



# **U.S. EPA NPDES Basic Permit Writers' Course**

## **Workbook**

 Printed on recycled paper

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## **COURSE ORGANIZATION**

**The course is designed around the process of issuing a permit...from receipt of the application form, to the development of effluent limitations, monitoring conditions and special conditions and, ultimately, issuance of the permit.**

## **PRIMARY COURSE REFERENCES**

- **Text**
- **Workbook**
- **Code of Federal Regulations (CFR)**
- **EPA Quality Criteria for Water 1986 (Gold Book)**
- **EPA Technical Support Document (TSD) for Water Quality-Based Toxics Control**
- **EPA Permit Writer's Guide to Water Quality-Based Permitting for Toxic Pollutants**
- **EPA Abstracts of Industrial NPDES Permits**
- **EPA Treatability Manual**
- **EPA NPDES Best Management Practices Guidance Document**
- **EPA Case-by-Case Permitting of Municipal Sewage Sludge**
- **Additional Miscellaneous Guidance**
- **Practical Exercises**

# **NPDES PROGRAM OVERVIEW/ BACKGROUND**

## **LEARNING OBJECTIVES**

- **NPDES Program Overview**
- **Statutory Evolution**
- **NPDES Program Implementation**

## **NPDES STATUTORY FRAMEWORK**

- **All "point sources"**
- **"Discharging pollutants"**
- **Into "waters of the States" must obtain an NPDES permit from EPA or an approved State**

## **OVERVIEW OF THE NPDES PROGRAM**

- **What is a permit?**
- **Universe of permittees**
- **Contents of a permit**
- **Methods for developing permit limits**
- **Universe of regulated pollutants**
- **Overview of the issuance process**

## **WHAT IS A PERMIT?**

- **It is a license . . .**
- **Issued by the government to persons conducting business in the United States**
- **Granting permission to do something which would be illegal in the absence of the permit**
- **There is no right to a permit and it is revocable for cause (noncompliance)**
- **For our purposes, NPDES permit is license to discharge**

## **CLASSIFICATION OF NPDES FACILITIES**

- **Municipals (POTWs)**
  - **Majors ( $\geq 1$  MGD design flow)**
  - **Minors**
- **Non-Municipal**
  - **Majors ( $\geq 80$  points)**
  - **Minors**

**NOTES:**

## **CLASSIFICATION OF MAJOR AND MINOR INDUSTRIAL PERMITS**

- **Toxic pollutant potential**
- **Flow/stream flow volume**
- **Conventional pollutants**
- **Public health impact**
- **Water quality factors**
- **Proximity to near coastal waters**

## **DISTRIBUTION OF DISCHARGERS TOTAL DISCHARGERS: 64,229**

- **Municipals (15,605)**
  - **Majors: 3,857**
  - **Minors: 11,748**
- **Non-Municipal (48,624)**
  - **Majors: 3,275**
  - **Minors: 45,349**
- **Percentage of permittees**
  - **Industrials : 76%**
  - **Municipals: 24%**

**NOTES:**

## **CONTENTS OF THE PERMIT**

- **Cover sheet**
- **Effluent limitations**
  - **Effluent guidelines (Non-municipal)**
  - **Best Professional Judgment (Non-municipal)**
  - **Secondary treatment (Municipal)**
  - **Water Quality (Municipal and non-municipal)**
- **Monitoring requirements**
- **Standard conditions**
- **Special conditions**
  - **Best Management Practices (Generic)**
  - **Best Management Practices (Storm water-specific)**
- **Other conditions (Municipal)**
  - **Pretreatment program**
  - **Combined Sewer Overflows**
  - **Municipal sludge**

