Arsenic Compounds	3	8	2,562	10,352	1	9	4,988	17,305
Vanadium and Vanadium Compounds	4	2	147,060	5,147	16	1	255	159
Silver and Silver Compounds	5	1	250	4,118	4	4	294	4,842

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for the metal compounds and do not include the lead, arsenic, vanadium, and silver.

Cadmium and cadmium compounds contributed 36% of the category TRI TWPE for 2002 and only 3% of the category TWPE for 2000. Cadmium and cadmium compound discharges increased from 1,541 TWPE in 2000 to 24,181 TWPE in 2002, due to a 77% increase in the pounds discharged and a 786% increase in the cadmium TWF.

PCS Discharges

Table 6-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 6-5. Ore Mining and Dressing Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Molybdenum	1	4	770,329	155,174	1	3	951,077	191,584
Cyanide	2	9	109,018	121,764	11	10	1,424	1,533
Cadmium	3	29	2,360	54,556	3	31	19,534	51,022
Lead	4	32	10,406	23,309	4	36	6,648	11,892
Arsenic	5	13	3,143	12,701	8	12	1,679	5,826

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.

Molybdenum and cyanide accounted for 68% of the 2002 PCS TWPE. Cyanide discharges increased from 1,533 TWPE in 2000 to 121,764 TWPE in 2002, due to a two-order-of-magnitude increase in the pounds discharged. The existing 40 CFR Part 440 guidelines do not include limits for molybdenum or arsenic.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of Ore Mining and Dressing Point Source Category discharges results from the PCS-reported discharges of molybdenum and cyanide. EPA also received stakeholder comments from previous effluent guidelines program plans stating that discharges from facilities in this category may not be adequately quantified in PCS and TRI and that these discharges can cause significant water quality impacts. In particular, EPA is evaluating the impact of discharges from waste rock and overburden piles, which are not now

regulated by effluent guidelines, and whether these discharges are adequately controlled by the Multi-Sector General Permit (MSGP).[3] See 65 FR 64746 (Oct. 30, 2000).

The MSGP includes very general benchmark values for sampling and general requirements to develop a stormwater pollution prevention plan, but does not establish numeric limits or stormwater containment/treatment requirements. The MSGP establishes benchmark monitoring for pollutants including TSS, pH, hardness, arsenic, beryllium, cadmium, copper, iron, lead, manganese, mercury, nickel, selenium, silver, zinc, and uranium.[4] The data from this sampling are now available due to the 2000 MSGP requirements.

Commenters on previous effluent guidelines program plans have requested that EPA reverse its decision to exclude discharges from waste rock and overburden piles from the Part 440 applicability definition of "mine drainage." Specifically, commenters suggest that EPA should conduct a rulemaking to address discharges from waste rock piles, overburden piles, and other sources of water pollution at mine sites that are not currently covered by Part 440. See 63 FR 47285 (Sept. 4, 1998).

The Agency will review the MSGP data for usefulness in revising the effluent guidelines, for example, to determine the mass and concentrations of pollutants discharged, and effluent variability associated with these discharges, and to evaluate the performance and effectiveness of

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[3]Mine sites not regulated by the MSGP include: (1) sites with their stormwater discharges regulated by an individual permit; and (2) sites without any discharge of stormwater. A facility has the option of obtaining an individual permit for stormwater discharges instead of requesting coverage under the MSGP; however, in practice this is seldom done. The current MSGP expires this year, however EPA intends to reissue it. Almost all mine sites discharge stormwater (e.g., stormwater discharges from haul roads, process areas, equipment storage areas, mine waste rock).

[4]Table G-4 of the MSGP listed what wastewaters from mining activities are covered by Part 440 and what wastewaters are to be covered by the industrial MSGP. In response to litigation from the National Mining Association, EPA revised its interpretation of applicability for wastewaters from hard rock mining operations. Under the revised interpretation, runoff from waste rock and overburden piles is not subject to effluent guidelines unless it naturally drains (or is intentionally diverted) to a point source and combines with "mine drainage" that is otherwise subject to the effluent guidelines (65 FR 64774; Oct. 30, 2000;).

the permit controls (primarily "best management practices") at reducing pollutants. Additionally, EPA may gather other relevant data (such as cost data) on wastewater treatment technologies for this category. Preliminary MSGP data indicate high concentrations of metals in active and inactive mine site runoff. The volumes of discharge can be significant due to the large land area covered by the mine sites. Constituents include toxic pollutants such as arsenic, copper, mercury, and selenium as well as pH problems. Additionally, EPA Regions are evaluating whether states are adequately addressing mine site runoff. Finally, EPA is also investigating the potential for facilities in this category to contaminate ground water and, through infiltration and inflow, adversely affect POTW operations. [6]

Further review of this category may focus on the following:

- Analysis of the PCS-reported molybdenum discharges, including the process sources and concentrations discharged;
- Analysis of PCS-reported cyanide discharges, including the process sources and concentrations discharged; and
- Pollution control technologies available to reduce molybdenum and cyanide discharges, including re-using process water, substitution of less toxic chemicals, and treatment of wastewater prior to discharge.

G. References

1. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan.* EPA 821-R-04-014. Washington, D.C. August 2004. Docket OW-2004-0032, DCN 01088A01.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02 .

3. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

4. U.S. EPA. *Development Document for Effluent Limitations Guidelines and Standards for the Ore Mining and Dressing Point Source Category*. EPA-440/1-82/061. Washington, D.C. 1982.

5. U.S. EPA. *Development Document for Effluent Limitations and Guidelines for New Source Performance Standards for the Ore Mining and Dressing Point Source Category Gold Placer Mine Subcategory*. EPA-440/1-88-061. Washington, D.C. 1988.

6. U.S. EPA. "EPA Issues Draft Discharge Permits and Proposed Variances for Three Silver Valley Wastewater Treatment Plants." Environmental Fact Sheet. Available online at: www.epa.gov/r10earth/water.htm. August 2002.

7.0 INORGANIC CHEMICALS MANUFACTURING (40 CFR 415)

EPA identified the Inorganic Chemicals Manufacturing Point Source Category for review in the 2004 Effluent Guidelines Program Plan. Section 5 of the Technical Support Document for the Plan [1] summarizes the results of EPA's previous reviews for this industry. This section describes the results of EPA's 2005 preliminary review of the Inorganic Chemicals Manufacturing Point Source Category.

A. Industry Description

The inorganic chemicals manufacturing industry includes facilities that manufacture a broad class of substances encompassing those substances that do not include carbon and its derivatives as their principal elements. This industry is divided into four SIC codes, as shown in Table 7-1.

Table 7-1. Number of Inorganic Chemical Manufacturing Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2812 Alkalies and Chlorine	40	7	6	39	24	10
2813 Industrial Gases	568	82	42	630	67	40
2816 Inorganic Pigments	105	50	24	74	46	28
2819 Industrial Inorganic Chemicals, NEC[3]	2,396	348	123	667	337	139
	3,109	**487**	**195**	**1,410**	**474**	**217**

Source: U.S. Economic Census, 2002 and 1997 [2, 3]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]EPA identified certain facilities reporting under SIC code 2819 as subject to effluent guidelines for the NFM Manufacturing Point Source Category (see Section 5.0).
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the inorganic chemicals manufacturing industry are regulated under 40 CFR Part 415: Inorganic Chemicals Manufacturing Point Source Category. This category consists of 67 subcategories defined by the type of inorganic chemical product manufactured. In addition to BPT, BAT, BCT and NSPS, the category includes PSES and PSNS limitations for at least one subcategory. Table 5-6 in the 2004 Technical Support Document contains details on the pollutants regulated by subpart. The effluent guidelines for the Inorganic Chemicals Manufacturing Point Source Category were first promulgated in 1974 and revised in 1975, 1976, 1982, and 1986.

