Overview of Categorical Standards

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3 Types of Pretreatment Standards

- General & specific prohibitions
- Local limits
- Categorical standards







What are Effluent Limitations Guidelines and Standards [ELGs]?

- Nationally applicable
- Industry Sector specific
- Technology-based
  - Based on best available treatment technologies (not based on risk or impacts upon receiving waters)
- Economic achievability determination

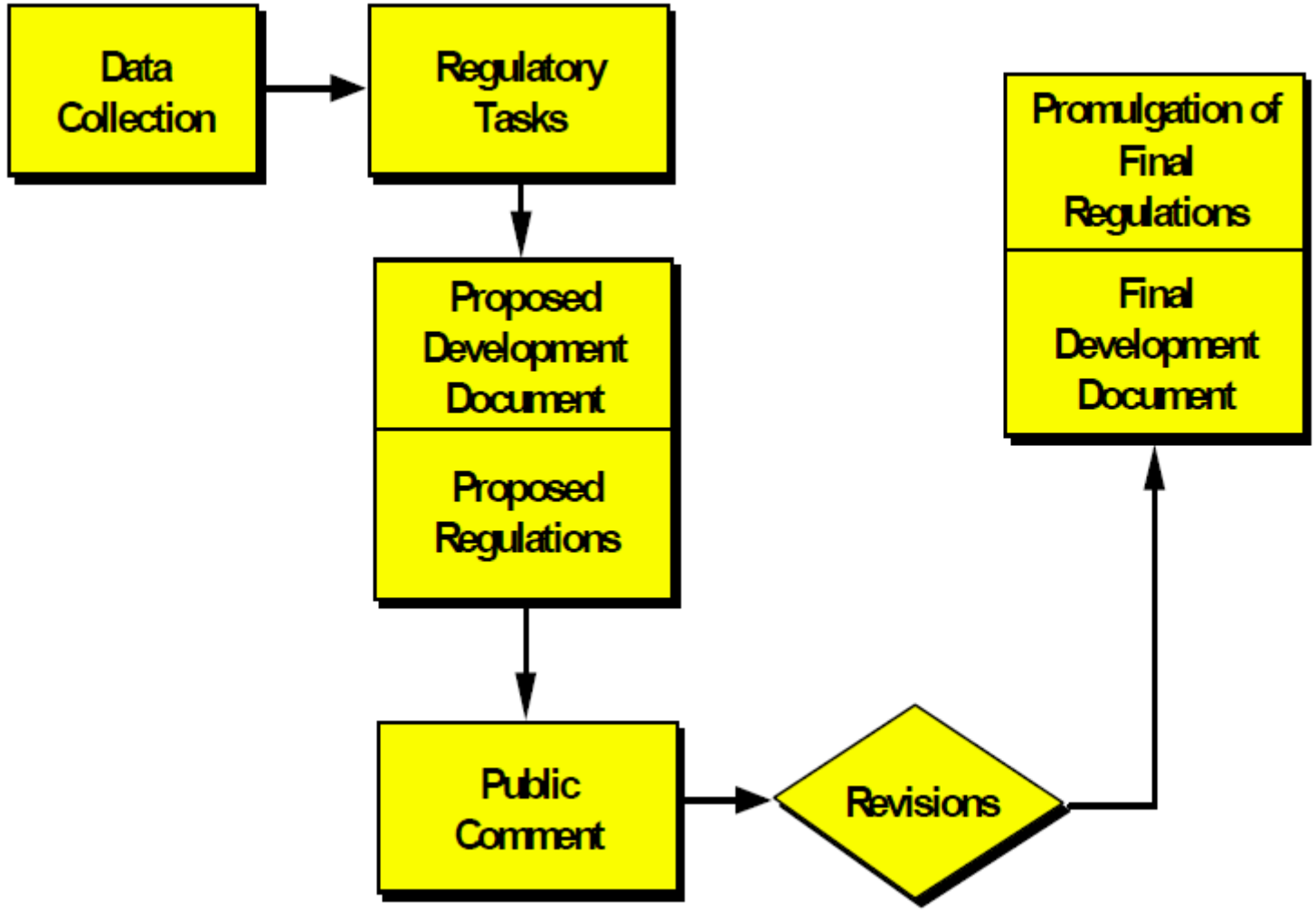
What are Effluent Limitations Guidelines and Standards [ELGs]?