## **METHODS TO DEVELOP EFFLUENT LIMITATIONS IN PERMITS**

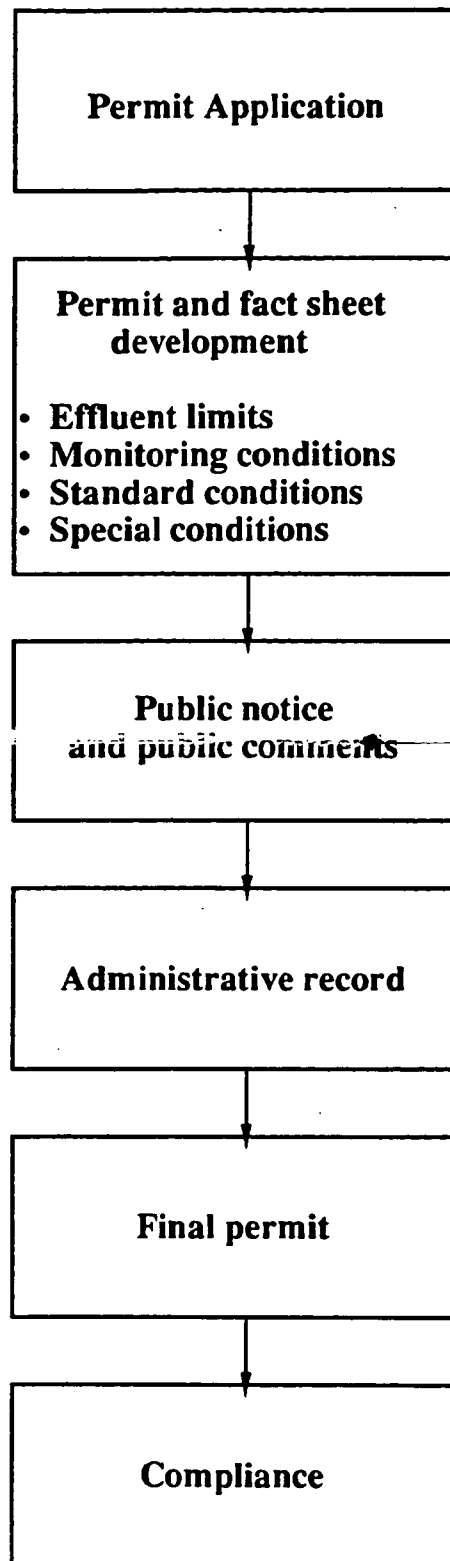
- **Effluent limitations guidelines**
- **Water quality standards**
- **Best professional judgment**

## **CWA CLASSES OF POLLUTANTS**

- **Conventional pollutants**
  - **BOD**
  - **TSS**
  - **Oil and Grease**
  - **Fecal coliforms**
  - **pH**
- **Toxic pollutants**
  - **Heavy metals**
    - **Copper**
    - **Lead**
    - **Zinc**
    - **Nickel**
    - **Chromium**
    - **Etc.**
  - **Organic chemicals**
    - **Benzene**
    - **1,2 - Dichlorobenzene**
    - **Carbon tetrachloride**
    - **Etc.**
- **Nonconventional pollutants**
  - **Ammonia**
  - **Chlorine**
  - **Toxicity**

**NOTES:**

# PERMIT ISSUANCE PROCESS



## **FWPCA - 1972 AMENDMENTS**

- **Established NPDES and pretreatment programs**
- **Incorporated permits from 1899 Act and standards from 1965 Water Quality Act**
- **Dischargers must identify themselves**
- **Permits are privilege - not a right**
- **Effluent limits must be both technology based and water quality based**
- **Compliance deadlines are specified**
  - **7/1/77 for BPT and water quality standards,**
  - **7/1/83 for BAT**
- **Maximum duration is 5 years**
- **States and public must be involved in issuance process**
- **Established significant penalties for permit violations**
- **Indicated that permit compliance is a shield**
- **Provided for State programs**
- **Established Construction Grants Program for POTWs**

**NOTES:**

## **NRDC CONSENT DECREE - 1976**

- **EPA sued by the NRDC, and other environmental and industrial groups**
- **Established the list of 129 (now 126) priority pollutants**
- **Established 34 industrial categories to be regulated by NPDES and pretreatment**
- **Required development of BAT effluent guidelines and categorical pretreatment standards by 1983**

## **CLEAN WATER ACT AMENDMENTS - 1977**

- **Adopted the provisions of the NRDC consent decree, including "toxic" pollutants**
- **Established BCT for conventional pollutants**
- **Extended BAT/BCT compliance deadlines (7/1/84)**
- **Clarified that Federal facilities are subject to State programs**
- **Authorized EPA to approve local pretreatment programs**
- **Required NPDES States to modify their programs to include pretreatment oversight**