C. Results of Screening-Level Analysis

Table 7-2 compares the Inorganic Chemicals Manufacturing Point Source Category TWPE estimated for 2000 and 2002 using TRI and PCS data. In addition, the table presents the amount of TWPE contributed by the Chlor-Alkali (CA) sector of the Inorganic Chemicals Manufacturing Point Source Category.

Table 7-2. Inorganic Chemicals Manufacturing Point Source Category TWPE

	TRI 2000	TRI 2002	PCS 2000	PCS 2002
Total TWPE	627,628	7,153,144	887,361	567,016
CA Sector Contribution[1] (% of total)	148,361 (24%)	6,872,167 (96%)	205,387 (19%)	427,334 (75%)
Number of CA Facilities	15	16	15	16
TWPE w/o CA Sector	479,267	280,977	681,974	139,682

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]The CA sector of the Inorganics Chemicals category includes facilities that conduct chlor-alkali manufacturing and reported a primary SIC code associated with Inorganics (see Section 7.A). This sector may also include facilities that also perform VC manufacturing operations.

EPA is currently considering revisions to effluent guidelines for discharges from facilities that produce chlorine by the chlor-alkali process. Because a rulemaking for the chlor-alkali sector of the Inorganics Chemicals Point Source Category is underway, discharges

from these facilities were excluded from further consideration for the Inorganic Chemicals review under the current planning cycle.

Table 7-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. As explained above, EPA subtracted the TWPE loads from facilities that produce chlorine by the chlor-alkali process from the Inorganic Chemicals Manufacturing Point Source Category loads. Even without the loads from the chlor-alkali facilities, this category ranked eighth in combined PCS and TRI TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 7-3. Inorganic Chemicals Manufacturing Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater Than Zero	Total Pounds Discharged	TWPE
2002 TRI	198	9,315,202	280,977
2002 PCS	68	1,258,006,644	139,682
2002 Total		**1,267,321,846**	**420,659**
2000 TRI	187	16,711,121	479,267
2000 PCS	64	1,126,421,556	681,974
2000 Total		**1,143,132,677**	**1,161,241**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

The large decrease in PCS TWPE from 2000 to 2002 is driven by a decrease in the mercury and chlorine discharges reported by two facilities. Norit Americas (Marshall, TX) reported discharging 355,744 TWPE of mercury in 2000, but reported no discharges in 2002. [4] Clearon Corporation (South Charleston, WV) reported discharging 73,636 TWPE of chlorine in 2000 but only 43 TWPE in 2002.

The large decrease in TRI TWPE from 2000 to 2002 is driven by a decrease in the hexachlorobenzene TWPE discharges reported by two DuPont facilities, which accounted for all reported hexachlorobenzene discharges in 2000. In 2000, New Johnsonville reported 115,868

TWPE while Edgemoor reported 29,691TWPE. Neither facility reported any hexachlorobenzene discharges in 2002.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Inorganic Chemicals Manufacturing Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 7-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges as wells as the 2000 discharges of these chemicals, for comparison purposes.

Table 7-4. Inorganic Chemicals Manufacturing Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Dioxin and Dioxin-Like Compounds	1	7	0.07	74,702	2	7	0.1	123,709
Sodium Nitrite	2	7	186,320	69,560	3	7	243,083	90,751
Chlorine	3	13	77,654	39,539	4	13	95,812	46,659
Lead and Lead Compounds[1]	4	54	13,148	29,451	20	2	137	307
Mercury and Mercury Compounds[1]	5	14	206	24,164	21	2	2.6	301

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for lead and mercury and do not include lead or mercury compounds.

Dioxin and dioxin-like compounds contributed 27% of the category TRI TWPE for 2002. Five of the seven facilities that reported dioxin discharges to TRI in 2002 manufacture titanium dioxide. [5] According to two of the facilities contacted (DuPont's plants in New Johnsonville, TN and Edgemoor, DE), the dioxins formed as unintentional trace reaction by-products of intermediate production in the titanium dioxide manufacturing process. [6]

Sodium nitrite discharges accounted for 25% of the category TRI TWPE for 2002. Seven facilities reported discharging sodium nitrite to TRI in 2002, with one facility, Repauno Products (Gibbstown, NJ), contributing 47% of the sodium nitrite discharges.

Chlorine discharges accounted for 14% of the category TRI TWPE for 2002. Thirteen facilities reported discharges of chlorine to the TRI in 2002, with one facility, GFS Chemicals, Inc. (Columbus, OH), contributing 92% of the chlorine discharges.

Lead and lead compounds accounted for 10.5% of the 2002 TRI TWPE discharges. Fifty-four facilities reported discharges of lead and lead compounds to 2002 TRI, with one facility, PCS Nitrogen Fertilizer L.P. (Geismar, LA), contributing 83% of the discharges.

Mercury and mercury compounds accounted for 8.6% of the 2002 TRI TWPE discharges. Fourteen facilities reported discharges to 2002 TRI, with one facility, Kerr-McGee Chemical Pigment Plant (Hamilton, MS), contributing 84% of the mercury and mercury compound discharges.

PCS Discharges

Table 7-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 7-5. Inorganic Chemicals Manufacturing Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Iron	1	11	11,540,889	64,629	3	31	13,103,160	73,378
Nitrogen, Nitrite Total (As N)	2	3	87,896	32,815	NA[2]	3	88,274	NA[2]
Chlorine	3	16	16,915	8,612	2	25	221,979	108,100
Sulfide	4	2	2,640	7,396	3	3	25,634	71,789
Fluoride	5	10	205,338	7,187	9	10	228,305	7,991

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.
[2]The screening-level review for 2004 did not include a TWF for nitrite.

Iron accounted for 46% of the 2002 PCS TWPE. One facility, Kerr-McGee Pigments (Savannah, GA) contributed 99% of the total iron discharges for 2002. This facility was also the top iron discharger in 2000, accounting for 96% of the iron TWPE.

Nitrite-nitrogen accounted for 23% of the 2002 PCS TWPE. Nitrite-nitrogen loads have not changed significantly from 2000; however, EPA had not yet assigned a TWF to nitrite-nitrogen for the previous reviews.

Table 7-5 shows a large reduction in PCS-reported chlorine and sulfide discharges from 2000 to 2002. Chlorine loads decreased by 92%, and the number of facilities reporting chlorine discharges to PCS decreased by 36 percent. Sulfide discharges decreased by 90 percent.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of Inorganic Chemicals Manufacturing Point Source Category discharges are largely due to the TRI-reported discharges of dioxin and dioxin-like compounds and sodium nitrite and PCS-reported discharges of iron. Further review of this category may focus on the following issues:

- Review of titanium dioxide manufacturing segment of the Inorganic Chemicals Manufacturing Point Source Category, including applicable subcategory, dioxin measurement data, and methods for estimating dioxin releases to surface water;
- Analysis of the TRI-reported sodium nitrite discharges, including facilities dominating the TWPE, the methods used to estimate reported discharge, and process sources; and
- Analysis of the PCS-reported iron and nitrite-nitrogen discharges, including facilities dominating the TWPE, the methods used to estimate reported discharge, process sources, and concentrations discharged.

G. References

1. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan*. EPA 821-R-04-014. Washington, D.C. August 2004. Docket OW-2004-0032. DCN 01088A01.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

3. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

4. Silverthorne, Darrell. Norit Americas. Personal Communication. *Mercury Releases Reported to TRI in 2000*. June 27, 2005.