- Different requirements for direct and indirect dischargers
  - Effluent Limitations Guidelines apply to direct dischargers (to waters of the U.S.)
  - Categorical pretreatment standards apply to indirect dischargers (to POTWs)

Overarching Goals of Effluent Limitations Guidelines

- Ensure that standards for indirect dischargers (to POTWs) are equivalent to standards for direct dischargers (to waters of the U.S.)
- Take into account the treatment capability of the POTW
- Establish “level playing field”
- Prevent “pass through” and “interference” for POTWs (subject to Secondary Treatment Standards of 40 CFR Part 133)

ELG Development



How are ELGs Identified for Revision or Development?

Effluent Guidelines Plan

- Annually review categories of dischargers with existing Standards
- Identify categories of dischargers of pollutants without existing Standards
- Establish schedule for Standards revisions or new promulgation
- Provide for public review and comment
- Publish the proposed and final Plan

How Does EPA Develop ELGs for an Industrial Category?

- National Data Collection
  - Technical and financial surveys
  - Inspection of production processes
  - Inspection of wastewater treatment systems
  - Sampling of Wastewater
  - Stakeholder involvement

How does EPA Develop ELGs for an Industrial Category? (cont.)

- Technology Assessment
  - Characterize wastewater and technology performance
    - Subcategorization
    - Regulated pollutants
  - Identify cost to install new technologies & process changes
  - Identify pollutant reductions associated with new technologies and process changes
  - Derive numerical standards

How does EPA Develop ELGs for an Industrial Category? (cont.)

- Economic analysis
  - Economic achievability; Market Effects; Cost Effectiveness
  - Value of Environmental & Human Health Benefits
- Environmental assessment
  - Pollutant transport & Exposure pathways, hazards
  - National & Local Impacts
  - National & Local Benefits
- Public review and comment

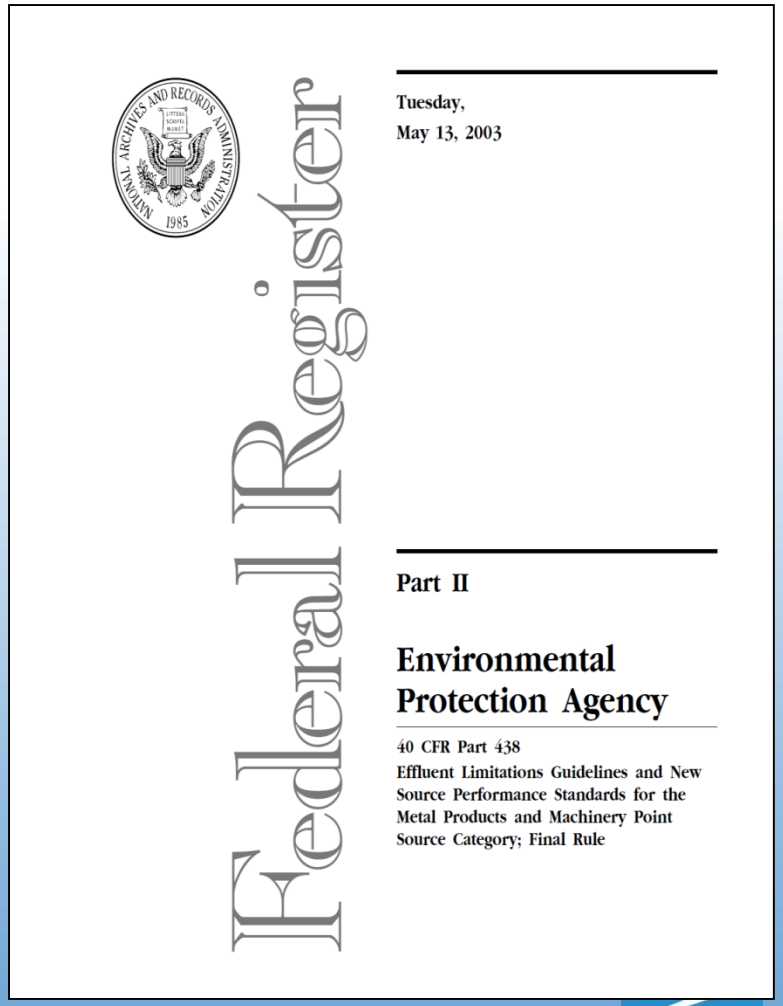
Where can ELGs be found?