**NOTES:**

## **WATER QUALITY ACT - 1987**

- **Extends compliance deadline again (3/31/89)**
- **Specifies storm water permitting requirements**
- **Increases civil and criminal penalties and makes administrative fines available to EPA**
- **Designates that Indian tribes be considered "States"**
- **Creates the Federal sludge management program**
- **Phases out construction grants program**
- **Creates new programs for nonpoint sources (runoff)**

## **NPDES IMPLEMENTATION**

### **Before approval:**

- **EPA issues permits**
- **EPA conducts compliance and monitoring activities**
- **EPA enforcement**

### **After approval:**

- **States implement as above**
- **EPA role = oversight**
  - **Grants**
  - **Administrative, technical and legal support training**
  - **Enforcement as necessary**

## **SNAPSHOT: NPDES PROGRAM APPROVALS**

•	<b>Eligible jurisdiction*</b>	<b>57</b>
•	<b>NPDES approved</b>	<b>39</b>
•	<b>Pretreatment approved</b>	<b>27</b>
•	<b>Federal facility approved</b>	<b>34</b>
•	<b>General Permits approved</b>	<b>28</b>

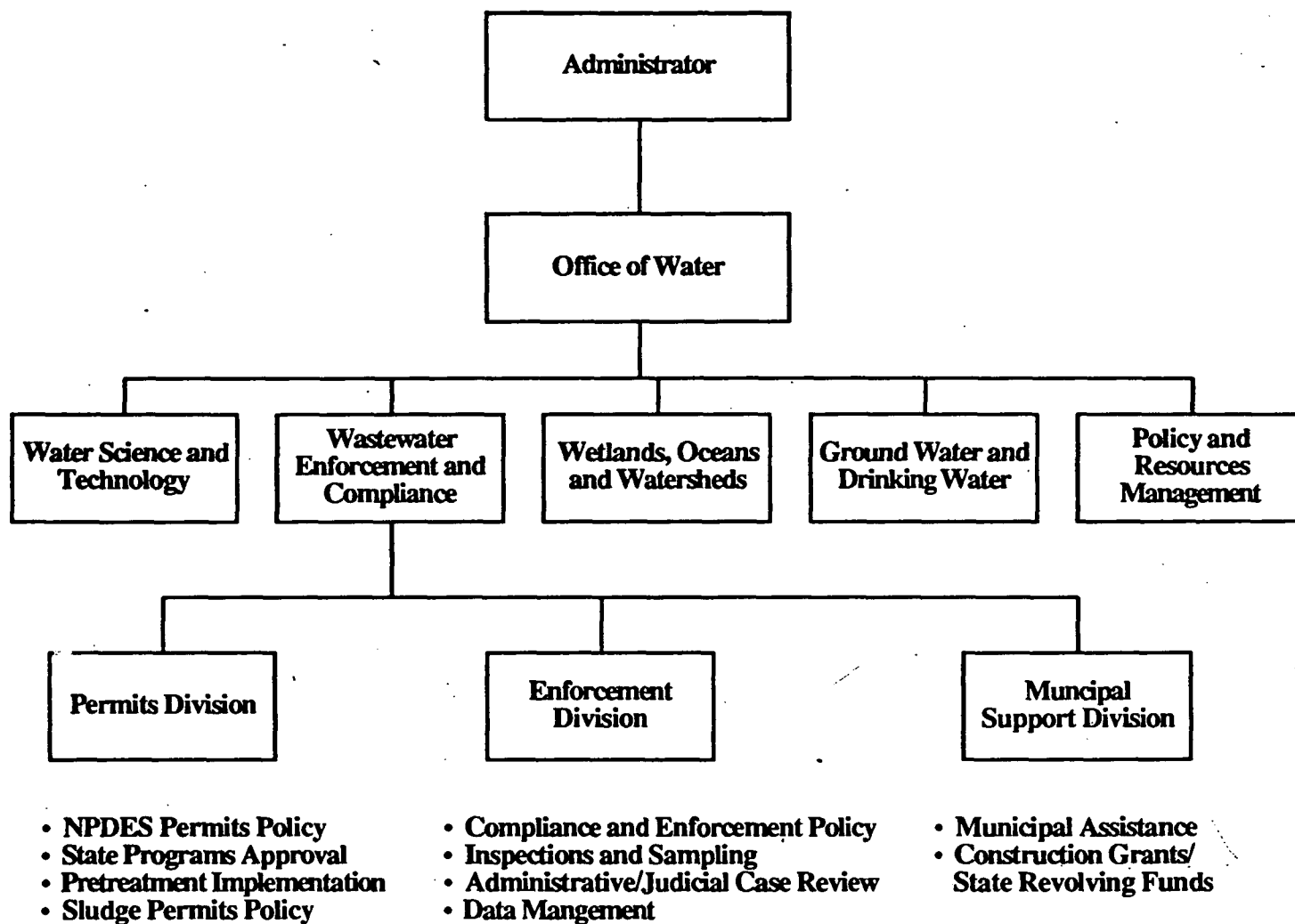
**\*Not including Indian tribes**

## **NPDES ACCOMPLISHMENTS TO DATE**

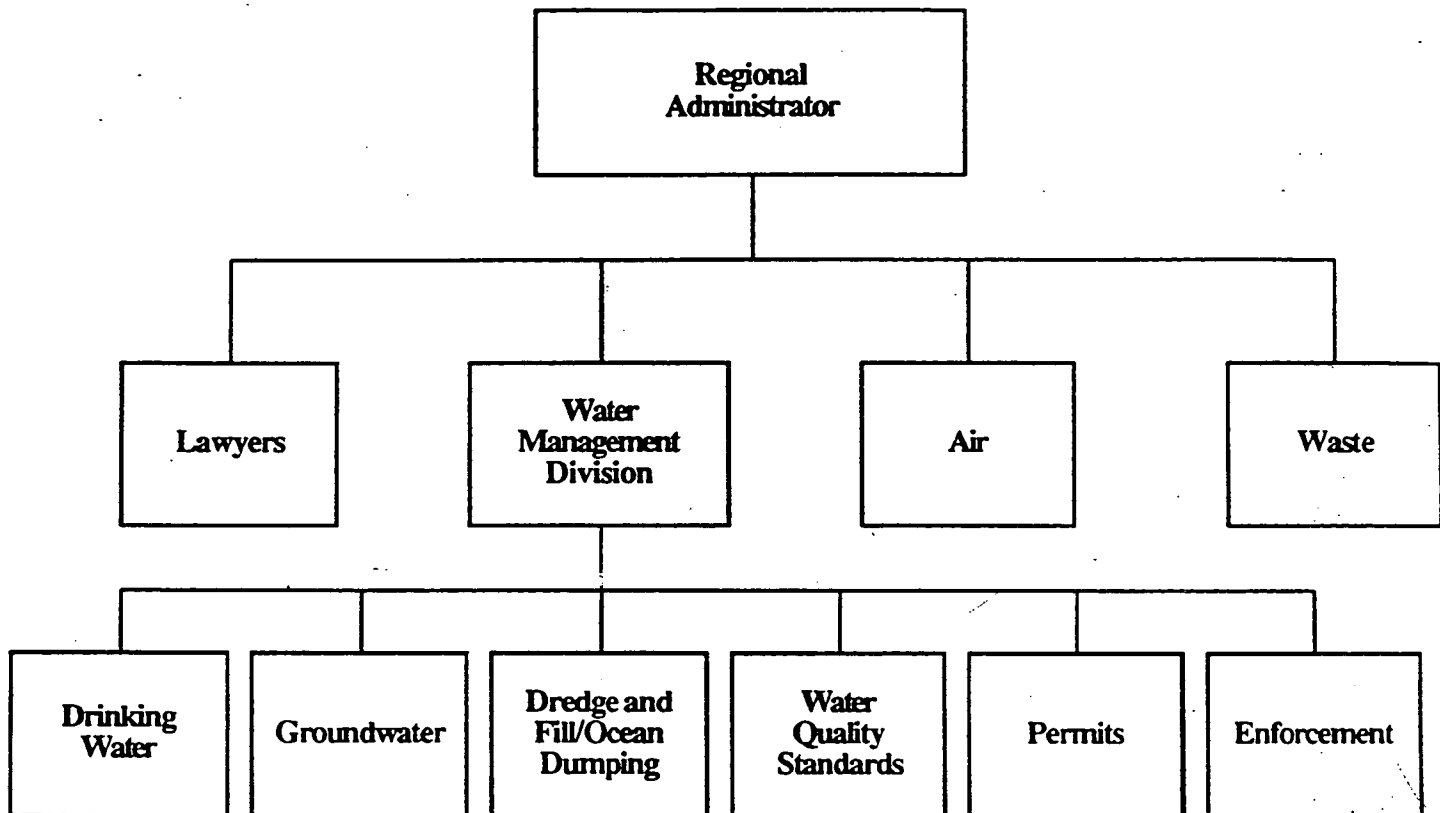
- **\$70 Billion - POTWs (1972)**
- **75% construction completed**
- **65,000 permits issued**
- **75% water - fish/swimmable**
- **361,000 + miles of streams and 12 million lake acres fully support their designated uses**
- **Still experiencing 350 fish kills per year; fishing bans due to pollution in 21 States**