5. U.S. EPA. *Final Titanium Dioxide Listing Background Document for the Inorganic Chemical Listing Determination.* Washington, D.C. October 2001. Docket OW-2003-0074. DCN 00892.

6. Wood, Ken. DuPont Edge Moor, DE and New Johnsonville, TN. Personal Communication. *DuPont's Edge Moor, DE and New Johnsonville, TN releases in TRI 2002*. February 28, 2005.

8.0 RUBBER MANUFACTURING (40 CFR 428)

This section describes the results of EPA's 2005 preliminary review of the Rubber Manufacturing Point Source Category.

A. Industry Description

The rubber manufacturing industry includes facilities that manufacture natural, synthetic, and reclaimed rubber. Manufactured rubber becomes finished goods through a variety of methods, such as molding, extruding, and fabricating. [1, 2] This industry is divided into seven SIC codes, as shown in Table 8-1. Because the U.S. Economic Census reports data by NAICS code and TRI and PCS reported data by SIC code, EPA reclassified the 2002 Census data under the equivalent SIC code to standardize the results. Note that because SIC code 3069 does not translate directly to a NAICS code, the number of facilities reported for SIC code 3069 could not be determined for the 2002 U.S. Economic Census data.

Table 8-1. Number of Rubber Manufacturing Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
2822 Synthetic Rubber (Vulcanizable Elastomers)	157	34	18	143	33	21
3011 Tires and Inner Tubes	158	72	23	162	77	26
3021 Rubber and Plastics Footwear	62	5	0	59	7	0
3052 Rubber and Plastics Hose and Belting	260	72	4	218	69	7
3053 Gaskets, Packing, and Sealing Devices	614	58	4	665	50	6
3061 Molded, Extruded, and Lathe-Cut Mechanical Rubber Goods	608	70	19	716	51	23

Table 8-1 (Continued)

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
3069 Fabricated Rubber Products, NEC	NA[3]	216	47	1,012	221	50
Total	**>1,859**	**527**	**118**	**2,975**	**508**	**133**

Source: U.S. Economic Census, 2002 and 1997 [3, 4]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]Poor bridging between NAICS and SIC codes.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the rubber manufacturing industry are regulated under 40 CFR Part 428: Rubber Manufacturing Point Source Category. This category consists of 11 subcategories, as shown in Table 8-2 with the related SIC codes and descriptions of the subcategories' applicability. EPA matched the SIC codes to the subcategory using information from the technical development documents for this industry. [1, 2]

Table 8-2. Applicability of Subcategories in the Rubber Manufacturing Point Source Category

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
A	Tire and Inner Tube Plants	3011 Tires and Inner Tubes	Pneumatic tire and inner tube
B	Emulsion Crumb Rubber	2822 Synthetic Rubber (Vulcanizable Elastomers)	Emulsion crumb rubber excludes acrylonitrile butadiene rubber
C	Solution Crumb Rubber	2822 Synthetic Rubber (Vulcanizable Elastomers)	Crumb rubber
D	Latex Rubber	2822 Synthetic Rubber (Vulcanizable Elastomers)	Latex rubber

Table 8-2 (Continued)

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
E	Small-Sized General Molded, Extruded, and Fabricated Rubber Plants	3021 Rubber and Plastics Footwear 3052 Rubber and Plastics Hose and Belting 3053 Gaskets, Packing, and Sealing Devices 3061 Molded, Extruded, and Lathe-Cut Mechanical Goods 3069 Fabricated Rubber Products, NEC	Molded, extruded, and fabricated rubber; foam rubber backing; rubber cement-dipped goods; and retreaded tires Excludes latex-based products and textiles subject to 40 CFR Part 410
F	Medium-Sized General Molded, Extruded, and Fabricated Rubber Plants		
G	Large-Sized General Molded, Extruded, and Fabricated Rubber Plants		
H	Wet Digestion Reclaimed Rubber	3069 Fabricated Rubber Products, NEC	Wet digestion reclaimed rubber
I	Pan, Dry Digestion, and Mechanical Reclaimed Rubber	3069 Fabricated Rubber Products, NEC	Reclaimed rubber Excludes wet digestion
J	Latex-Dipped, Latex-Extruded, and Latex-Molded Rubber	3069 Fabricated Rubber Products, NEC	Latex-dipped, latex-extruded, and latex-molded rubber Excludes textiles subject to 40 CFR Part 410
K	Latex Foam	3069 Fabricated Rubber Products, NEC	Latex foam Excludes textiles subject to 40 CFR Park 410

Source: *Rubber Manufacturing Point Source Category - 40 CFR 428*; *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Fabricated and Reclaimed Rubber Segment of the Rubber Processing Point Source Category* [1]; *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Tire and Synthetic Segment of the Rubber Processing Point Source Category* [2].
NEC - Not Elsewhere Classified.

EPA first promulgated effluent guidelines for the Rubber Manufacturing Point Source Category in 1974. All of the subcategories have BPT, BAT, NSPS, and PSNS limitations. The priority pollutants lead, chromium, and zinc are all regulated in at least one subcategory.

C. Results of Screening-Level Analysis

Table 8-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. Between 2000 and 2002, the number of facilities reporting to TRI decreased by 4%, but the TRI TWPE increased slightly. The TRI-reported TWPE far exceeds the PCS TWPE, both in 2000 and 2001. As a result of its high TRI

TWPE, the Rubber Manufacturing Point Source Category ranked ninth in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 8-3. Rubber Manufacturing Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater Than Zero	Total Pounds Discharged	TWPE
2002 TRI	220	1,082,214	173,304
2002 PCS	20	9,530,447	2,386
2002 Total		**10,612,661**	**175,690**
2000 TRI	230	1,162,444	166,343
2000 PCS	17	35,644,338	8,143
2000 Total		**36,806,782**	**174,486**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Rubber Manufacturing Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 8-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes.

Sodium nitrite contributed the majority of the category TWPE in 2000 (57%) and 2002 (68%) according to the TRI data. According to facilities EPA contacted, rubber facilities that use a molten salt curing process may discharge sodium nitrite. The molten salt, which can contain sodium nitrite, is removed from the rubber products using a water wash that is then discharged. [5, 6, 7, 8]

PACs accounted for 20% of the category TWPE for 2000 and 29% in 2002. Five facilities reported discharge of PACs in 2002.

Table 8-4. Rubber Manufacturing Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sodium Nitrite	1	12	316,929	118,320	1	10	253,334	94,578
PACs	2	4	500	50,293	2	2	8	32,470
1,3-Butadiene	3	4	250	1,208	14	3	33	59
Zinc and Zinc Compounds	4	166	22,121	1,037	13	3	1,356	63
Chlorine	5	4	1,534	781	3	5	61,493	29,946

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for zinc and do not include zinc compounds.

PCS Discharges

Table 8-5 lists the five chemicals with the highest TWPE of PCS reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 8-5. Rubber Manufacturing Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Benzidine	1	1	0.24	667	11	1	0.64	69
Arsenic	2	2	115	466	2	1	208	720
Acrylonitrile	3	3	141	320	23	1	1.4	1.2
Copper	4	8	266	169	6	8	493	309
Vanadium	5	1	4,710	165	1	2	8,254	5,136

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.

Benzidine and arsenic account for 47% of the 2002 PCS TWPE. Vanadium discharges decreased from 5,136 TWPE in 2000 to 165 TWPE in 2002, due to a 43% decrease in the pounds discharged and a 94% decrease in the vanadium TWF.