Published in the Federal Register (FR)

- Proposed regulations
- Final regulations

40 CFR Parts 405-471

http://www.gpo.gov/fdsys/



Contents of Individual Effluent Guidelines and Standards

General Provisions:

- Applicability
- Definitions
- Monitoring and Reporting requirements
- Compliance dates

Subparts:

- Special definitions
- Standards

How are ELGs Implemented?

Categorical Standards:

- Are “self implementing”
- May be enforced via “Control mechanisms” (permits) issued by control authority (typically the receiving POTW)
- Are typically applied at “end of pipe” but may be required “in process”

How are ELGs Expressed?

- Numeric values for specific pollutants
  - Concentration limits (e.g., “mg/l”)
  - Mass limits based on production rates (e.g., “kg/1000 kkg or (pounds per million pounds) of metal poured”)
  - Mass limits based on a concentration standard (then multiplied by a facility’s process wastewater flow)
- Best Management Practices
- Prohibitions, including “No discharge”

How are ELGs Expressed? (cont.)

- Do not mandate use of a specific technology
- May include specific reporting or recordkeeping specific to the industry
- May state “must comply with 40 CFR 403”
  - (such facilities aren’t considered a CIU)

Types/Duration of Limits (Standards)

- Daily maximum
- Max for any monthly avg
- Max for any time
- Long term averages
  - 4 consecutive monitoring days
  - Avg of daily values for 30 consecutive days
  - Monthly
- Values with no duration (Instantaneous?)

Concentration-based limits

Example:

Metal Finishing

40 CFR 433.17

PSNS

§ 433.17 Pretreatment standards for new sources (PSNS).

(a) Except as provided in 40 CFR 403.7, any new source subject to this subpart that introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve the following pretreatment standards for new sources (PSNS):

PSNS

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
Cadmium (T)	0.11	0.07
Chromium (T)	2.77	1.71
Copper (T)	3.38	2.07
Lead (T)	0.69	0.43
Nickel (T)	3.98	2.38
Silver (T)	0.43	0.24
Zinc (T)	2.61	1.48
Cyanide (T)	1.20	0.65
TTO	2.13	

(b) Alternatively, for industrial facilities with cyanide treatment, and upon agreement between a source subject to these limits and the pollution control authority, the following amenable cyanide limit may apply in place of the total cyanide limit specified in paragraph (a) of this section:

Pollutant or pollutant property	Maximum for any 1 day	Monthly average shall not exceed
	Milligrams per liter (mg/l)	
Cyanide (A)	0.86	0.32

(c) No user subject to the provisions of this subpart shall augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with this limitation.

(d) An existing source submitting a certification in lieu of monitoring pursuant to §433.12 (a) and (b) of this regulation must implement the toxic organic management plan approved by the control authority.

[48 FR 32485, July 15, 1983; 48 FR 43682, Sept. 26, 1983]

Production-based limits

Example:

Metal Molding and Casting

Subpart A – Aluminum Casting Subcategory

40 CFR 464.15, PSES

Subparts (a) and (b) shown (additional subparts not shown)

§ 464.15 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve the following pretreatment standards for existing sources.