**NOTES:**

## **EPA ORGANIZATION: HEADQUARTERS**



## EPA ORGANIZATION: REGIONS



## NPDES TERMINOLOGY

- APPLICATION FORM** - Any of the federal forms (or State forms) required to be filled out by a discharger prior to issuance of a permit.
- BAT** - Best Available Technology Economically Achievable (applies to non-conventional and toxic pollutants)
- BCT** - Best Conventional Pollutant Control Technology (applies to conventional pollutants)
- BPT** - Best Practicable Control Technology Currently Available (generally applies to conventional pollutants and some metals)
- BMP** - Best Management Practices; measures supplemental to numerical effluent limitations to control discharges from storage piles, spills, leaks, etc. Frequently, BMPs are procedural or qualitative rather than quantitative.
- BOD** - Biochemical Oxygen Demand; a pollutant commonly limited in NPDES permits.
- PPJ** - Best Professional Judgement; the broad authority of the Act authorizing the development of permits conditions on a case-by-case basis in the absence of national standards.
- CFR** - Code of Federal Regulations where effluent limitations guidelines, the NPDES regulations etc. are found.
- CONVENTIONAL POLLUTANT(s)** - BOD, TSS, fecal coliform, oil and grease, and pH.
- EFFLUENT LIMITATIONS** - The limit (usually daily maximum and monthly average) on a pollutant required to be met by the permit expressed as mass (lbs/day) or concentration (mg/l).
- EFFLUENT LIMITATION GUIDELINE** - A national standard prescribing a limit on specific pollutant (in lbs/day or mg/l) from point sources in a particular industrial category (e.g. textile mills).
- INDIRECT DISCHARGERS** - those facilities which discharge waste water to receiving waters indirectly i.e. through a POTW (also termed "IUs")

**MAJOR PERMIT** - any permit(ee) with a design flow of 1MGD or greater (municipal)  
any permit(ee) which scores 80 or greater on the major/minor permit classification scale (industrial)

**MINOR PERMIT** - any permit which is not a major permit.

**MIXING ZONE** - an allocated impact area in a water body where numeric water quality criteria can be exceeded as long as acutely toxic conditions are prevented.

**NONCONVENTIONAL POLLUTANT** - any pollutant which is neither a conventional nor a toxic pollutant (ex. manganese, ammonia, etc.)

**NPDES** - The National Pollutant Discharge Elimination System prescribed by Section 402 of the Clean Water Act.

**NRDC CONSENT AGREEMENT** - 1976 Settlement agreement between EPA and the National Resources Defense Council concerning the control of toxic pollutants through BAT effluent guideline and categorical pretreatment standards.

**NSPS** - New Source Performance Standard

**pH** - a measure of acidity or alkalinity (pH 7 is neutral) of a waste water; a common pollutant limited in NPDES permits.