F. Issues Identified and Additional Review

EPA's high TWPE rank for the Rubber Manufacturing Point Source Category discharges are mostly due to the TRI-reported discharges of sodium nitrite and PACs. Further review of this category may focus on the following issues:

- Analysis of the TRI-reported sodium nitrite discharges, including the methods used to estimate reported discharge, process sources, and a comparison to PCS data for nitrogen compound releases;
- Analysis of the TRI-reported PACs discharges, including the methods used to estimate reported discharge and process sources; and
- Pollution control technologies available to reduce sodium nitrite discharges, including reuse of salt bath wash water, substitution of less toxic chemicals, and treatment of wastewater prior to discharge.

G. References

1. U.S. EPA. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Fabricated and Reclaimed Rubber Segment of the Rubber Processing Point Source Category*. EPA-440/1-74/030-a. Washington, D.C. 1974.

2. U.S. EPA. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Tire and Synthetic Segment of the Rubber Processing Point Source Category*. EPA-440/1-74-013-a. Washington, D.C. 1974.

3. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

4. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

5. Telephone conversation with John Hines of Avon Automotive, Cadillac, MI, and Jessica Wolford of ERG. "Clarification of Manufacturing Process and Pollutant Discharges." June 9, 2005.

6. Telephone conversation with Mike Hough of GDX Automotive, Wabash, IN, and Jessica Wolford of ERG. "Clarification of Manufacturing Process and Pollutant Discharges." June 22, 2005.

7. Telephone conversation with Stacey Rader of Cooper Standard Automotive, Bowling Green, OH, and Jessica Wolford of ERG. "Clarification of Manufacturing Process and Pollutant Discharges." June 20, 2005.

8. Telephone conversation with Bob Dryden of GDX Automotive, New Haven, MO, and Jessica Wolford of ERG. "Clarification of Manufacturing Process and Pollutant Discharges." June 13, 2005.

9.0 TEXTILE MILLS (40 CFR 410)

EPA identified the Textile Mills Point Source Category for review in the 2004 Effluent Guidelines Program Plan. Section 5 of the Technical Support Document for the Plan [1] summarizes the results of EPA's previous reviews for this industry. This section describes the results of EPA's 2005 preliminary review of the Textile Mills Point Source Category.

A. Industry Description

The textile industry includes facilities that manufacture and process textile materials, such as carpets, broad woven fabrics, and knitwear. The Textile Mills Point Source Category also includes facilities using wet processes, such as scouring, dyeing, finishing, printing, and coating, that discharge contact wastewater. These facilities are classified under SIC major group 22, Textile Mill Products. As shown in Table 9-1, EPA is considering including operations from three other SIC codes as potential new subcategories of the Textile Mills Point Source Category. See the Potential New Subcategories section (Section D) for more details.

Table 9-1. Number of Textile Mills

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
Textile Mill Products (SIC 22)	14,519	284	145	5,065	296	140
Potential New Subcategories						
23– Apparel and Other Finished Products Made From Fabrics and Other Similar Materials	27,295	16	NA[3]	4,282	13	1

Source: U.S. Economic Census, 2002 and 1997 [2, 3]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]No facilities reported to PCS under these SIC codes.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the textile mills industry are regulated under 40 CFR Part 410: Textile Mills Point Source Category. EPA first promulgated effluent guidelines for the Textile Mills Point Source Category in 1982. This category consists of nine subcategories, as shown in Table 9-2 with the related SIC codes and descriptions of the subcategories' applicability. Along with BPT, BAT, BCT, and NSPS, the category has PSES and PSNS limitations. Section 5.4.5 of the 2004 Technical Support Document provides more information on the regulatory background for the Textile Mills Point Source Category. [1]

Table 9-2. Applicability of Subcategories in the Textile Mills Point Source Category

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
A	Wool Scouring	2299	Wool scouring, topmaking, and general cleaning of raw wool
B	Wool Finishing	2231	Wool finishers, including carbonizing, fulling, dyeing, bleaching, rinsing, fireproofing, and other such similar processes
C	Low Water Use Processing	2211, 2221, 2231, 2241, 2253, 2254, 2259, 2273, 2281, 2282, 2284, 2295, 2296, 2298	Yarn manufacture, yarn texturizing, unfinished fabric manufacture, fabric coating, fabric laminating, tire cord and fabric dipping, and carpet tufting and carpet backing
D	Woven Fabrics Finishing	2261, 2262	Woven fabric finishers, which may include any or all of the following unit operations: desizing, bleaching, mercerizing, dyeing, printing, resin treatment, water proofing, flame proofing, soil repellency application and a special finish application
E	Knit Fabric Finishing	2251, 2252, 2257, 2258	Knit fabric finishers, which may include any or all of the following unit operations: bleaching, mercerizing, dyeing, printing, resin treatment, water proofing, flame proofing, soil repellency application and a special finish application
F	Carpet Finishing	2273	Carpet mills, which may include any or all of the following unit operations: bleaching, scouring, carbonizing, fulling, dyeing, printing, resin treatment, waterproofing, flameproofing, soil repellency, looping, and backing with foamed and unfoamed latex and jute
G	Stock & Yarn Finishing	2269	Stock or yarn dyeing or finishing, which may include any or all of the following unit operations and processes: cleaning, scouring, bleaching, mercerizing, dyeing and special finishing

Table 9-2 (Continued)

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
H	Nonwoven Manufacturing	2297	Facilities that primarily manufacture nonwoven textile products of wool, cotton, or synthetics, singly or as blends, by mechanical, thermal, and/or adhesive bonding procedures
I	Felted Fabric Processing	2299	Facilities that primarily manufacture nonwoven products by employing fulling and felting operations as a means of achieving fiber bonding

Source: *Textile Mills Point Source Category - 40 CFR 410*; *Development Document for Effluent Limitations Guidelines and Standards for the Textile Mills Point Source Category* [4].

C. Results of Screening-Level Analysis

Table 9-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting TWPE discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. Table 9-3 includes discharges from facilities in SIC codes EPA determined are potential new subcategories of the Textile Mills Point Source Category. Between 2000 and 2002, the number of facilities reporting to TRI decreased by 29 facilities (24%), while the number reporting to PCS was essentially unchanged. The PCS-reported TWPE far exceeds the TRI TWPE for both 2000 and 2002. As a result of the high PCS TWPE, the Textile Mills Point Source Category ranked tenth in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 9-3. Textile Mills Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting TWPE Greater than Zero	Total Pounds Discharged	TWPE
2002 TRI	90	311,615	32,765
2002 PCS	74	77,500,000	124,085
2002 Total		**77,800,000**	**156,850**
2000 TRI	119	584,190	84,807
2000 PCS	73	106,000,000	296,601
2000 Total		**106,000,000**	**381,408**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA reviewed industries with SIC codes not clearly subject to existing ELGs. EPA concluded the processes, operations, wastewaters, and pollutants of facilities in the SIC codes listed in Table 9-4 are similar to those of the Textile Mills category. Table 9-4 shows the total TRI and PCS combined TWPE for each SIC code that is a potential new subcategory. As shown in the table, the discharges for the potential new subcategory SIC codes contribute a negligible percentage to the total Textile Mills Point Source Category TWPE.

Table 9-4. Pollutant Loadings From Potential New Subcategories

SIC Code	SIC Description	Combined TRI and PCS 2002 TWPE	Percentage of Total Category TWPE
2322	Men's & Boys Underwear & Night	2.55	0.002
2396	Automotive Trimmings, Apparel	0.12	<0.001
2399	Fabricated Textile Products, NEC	0.08	<0.001

Source: *TRIReleases2002*; *PCSLoads2002.*
NEC - Not Elsewhere Classified.

E. Pollutants of Concern

TRI Discharges

Table 9-5 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes. TRI-reported chlorine decreased significantly, both in number of reporters and actual pounds released. Chlorine releases decreased by 80% from 2000 to 2002.