(a) *Casting Cleaning Operations.*

PSES

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	kg/1,000 kkg (pounds per million pounds) of metal poured	
Copper (T)	0.0771	0.0421
Lead (T)	0.0791	0.039
Zinc (T)	0.114	0.0431

(b) *Casting Quench Operation.*

PSES

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	kg/1,000 kkg (pounds per million pounds) of metal poured	
Copper (T)	0.0093	0.0051
Lead (T)	0.0096	0.0047
Zinc (T)	0.0138	0.0052
TTO	0.029	0.0095
Oil and grease (for alternate monitoring)	0.363	0.121

Mass limits based on a concentration standard

Example:

Organic Chemicals and Synthetic fibers

40 CFR 414.24 & 414.26

§ 414.25 Pretreatment standards for existing sources (PSES).

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve discharges in accordance with §414.111.

[58 FR 36892, July 9, 1993]

§ 414.26 Pretreatment standards for new sources (PSNS).

Except as provided in 40 CFR 403.7 any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR part 403 and achieve discharges in accordance with §411.111.

[58 FR 36892, July 9, 1993]

40 CFR 414.111 (excerpt)

§ 414.111 Toxic pollutant standards for indirect discharge point sources.

(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 concentration listed in the following table.

(b) In the case of lead, zinc, and total cyanide the discharge quantity (mass) shall be determined by multiplying the concentrations listed in the following table for these pollutants times the flow from metal-bearing waste streams for metals and times the flow from the cyanide-bearing waste streams for total cyanide. The metal-bearing waste streams and cyanide-bearing waste streams are defined as those waste streams listed in Appendix A of this part, plus any additional OCPSF process wastewater streams identified by the control authority on a case-by-case basis as metal or cyanide bearing based upon a determination that such streams contain significant amounts of the pollutants identified above. Any such streams designated as metal or cyanide bearing must be treated independently of other metal or cyanide bearing waste streams unless the control authority determines that the combination of such streams, prior to treatment, with the Appendix A waste streams will result in substantial reduction of these pollutants. This determination must be based upon a review of relevant engineering, production, and sampling and analysis information.

Effluent characteristics	PSES and PSNS[1]	
	Maximum for any one day	Maximum for any monthly average
Acenaphthene	47	19
Anthracene	47	19
Benzene	134	57
Bis(2-ethylhexyl) phthalate	258	95
Carbon Tetrachloride	380	142
Chlorobenzene	380	142

BMPs as categorical standards

- Certification is allowed in lieu of monitoring
- Specified pollutants
- Management plan must be approved and implemented
- Examples:
  - Electroplating (40 CFR 413.03)
  - Pulp, Paper, and Paperboard (40 CFR 430.02)
  - Metal Finishing (40 CFR 433.12)
  - Transportation Equipment Cleaning (PSES & PSNS – various subparts)
  - Electrical and Electronic Components (40 CFR 469.13)

Categories Targeted

- **1976 EPA/NRDC agreement (lawsuit)**
  - **21 identified in 1976; modified to 34 in 1979**
- **58 Categories (Effluent Guidelines) to date**
- **Located in 40 CFR Parts 405-471 @**

  http://water.epa.gov/scitech/wastetech/guide/industry.cfm

  (includes the final Rule's FR preamble, its Development Document & guidance manual [where one was drafted])

Technologies to meet Categorical Standards?

- BPT
- BCT
- BAT
- NSPS

- ***PSES***
- ***PSNS***

Contents of Individual Effluent Guidelines and Standards (cont.)

Standards for Direct Dischargers (NPDES permits):

- Best Practicable Technology - BPT
- Best Conventional Technology - BCT
- Best Available Technology Economically Achievable - BAT
- New Source Protection Standards – NSPS

Contents of Individual Effluent Guidelines and Standards (cont.)