Table 9-5. Textile Mills Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical Name	2002 TRI				2000 TRI			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sodium Nitrite	1	2	44,711	16,692	2	5	43,559	16,262
Chlorine	2	4	25,316	12,890	1	9	128,982	62,812
Chlorine Dioxide	3	1	4,613	738	NA[2]	NA[2]	NA[2]	NA[2]
Copper and Copper Compounds[1]	4	10	909	577	14	1	70	44
Naphthalene	5	1	22,000	349	5	1	42,000	647

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
[1]2000 values reflect releases of copper only.
[2]No textile mills reported releases of chlorine dioxide to TRI for 2000.
Note: TRI discharges include transfers to POTWs and account for POTW removals.

PCS Discharges

Table 9-6 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges for these chemicals.

Table 9-6. Textile Mills Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS[1]			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sulfide	1	66	26,013	72,874	1	49	58,778	164,601
Chlorine	2	32	59,576	30,334	2	22	223,975	109,072
Arsenic	3	5	3,989	16,123	11	3	40	139
Toxaphene	4	1	0.046	1,393	NA[2]	NA[2]	NA[2]	NA[2]
Copper	5	33	1,854	1,177	3	32	19,480	12,212

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.
[2]No textile mills reported discharges of toxaphene to PCS for 2000.

Chlorine discharges reported to PCS decreased by 73%, and sulfide discharges decreased by 53 percent. For both pollutants, a single facility's discharges account for the majority (more than 50%) of the TWPE reductions from 2000 to 2002.

Arsenic is the only pollutant with a large increase in discharges from 2000 to 2002. One facility's arsenic discharge accounts for almost all of this increase. EPA reviewed the monthly reported arsenic discharges for this facility and found that the arsenic concentration for one month was 7 mg/L, which is two orders of magnitude higher than the other concentrations reported for 2002. The facility's permit does not include a limit on arsenic; however, the NPDES fact sheet predicted a maximum arsenic concentration of 402.6 µg/L. [5] Based on this information, the PCS arsenic concentration units may be in error.

F. Issues Identified and Additional Review

EPA's high TWPE rank for the Textile Mills Point Source Category discharges are mostly due to PCS-reported discharges. During the 2004 review of the Textile Mills category, EPA identified chlorine and sulfide as pollutants of concern based on high TWPE discharges reported in TRI and PCS for 2000. PCS and TRI data show significant decreases in pollutant discharges from 2000 to 2002. Further review of this category may focus on the following issues:

- Analysis of PCS-reported arsenic discharges, including review of monthly measurement data in PCS and verification of annual load;
- Analysis of reductions in PCS-reported chlorine discharges, including review of monthly measurement data and verification of annual load;
- Analysis of TRI-reported chlorine and sodium nitrite discharges, including methods used to estimate reported discharge and process sources; and
- Comparison of TRI- and PCS-reported discharges of chlorine and copper.

G. References

1. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan.* EPA 821-R-04-014. Washington, D.C. August 2004. Docket OW-2004-0032. DCN 01088A01.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

3. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

4. U.S. EPA. *Development Document for Effluent Limitations Guidelines and Standards for the Textile Mills Point Source Category*. EPA-440/1-79/022. Washington, D.C. 1979.

5. North Carolina Division of Water Quality. *Fact Sheet for NPDES Permit: NPDES Permit NC0005312*. Raleigh, NC. 2005.

10.0 FERTILIZER MANUFACTURING (40 CFR 418)

EPA identified the Fertilizer Manufacturing Point Source Category for review in the 2004 Effluent Guidelines Program Plan. Section 5 of the Technical Support Document for the Plan [1] summarizes the results of EPA's previous reviews for this industry. This section describes the results of EPA's 2005 preliminary review of the Fertilizer Manufacturing Point Source Category.

A. Industry Description

The fertilizer manufacturing industry includes facilities that produce phosphorus and nitrogen-based fertilizers. The industry is classified by three SIC codes, as shown in Table 10-1. SIC code 2874 includes both facilities in the Fertilizer Manufacturing category and Phosphate Manufacturing category. During previous reviews of this industry, EPA identified facilities in SIC code 2874 with operations in the Fertilizer Manufacturing category. [1] Counts of these facilities are shown as SIC code 2874F in Table 10-1.

Table 10-1. Number of Fertilizer Manufacturing Facilities

SIC Code	Economic Census 2002	TRI[1] 2002	PCS[2] 2002	Economic Census 1997	TRI[1] 2000	PCS[2] 2000
2873 Nitrogenous Fertilizers	143	61	40	143	63	40
2874F Phosphatic Fertilizers	NA[3]	2	1	NA[3]	2	1
2875 Fertilizers, Mixing Only	542	57	5	449	42	6
Total	**>685**	**120**	**46**	**>592**	**107**	**47**

Source: U.S. Economic Census, 2002 and 1997 [2, 3]; *TRIReleases2002*; *TRIReleases2000_v4*; *PCSLoads2002*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]Census totals for SIC code 2874 cannot be separated between fertilizer manufacturers and phosphate manufacturers.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the fertilizer manufacturing industry are regulated under 40 CFR Part 418: Fertilizer Manufacturing Point Source Category. This category consists of seven subcategories, as shown in Table 10-2 with the related SIC codes and description of the subcategories' applicability.

Table 10-2. Applicability of Subcategories in the Fertilizer Manufacturing Point Source Category

Sub-part	Subpart Title	Related SIC Code(s)	Subpart Applicability
A	Phosphate Subcategory	2874 Phosphatic Fertilizers	Manufacture of sulfuric acid by sulfur burning, wet-process phosphoric acid, normal superphosphate, triple superphosphate, and ammonium phosphate
B	Ammonia Subcategory	2873 Nitrogenous Fertilizers	Manufacture of ammonia
C	Urea Subcategory	2873 Nitrogenous Fertilizers	Manufacture of urea
D	Ammonium Nitrate Subcategory	2873 Nitrogenous Fertilizers	Manufacture of ammonia nitrate
E	Nitric Acid Subcategory	2873 Nitrogenous Fertilizers	Production of nitric acid in concentrations up to 68%
F	Ammonium Sulfate Production Subcategory	2873 Nitrogenous Fertilizers	Production of ammonium sulfate by the synthetic process and by coke oven by-product recovery
G	Mixed Blend Fertilizer Production Subcategory	2875 Fertilizers, Mixing Only	Production of mixed and blend fertilizer

Source: *Fertilizer Manufacturing Point Source Category - 40 CFR 418.*; Technical Support Document for the 2004 Effluent Guidelines Program Plan, Section 5. [1]

EPA first promulgated effluent guidelines for the Fertilizer Manufacturing Point Source Category in 1974. All of the subcategories have BPT, BAT, and NSPS limitations, including zero discharge of process wastewater pollutants for Subcategories F and G. Some of the subcategories also have PSNS limitations. The most commonly regulated pollutants are ammonia, nitrate, and fluoride.

C. Results of Screening-Level Analysis

Table 10-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting TWPE discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. In both years, the PCS-reported TWPE far exceeded the TRI TWPE. As a result of its high PCS TWPE, the Fertilizer Manufacturing Point Source Category was ranked eleventh in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 10-3. Fertilizer Manufacturing Point Source Category TRI and PCS Discharges for 2000 and 2002

	Number of Facilities Reporting Discharges Greater than Zero	Total Pounds Discharged	TWPE
2002 TRI	48	4,980,379	6,403
2002 PCS	24	540,486,797	143,795
2002 Total		**545,467,176**	**150,198**
2000 TRI	57	5,498,232	22,566
2000 PCS	26	508,665,080	116,464
2000 Total		**514,163,312**	**139,030**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Fertilizer Manufacturing Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 10-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 10-4. Fertilizer Manufacturing Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Dioxin and Dioxin-Like Compounds	1	2	0.008	2,288	2	2	0.007	6,626
Chlorine	2	9	2,880	1,467	4	9	3,725	1,814
Copper and Copper Compounds[1]	3	11	1,383	878	3	11	3,011	1,888
Ammonia	4	42	396,220	596	7	48	522,929	787
Atrazine	5	1	186	429	NR[2]	NR[2]	NR[2]	NR[2]

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for copper compounds and do not include releases of copper.
[2]No facilities reported atrazine to TRI in 2000.

The TRI TWPE contributed less than 5% of the total category TWPE. No single pollutant dominated the TRI TWPE; discharges of dioxin and dioxin-like compounds, reported by two facilities, accounted for 36% of the 2002 TRI TWPE. Of the top ranked pollutants by TWPE, ammonia is discharged in the greatest load. Discharges of pounds of ammonia decreased by 24% since 2000.

PCS Discharges

Table 10-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 compared to the 2000 discharges of these chemicals.

Table 10-5. Fertilizer Manufacturing Point Source Category, Top PCS Chemicals for 2000 and 2002

Chemical	2002 PCS				2000 PCS[1]			
	2002 TWPE Ranking	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Ranking	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Fluoride	1	3	3,157,912	110,527	1	3	2,188,698	76,604
Aluminum	2	1	168,191	10,880	2	1	346,680	22,357
Nitrate	3	13	1,631,915	9,139	6	14	6,108,601	379
Ammonia	4	21	4,189,153	6,306	4	25	3,483,292	6,375
Cadmium	5	1	267	6,172	5	1	392	1,023

Source: *PCSLoads2002*; *PCSLoads2000_v6*.
Note: PCS facilities include major dischargers only.
[1]Values for 2000 include discharges reported for a variety of pollutant forms and may slightly overestimate discharges.

Fluoride discharges increased by 44% between 2000 and 2002, accounting for 77% of the 2002 PCS TWPE. This increase is a result of a 20-fold increase in fluoride discharges from a single facility operated by Mississippi Phosphates Corp (Pascagoula, MS). Although ammonia loads increased by 20%, the TWPE remained essentially the same due to a change in TWF. Alternatively, nitrate loads decreased by 73%, while the TWPE increased by 20 percent.

F. Issues Identified and Additional Review

EPA's estimate of the toxicity of the Fertilizer Manufacturing Point Source Category discharges is largely due to the PCS-reported discharges of fluoride. Further review of this category may focus on the following issues:

- Analysis of the PCS-reported fluoride discharges, including a review of monthly measurement data, process sources, and concentrations discharged;
- Analysis of TRI-reported dioxin and dioxin-like compound discharges, including the methods used to estimate reported discharges, process sources, and a comparison to PCS data for dioxin releases;
- Analysis of pollution control technologies available to reduce fluoride discharges, including substitution of less toxic chemicals and treatment of wastewater prior to discharge; and

- Analysis of nutrient discharges, including a review of monthly measurement data, process sources, and a comparison between PCS and TRI.

G. References

1. U.S. EPA. *Technical Support Document for the 2004 Effluent Guidelines Program Plan.* EPA-821-R-04-014. Washington, D.C. 2004. Docket OW-2003-0074. DCN 01088A01.

2. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

3. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

11.0 PLASTICS MOLDING AND FORMING (40 CFR 463)

This section describes the results of EPA's 2005 preliminary review of the Plastics Molding and Forming Point Source Category.

A. Industry Description

The plastics molding and forming industry includes facilities that are engaged in blending, molding, forming, or other types of processing of plastic materials. These processes commonly include extrusion, coating and laminating, thermoforming, calendering, casting, foaming, cleaning, and finishing. This industry is divided into nine SIC codes, as shown in Table 11-1. EPA reviewed the facilities in this category and determined that five facilities do not meet the Plastic Molding and Forming Point Source Category applicability because they manufacture cellulose products. [1, 2, 3, 4] These facilities have been eliminated from the SIC code totals, and are included as a separate group. Note that because these facilities do not translate directly to a NAICS code, EPA could not determine the number of facilities reported for this group of facilities for the 1997 or 2002 U.S. Economic Census data.

Table 11-1. Number of Plastics Molding and Forming Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
3081 Unsupported Plastics Film & Sheet	866	77	58	832	73	74
3082 Unsupported Plastics Profile Shapes	670	28	1	791	33	4
3083 Laminated Plastics Plate, Sheet, & Profile Shapes	291	68	4	457	75	4
3084 Plastics Pipe	437	25	5	350	12	5
3085 Plastics Bottles	403	3	2	471	5	2
3086 Plastics Foam Products	1,185	222	6	1,178	193	7
3087 Custom Compounding of Purchased Resin	579	200	14	836	174	9

Table 11-1 (Continued)

SIC Code	2002 U.S. Economic Census	2002 TRI[1]	2002 PCS[2]	1997 U.S. Economic Census	2000 TRI[1]	2000 PCS[2]
3088 Plastics Plumbing Fixtures	541	165	0	572	159	0
3089 Plastics Products, NEC	12,689	666	32	8,573	608	37
Cellulose Film, Sponge and Food Casing Manufacturers	NA[3]	4	3	NA[3]	4	4
Total	**>17,661**	**1,458**	**125**	**>14,060**	**1,336**	**146**

Source: U.S. Economic Census, 2002 and 1997 [5, 6]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to any media.
[2]Major and minor dischargers.
[3]Poor bridging between cellulose manufacture and NAICS codes.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the plastics molding and forming industry are regulated under 40 CFR Part 463: Plastics Molding and Forming Point Source Category. This category consists of three subcategories, as shown in Table 11-2 with the description of the subcategories' applicability. The discharge limitations and standards do not apply to facilities that manufacture cellulose. [7]

Table 11-2. Applicability of Subcategories in the Plastics Molding and Forming Point Source Category

Subpart	Description	Applicability
A	Contact Cooling and Heating Water	Processes where water contacts plastic material or plastic products for the purpose of heat transfer
B	Cleaning Water	Processes where water contacts the plastic products or shaping equipment for the purpose of cleaning
C	Finishing Water	Processes where water contacts plastic product during finishing

Source: *Plastics Molding and Forming Point Source Category - 40 CFR 463*; *Development Document for Effluent Limitations Guidelines and Standards for the Plastics Molding and Forming Point Source Category* [7].

The effluent guidelines for the Plastics Molding and Forming Point Source Category were first promulgated in 1984 and revised in 1985. All of the subcategories have BPT NSPS, PSES, and PSNS limitations. EPA did not establish limitations guidelines for any priority pollutants. However, EPA identified one priority pollutant, bis(2-ethylhexyl) phthalate, with BAT and NSPS effluent guidelines as "reserved" in the Contact Cooling and Heating Water (Subpart A) and Finishing Water (Subpart C) subcategories. See 49 FR 49040 (Dec. 17, 1984).

C. Results of Screening-Level Analysis

Table 11-3 presents the TRI and PCS discharges for 2000 and 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged. Between 2000 and 2002, the number of facilities reporting to PCS increased by 50% and the TWPE increased by two orders of magnitude. In 2000, the TRI-reported TWPE far exceeded the PCS TWPE but, based on the 2002 data, the PCS-reported TWPE is similar. As a result of the high 2002 PCS TWPE, the Plastics Molding and Forming Point Source Category ranked twelfth in combined TWPE. Because of the high ranking, EPA selected this category for preliminary review.