Types of Standards for Indirect Dischargers (Industrial Users):

- Pretreatment Standards for Existing Sources - PSES
- Pretreatment Standards for New Sources – PSNS

"Categorical Pretreatment Standards"

"CIUs"

Contents of Individual Effluent Guidelines and Standards (cont.)

Direct Discharge Standards vs. Pretreatment Standards

- Categorical Pretreatment Standards:
- Typically do *not* regulate conventional pollutants
  - Biochemical Oxygen Demand, Oil and Grease, pH, Total Suspended Solids, fecal coliform
- Focus on toxic and non-conventional pollutants

PSES

- Is NOT a new source
- May be less stringent than PSNS
- Assumes need for retrofit of treatment technology/practices
- Compliance date = specified in regulation (no more than 3 years after effective date)

PSNS

- Is a new source
- Often more stringent than PSES
- Opportunity to install best and most efficient process and treatment technology/practices
- Compliance date = ASAP (not to exceed 90 days from discharge)

See Definition of New Source: 40 CFR 403.3(m)

Additional Guidance: "New Source Memorandum"

https://www.epa.gov/npdes/national-pretreatment-program

Categorical Determinations

- Look at applicability section of categorical standard.
  - If more than one subpart, note the applicability section of each subpart
  - Note: exceptions (“what this part does not apply to”), other categorical standards that apply and “trump” this standard
- Multiple categorical standards may apply at one facility

IDENTIFY APPLICABLE PROCESSES, SUBPARTS, and SUBPROCESSES SUBJECT TO CATEGORICAL STANDARDS

HOW????

- **IDENTIFY:**
- **Manufacturing processes employed;**
- **Raw materials used including chems;**
- **Types of items produced; and**
- **Characteristics of typical wastes generated**

EXAMPLE OF ONE CATEGORY'S:

Subparts (Subcategories) and/or Subprocesses

CFR 464 - METAL MOLDING & CASTING

- **Subpart A - Aluminum Casting Subcategory**
- **Subpart B - Copper Casting Subcategory**
- **Subpart C - Ferrous Casting Subcategory**
- **Subpart D - Zinc Casting Subcategory**
  - **a.Casting Quench Operations Standards**
  - **b.Die Casting Operations Standards**
  - **c.Melting Furnace Scrubber Ops Standards**
  - **d.Mold Cooling Operations Standards**

TIPS FOR DETERMINING IF AN IU IS A CATEGORICAL

1) MUST REQUIRE COMPREHENSIVE IU SURVEYS AND PERMIT APPLICATIONS

2) SURVEYS & APPLICATIONS SHOULD ASK QUESTIONS PERTINENT TO THE IU'S OPERATIONS FROM RAW MTRL IN TO FINISHED PRODUCT OUT

3) IF IU IS ANY TYPE OF FOOD RELATED PRODUCER or PROCESSOR

- Not likely a categorical with applicable PSES or PSNS
- *Therefore, not a CIU under the National Pretreatment PRogram*

TIPS FOR DETERMINING IF IU IS A CATEGORICAL WITH PSES/PSNS

SOME QUESTIONS TO BE ASKED ON AN IU SURVEY OR PERMIT APPLICATION

- Applicable SIC CODES ARE NOT THE DETERMINING FACTOR IN ALL CASES
  - *40 CFR 414 "OCPSF" is an exception*

- Review Raw Material
  : NOT JUST METAL (*or other*) substrate, BUT VIRGIN CHEMS (*Not Trade Names*) USED IN PROCESSING

•PROCESSES THAT INCLUDE ANY TYPE OF ACIDS, CAUSTICS, DEFOAMERS, SURFACTANTS.