Table 11-3. Plastics Molding and Forming Point Source Category TRI and PCS Discharges for 2000 and 2002

Data Source	Number of Facilities Reporting TWPE Greater Than Zero	Total Pounds Discharged	TWPE
2002 TRI	149	1,380,691	97,297
2002 PCS	9	214,533,873	172,483
2002 Total		**215,914,564**	**269,780**
2000 TRI	136	1,115,987	106,189
2000 PCS	6	945,799	3,698
2000 Total		**2,061,786**	**109,887**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA reviewed this category to identify facilities that are not clearly subject to existing effluent guidelines. Using company web sites, EPA concluded that there are five facilities that manufacture cellulose film, sponge, or meat casings that do not meet the applicability of the category. [1, 2, 3, 4] Table 11-4 shows these facilities along with their discharge types.

Table 11-4. Cellulose Manufacturing Facilities in the Plastics Molding and Forming Point Source Category

TRI ID Number	NPID Number	Facility Name	Facility Location	Discharge Type
61832TPKNC915NM		Teepak L.L.C.	Danville, IL	Indirect
	KS0003204	Innovia Films Inc	Tecumseh, KS	NA[1]
38402SPNTXSANTA		Spontex Inc	Columbia, TN	Direct
37774VSKSCEASTL		Viskase Corporation	Loudon, TN	Indirect
72370VSKSCRT198		Viskase Corporation	Osceloa, AR	Direct

Source: *TRIReleases2002*; *PCSLoads2002*.
Note: TRI ID and NPI D included only for facilities reporting to TRI or PCS as majors in the Plastic Molding and Forming Point Source Category.
[1]Discharge type is not applicable to PCS.

Table 11-5 shows the total TRI and PCS TWPE for the category including all five of the facilities that manufacture cellulose products. Excluding these five facilities from the category reduces the total combined TRI and PCS TWPE to 40,731 TWPE.

Table 11-5. Plastics Molding and Forming Point Source Category TRI and PCS Discharges Comparing Total 2002 Discharge to Cellulose Facilities 2002 Discharge

	Including All Facilities		Cellulose Facilities		
Data Source	Total Pounds Discharged	TWPE	Total Pounds Discharged	TWPE	Percentage of TWPE of All Facilities
2002 TRI	1,380,691	97,297	39,830	56,879	58.5%
2002 PCS	214,533,873	172,483	212,796,835	172,170	99.8%
2002 Total	**215,914,564**	**269,780**	**212,836,665**	**229,049**	**84.9%**

Source: *TRIReleases2002*; *PCSLoads2002*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

E. Pollutants of Concern

TRI Discharges

Table 11-5 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges, as well as the 2000 discharges of these chemicals, for comparison purposes.

Table 11-6. Plastics Molding and Forming Point Source Category, Top TRI Chemicals for 2000 and 2002

Chemical	2002 TRI				2000 TRI			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE	2000 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Carbon Disulfide	1	4	20,252	56,709	2	4	15,971	44,719
Dioxin and Dioxin-Like Compounds	2	1	0.0015	33,452	1	1	0.0085	56,717
Sodium Nitrite	3	1	13,937	5,203	7	1	695	259
Lead and Lead Compounds[1]	4	45	274	614	9	3	97	217
Formaldehyde	5	5	191,411	446	5	5	215,833	502

Source: *TRIReleases2002*; *TRIReleases2000_v4*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.
[1]Values shown for 2000 are for releases reported for lead and do not include lead compounds.

Carbon disulfide contributed 42% of the category TRI TWPE for 2000 and 58% of the category TWPE for 2002. All of the carbon disulfide discharges come from the four facilities reporting to TRI that manufacture cellulose food casing and cellulose sponge. [1, 3, 4]

PCS Discharges

Table 11-6 lists the five chemicals with the highest TWPE PCS-reported discharges for 2002. None of the top five chemicals in PCS for 2002 were reported to PCS in 2000.

Carbon disulfide accounts for 97% of the 2002 PCS TWPE, but was not reported to PCS in 2000. All of the carbon disulfide discharges come from one facility, Innovia Films Inc. (Tecumseh, KS), that manufactures cellulose film. [2]

Table 11-7. Plastics Molding and Forming Point Source Category, Top PCS Chemicals for 2002

Chemical	2002 PCS			
	2002 TWPE Rank	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Carbon Disulfide	1	1	60,041	168,125
Magnesium	2	1	1,829,470	1,583
Sulfate	3	1	197,419,795	1,106
Nitrogen, Nitrite Total (as N)	4	1	144,077	807
Calcium	5	1	10,333,219	289

Source: *PCSLoads2002*.
Note: PCS facilities include major dischargers only.

F. Issues Identified and Additional Review

EPA's high TWPE ranking for the Plastic Molding and Forming Category discharges are due, for the most part, to the five facilities manufacturing cellulose. Further review of this category may focus on the following issues:

- Analysis of the carbon disulfide discharges, including the methods used to estimate reported discharge, process sources, and concentrations discharged;
- Analysis of the discharge permits, for the five cellulose plants, including the NPDES permits for direct discharges, pretreatment agreements for the indirect dischargers, and contact with the POTWs receiving cellulose plant wastewater; and
- Pollution control technologies available to reduce carbon disulfide discharges, including recycling wastes, substitution of less toxic chemicals, and treatment of wastewater prior to discharge.

G. References

1. Devro. June 22, 2005. Available online at: http://www.devro.plc.uk/products/index.htm.

2. Innovia Films. June 22, 2005. Available online at: http://www.innoviafilms.com/corporate/profile.htm.

3. MAPA Spontex, Inc. June 22, 2005. Available online at: http://www.spontexusa.com/products.cfm?PRTID=1.

4. Viskase Companies, Inc. June 22, 2005. Available online at: http://www.viskase.com/.

5. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.

6. U.S. Economic Census. 1997. Available online at: http://www.census.gov/epcd/www/econ97.html.

7. U.S. EPA. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Plastics Molding and Forming Point Source Category*. EPA-440/1-84/069. Washington, D.C. 1984.

12.0 PORCELAIN ENAMELING (40 CFR 466)

This section describes the results of EPA's 2005 preliminary review of the Porcelain Enameling (PE) Point Source Category.

A. Industry Description

The porcelain enameling industry includes facilities that prepare the surface of a basis metal and apply a substantially vitreous or glassy inorganic coating bonded to the basis metal by fusion at a temperature above 800°F. [1] The coatings can be applied by spraying, dipping, or flow coating. [2] Facilities in this industry are divided into seven SIC codes listed in Table 12-1. The SIC codes and manufacturing operations associated with the Porcelain Enameling Point Source Category (40 CFR 466) overlap with the SIC codes associated with the Metal Finishing Point Source Category (40 CFR 433). EPA reviewed information about facilities in these SIC codes that reported wastewater discharges, to determine whether they are regulated by the Porcelain Enameling Point Source Category or Metal Finishing Point Source Category.

The Metal Finishing category includes 46 different processes, such as electroplating, etching and chemical milling, machining, hot dip coating including galvanizing, and painting. [3] To minimize overlapping regulations, the metal finishing effluent guidelines do not regulate facilities that are regulated under other sets of effluent guidelines including the Porcelain Enameling effluent guidelines; see 40 CFR 433.10(b). For the purposes of the 2005 annual review, EPA identified facilities subject to the Porcelain Enameling category. The Agency used individual company web sites [4] and the main trade association for this industry, the Porcelain Enamel Institute, to determine if the remaining facilities were porcelain enamelers.[5] Table 12-1 presents the number of facilities by SIC code, separated into facilities that are not likely to manufacture porcelain enameled products and facilities that are likely to manufacture porcelain enameled products. The table includes only the facilities reporting wastewater discharges to TRI

[5]EPA reviewed the Porcelain Enamel Institute website, to help identify porcelain enamelers. See http://www.porcelainenamel.com.

and facilities classified as major dischargers. EPA concluded that 95% of the facilities in the seven porcelain enameling SIC codes are not likely to manufacture porcelain enameled products.

Table 12-1. Number of Porcelain Enameling Facilities

SIC Code	2002 U.S. Economic Census	2002 TRI[1] Non-PE Facilities	2002 TRI[1] Likely PE Facilities	2002 PCS[2] Non-PE Facilities	2002 PCS[2] Likely PE Facilities
3431 Enameled Iron and Metal Sanitary Ware	80	0	4	0	1
3469 Metal Stamping, NEC	2,287	51	4	1	0
3479 Coating, Engraving, and Allied Services, NEC	5,255	102	0	8	0
3631 Household Cooking Equipment	97	0	6	0	0
3632 Household Refrigerators and Home and Farm Freezers	23	0	6	0	1
3633 Household Laundry Equipment	18	0	7	0	1
3639 Household Appliances, NEC	1,536	1	3	0	1
Total	**9,296**	**154**	**30**	**9**	**4**

Source: U.S. Economic Census, 2002 [5]; *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
[1]Releases to water only.
[2]Major dischargers only.
NEC - Not Elsewhere Classified.

B. Existing Effluent Limitations Guidelines and Pretreatment Standards

Wastewater discharges for the porcelain enameling industry are regulated under 40 CFR Part 466: Porcelain Enameling Point Source Category. This category consists of four subcategories, as shown in Table 12-2 with a description of the subcategories' applicability.

Table 12-2. Applicability of Subcategories in the Porcelain Enameling Point Source Category

Sub-part	Subpart Title	Subpart Applicability
A	Steel Basis Material	Porcelain enameling on steel basis material
B	Cast Iron Basis Material	Porcelain enameling on cast iron basis material
C	Aluminum Basis Material	Porcelain enameling on aluminum basis material
D	Copper Basis Material	Porcelain enameling on copper basis material

Source: *Porcelain Enameling Point Source Category - 40 CFR 466*; *Development Document for Effluent Limitations Guidelines and Standards for the Porcelain Enameling Point Source Category* [2].

EPA first promulgated effluent guidelines for the Porcelain Enameling Point Source Category in 1982. All of the subcategories, except for copper basis material, have BPT, BAT, NSPS, and PSES/PSNS limitations. Only NSPS and PSNS are established for the copper basis material subcategory. The priority pollutants chromium, lead, nickel, and zinc are regulated in all of the subcategories.

C. Results of Screening-Level Analysis

Table 12-3 presents the TRI and PCS discharges for 2002. The table compares the number of facilities reporting discharges greater than zero, the pounds of pollutants discharged, and the estimated TWPE discharged for the facilities that are not likely to manufacture porcelain enameled products (Non-PE Facilities) and those that are (Likely PE Facilities). The TRI TWPE far exceeds the PCS TWPE, both for non-porcelain enamelers and for likely porcelain enamelers. Because of the combined TRI and PCS TWPE discharges for facilities in these seven SIC codes, EPA selected this category for preliminary review. However, the first task of this preliminary category review will be to better identify whether facilities in these seven SIC codes belong in the Metal Finishing Point Source Category or the Porcelain Enameling Point Source Category. Based on the results of this sorting, EPA will be better able to assess the pollutant discharges for the Porcelain Enameling Point Source Category.

Table 12-3. Porcelain Enameling Point Source Category TRI and PCS Discharges for 2002

	Number of Facilities Reporting TWPE Greater Than Zero	Total Pounds Discharged	TWPE
2002 Total		**46,479,576**	**95,700**
2002 TRI Non-PE Facilities	154	406,178	49,395
2002 PCS Non-PE Facilities	9	22,710,347	3,450
2002 Total Non-PE Facilities		**23,116,525**	**52,845**
2002 TRI Likely PE Facilities	30	576,059	39,348
2002 PCS Likely PE Facilities	4	38,322	28
2002 Total Likely PE Facilities		**614,381**	**39,376**

Source: *TRIReleases2002*; *PCSLoads2002*; *TRIReleases2000_v4*; *PCSLoads2000_v6*.
Note: TRI discharges include transfers to POTWs and account for POTW removals. PCS facilities include major dischargers only.

D. Potential New Subcategories

EPA did not identify any potential new subcategories for the Porcelain Enameling Point Source Category.

E. Pollutants of Concern

TRI Discharges

Table 12-4 lists the five chemicals with the highest TWPE of TRI-reported 2002 discharges for the likely porcelain enameling facilities. The 2000 discharges of these chemicals for the porcelain enameling facilities are not included because EPA completed an in-depth review of the facilities only for those reporting discharges in 2002. Sodium nitrite contributed the majority (80%) of the category TRI TWPE in 2002.

Table 12-4. Porcelain Enameling Point Source Category, Top TRI Chemicals for 2002

Chemical	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Sodium Nitrite	6	83,998	31,359
Zinc and Zinc Compounds	11	101,790	4,773
Nickel and Nickel Compounds	18	28,575	3,112
Copper and Copper Compounds	6	62	40
Lead and Lead Compounds	8	12	28

Source: *TRIReleases2002*.
Note: TRI discharges include transfers to POTWs and account for POTW removals.

PCS Discharges

Table 12-5 lists the five chemicals with the highest TWPE of PCS-reported discharges for 2002 for the four likely porcelain enameling facilities. The 2000 discharges of these chemicals for the porcelain enameling facilities are not included because EPA conducted an in-depth review of the facilities only for those reporting discharges in 2002. Nickel, aluminum, and zinc account for 73% of the 2002 PCS TWPE.

Table 12-5. Porcelain Enameling Point Source Category, Top PCS Chemicals for 2002

Chemical	Number of Facilities Reporting Chemical	Total Pounds	TWPE
Nickel	3	86	9.4
Aluminum	2	96	6.2
Zinc	3	103	4.8
Lead	3	1.9	4.4
Iron	3	519	2.9

Source: *PCSLoads2002*.
Note: PCS facilities include major dischargers only.

F. Issues Identified

Before completing the final 2006 Plan, EPA will collect more information to better identify whether facilities in the seven SIC codes belong in the Metal Finishing Point Source Category or the Porcelain Enameling Point Source Category. Based on the results of this sorting, EPA will be better able to assess the pollutant discharges for the Porcelain Enameling Point Source Category. Further review of this category may also focus on the following issues:

- Improve identification of the category by contacting facilities dominating the TWPE to verify point source category; and
- Analysis of the TRI-reported sodium nitrite discharges, including the methods used to estimate reported discharges, process sources, and concentrations discharged.

G. References

1. Porcelain Enamel Institute. *Properties of Porcelain Enamel, Appearance Properties, Data Bulletin PEI 501*. Available online at: http://www.porcelainenamel.com/pei501.htm.

2. U.S. EPA. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Porcelain Enameling Point Source Category*. EPA-440/1-82/072. Washington, D.C. 1982.

3. U.S. EPA. *Development Document for Effluent Limitations Guidelines and New Source Performance Standards for the Metal Finishing Point Source Category*. EPA-440/1-83/091. Washington, D.C. 1983.

4. Memorandum to 2006 Effluent Guidelines Program Plan Docket, EPA Docket Number OW-2004-032 from Jessica Wolford, ERG. "Identification of Facilities for the Porcelain Enameling Point Source Category". July 14, 2005. Docket OW-2004-0032. DCN 02195.

5. U.S. Economic Census. 2002. Available online at: http://www.census.gov/econ/census02.