•*WHAT'S THEIR PURPOSE?*

ERG

Categorical Standards:
Determine Existing vs New Source

- **Check PSES compliance date**
- **Check new source definition in CFR 403.3(m)**
  - ***Construction after PSES compliance date?***
  - ***Total replacement of processes or equipment?***
  - ***WW generating processes are substantially independent from previous ops?***
  - **Interpretations are "all over the board…" (call State or Region 6 Coordinator for input/confirmation)**

Categorical Determinations Resources

- EPA's Effluent Guidelines and Standards Website http://water.epa.gov/scitech/wastetech/guide/index.cfm
- EPA's "ELG" Industrial Wastewater Contacts http://water.epa.gov/scitech/wastetech/guide/contact.cfm#elg-list
- EPA's Pretreatment Standards and Limits Website http://cfpub.epa.gov/npdes/pretreatment/pstandards.cfm#categorical
- Contact Approval Authority for assistance

Applicability of Pretreatment Standards

	General and Specific Prohibitions	Categorical Pretreatment Standards	Local Limits
All IUs			May apply; depends on POTW ordinance and permit provisions
SIUs			Generally apply; may depend on allocation method
CIUs			Generally apply; may depend on allocation method

Summary of Pretreatment Standards

	General and specific prohibitions	Categorical pretreatment standards	Local limits
Development	Established at the federal level.	Established at the federal level.	Developed by the POTWs.
Reference	40 CFR 403.5(a) & (b)	40 CFR Parts 405–471	Requirements for development found in 40 CFR 403.5(c) & 403.8(f)(4). Local limits are often found in the local sewer use ordinance.
Applicability	All IUs	CIUs	Commonly all IUs or all SIUs, but depends on the allocation method used when developing limits.
Purpose	Provide for general protection of the POTW. Categorical pretreatment standards or local limits may be more stringent.	Minimum standards based on available treatment technology and pollution prevention measures for controlling nonconventional and toxic pollutants that could cause pass through, interference, and such at the POTW. Local limits may be more stringent.	Provide site-specific protection for a POTW and its receiving waters. Categorical standards may be more stringent.
All standards are considered pretreatment standards for the purpose of CWA section 307(d), and therefore all standards, including local limits developed in accordance with 40 CFR 403.5(c), are enforceable by EPA and the state even though they might be developed at the local level. A POTW is responsible for identifying standard(s) applicable to each IU and applying the most stringent requirements where multiple provisions exist. Compliance with imposed standards can be achieved by any of the following: implementing BMPs, developing a pollution prevention program, or installing pretreatment.			

Other Provisions to Consider...

Dilution prohibition
[40 CFR § 403.6(d)]

Removal credits
[40 CFR § 403.7]

Fundamentally different factors
[40 CFR § 403.13]

Net/Gross calculation
[40 CFR § 403.15]

Prohibitions in ELGs

Examples:

40 CFR 415.36 – Inorganic chemicals manufacturing, Subpart C calcium carbide production subcategory, PSNS

There shall be no discharge of process wastewater pollutants to navigable waters.

40 CFR 423.16(a) – Steam electric power generating, PSES

There shall be no discharge of polychlorinated biphenol compounds such as those used for transformer fluid.

40 CFR 461.14(b) – Battery manufacturing, Subpart A cadmium subcategory, PSES

There shall be no discharge allowance for process wastewater pollutants from any battery manufacturing operation other than those battery manufacturing operations listed above.

Industrial categories without *specific* PSES/PSNS

Nonspecific standard:

"Any existing source subject to this subpart that introduces process wastewater pollutants in a POTW must comply with 40 CFR Part 403."

ELG resources

EPA United States Environmental Protection Agency

Water: Industry Effluent Guidelines

You are here: Water » Science & Technology » Wastewater Technology » Industry Effluent Guidelines » Industrial Regulations

Industrial Regulations

Effluent guidelines are national standards for wastewater discharges to surface waters and publicly owned treatment works (sometimes called municipal sewage treatment plants). We issue effluent guidelines for categories of existing sources and new sources under Title III of the Clean Water Act. The standards are technology-based (i.e. they are based on the performance of treatment and control technologies); they are not based on risk or impacts upon receiving waters.

Best Management Practices for Unused Pharmaceuticals at Health Care Facilities - Draft for Public Comment

Questionnaire for Alaskan Seafood Processors

On this page:

- Regulations Under Development
- Existing Regulations
- Other Publications Related to Effluent Guidelines

Regulations Under Development

- Airport Deicing
- Chlorine and Chlorinated Hydrocarbon (CCH)
- Construction and Development
- Dental Amalgam Effluent Guideline
- Drinking Water Treatment
- Steam Electric Power Generating

Existing Regulations

The table below lists the effluent guidelines promulgated by EPA, sorted alphabetically by industry category. The links in the 'Industry Category' column provide an overview of the regulation and available EPA publications for the category. The links under '40 CFR' go directly to the Code of Federal Regulations (CFR).

For many of the newer guidelines (especially those promulgated after 1995), we provide individual industry pp. with the Federal Register notices of proposed and final rules, supplemental notices, fact sheets and other background information. For older guidelines, individual pp. are being developed. We provide an interim link to an EPA staff contact.

Industry Category	40 CFR Part	First Promulgated	Limitations and Standards
Aluminum Forming	467	1983	BPT, BAT, NSPS, PSES, PSNS
Asbestos Manufacturing	427	1974	BPT, BCT, BAT, NSPS
Battery Manufacturing	461	1984	BPT, BAT, NSPS, PSES, PSNS
Canned and Preserved Fruits and Vegetable Processing	407	1974	BPT, BCT, NSPS, PSES, PSNS
Canned and Preserved Seafood (Seafood Processing)	408	1974	BPT, BCT, NSPS
Carbon Black Manufacturing	458	1978	BPT, BAT, NSPS, PSNS
Cement Manufacturing	411	1974	BPT, BCT, BAT, NSPS
Centralized Waste Treatment	437	2000	BPT, BCT, BAT, NSPS, PSES, PSNS
Coal Mining	434	1985	BPT, BAT, NSPS
Coil Coating	465	1983	BPT, BAT, NSPS, PSES, PSNS
Concentrated Animal Feeding Operations (CAFO)	412	1974	BPT, BCT, BAT, NSPS, PSNS
Concentrated Aquatic Animal Production (Aquaculture)	451	2004	BPT, BAT, BCT, NSPS
Copper Forming	468	1983	BPT, BAT, NSPS, PSES, PSNS
Dairy Products Processing	405	1974	BPT, BCT, NSPS
Electrical and Electronic Components	469	1983	BPT, BCT, BAT, NSPS, PSES, PSNS
Electroplating	413	1981	PSES
Explosives Manufacturing	457	1976	BPT
Ferroalloy Manufacturing	424	1974	BPT, BCT, BAT, NSPS
Fertilizer Manufacturing	418	1974	BPT, BCT, BAT, NSPS, PSNS
Glass Manufacturing	426	1974	BPT, BCT, BAT, NSPS, PSNS
Grain Mills Manufacturing	406	1974	BPT, BCT, NSPS, PSNS
Gum and Wood Chemicals	454	1976	BPT
Hospitals	460	1976	BPT
Ink Formulating	447	1975	BPT, BAT, NSPS, PSNS
Inorganic Chemicals	415	1982	BPT, BCT, BAT, NSPS, PSES, PSNS

https://www.epa.gov/eg

EPA Website Resources

- EPA's Effluent Guidelines and Standards Website https://www.epa.gov/eg
- EPA's "ELG" Industrial Wastewater Contacts https://www.epa.gov/eg/forms/contact-us-about-effluent-guidelines#contact-list
- EPA's Pretreatment Standards and Limits Website https://www.epa.gov/npdes/pretreatment-standards-and-requirements
- EPA HQ, Region, and State Pretreatment Coordinators https://www.epa.gov/npdes/contact-us-national-pretreatment-program

Questions?

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