**POINT SOURCE** - a discrete conveyance such as a pipe, ditch, etc. contributing pollutants to the environment.

**POLLUTANT** - a contaminant introduced into a receiving water which is subject to technology-based or water quality-based effluent limitations in the permit.

**POTW** - Publicly Owned Treatment Works, usually consisting of primary and secondary (biological) treatment.

**PRIMARY INDUSTRY** - an industry listed in the NRDC consent agreement (also in Appendix A of 40CFR Part 122)

**PRETREATMENT** - the treatment of Wastewater by contributors to a POTW before the wastewater reaches the POTW.

**PSES - Pretreatment Standards for Existing Sources**

**PSNS - Pretreatment Standards for New Sources**

**TOXIC POLLUTANT - Any of the 129 priority pollutants (organic chemicals, metals, etc.) which are neither conventional nor non-conventional.**

**TOXICITY TEST - A measure of the toxicity of a chemical or an effluent using living organisms by determining the response (survival, reproduction, growth, etc.) of an exposed organism to the chemical or effluent.**

**TSS - Total suspended solids; a pollutant commonly limited in NPDES permits.**

**VARIANCE - A waiver establishing alternative limitations or time extensions for a specific facility. Several different variances and time extensions are available under the CWA upon satisfaction of very specific criteria.**

**WATER QUALITY CRITERION - Elements of state water quality standards, expressed as concentrations, levels, or narrative statements representing a quality of water that supports a particular use (drinking, contact recreation, cold water fishery, etc.)**

**WATER QUALITY STANDARD - Provisions of State or Federal law which consist of a designated use or uses for the water of the United State and water quality criteria for such waters based upon such uses.**

**WATER OF THE U.S. - All waters which are used, were used, or may be used in interstate or foreign commerce, including all water subject to the ebb and flow of the tide and wetlands.**

# **THE APPLICATION PROCESS**

## **LEARNING OBJECTIVES**

- **Types of NPDES Application Forms**
- **EPA Application Form 2C**
- **Accuracy and Completeness**

**The NPDES process is initiated when a point source files application forms requesting a permit.**

**NOTES:**

## EPA APPLICATION FORMS FOR NPDES PERMITS

<b><u>FORM</u></b>	<b><u>TITLE/APPLICABILITY</u></b>	<b><u>LAST REVISED</u></b>	<b><u>REGULATION CITE</u></b>
<b>1</b>	General information	<b>1980</b>	<b>122.21(f)</b>
<b>A</b>	New and existing major POTWs	<b>1973*</b>	<b>122.21(j) reserved</b>
<b>A SHORT</b>	New and existing minor POTWs	<b>1973</b>	<b>122.21(l) reserved</b>
<b>2B</b>	New and existing animal feeding operations and aquatic animal production facilities	<b>1980</b>	<b>122.21(l)</b>
<b>2C</b>	Existing manufacturing, commercial, mining, and silvicultural discharges	<b>1984</b>	<b>122.21(g)</b>
<b>2D</b>	New manufacturing, commercial, mining, and silvicultural discharges	<b>1984</b>	<b>122.21(k)</b>
<b>2E</b>	Manufacturing, commercial, mining, and silvicultural facilities that discharge only non-process wastewater	<b>1986</b>	<b>122.21(h)</b>
<b>2F</b>	Stormwater discharges associated with industrial activities	<b>1990</b>	<b>122.26(c)</b>
<b>NONE</b>	Stormwater discharges from municipal separate storm sewers serving a population of greater than 100,000		<b>122.26(d)</b>
<b>*Currently being revised</b>			

**NOTES:**

## **KEY DEFINITIONS**

- **New Discharger - Any building, structure, facility, or installation:**
  - **From which there is or may be a discharge of pollutants**
  - **That did not commence discharge at the site prior to August 13, 1979**
  - **Which is not a "new source"**
  - **Which has never received a finally-effective NPDES permit**
- **New Source - Any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:**
  - **After promulgation of effluent limitations guidelines and standards applicable to such source, or**
  - **After proposal of effluent limitations guidelines and standards, but only if the standards are promulgated within 120 days of proposal**
- **Existing Source - Any building, structure, facility, or installation from which there is a discharge of pollutants which is not a new discharger or new source.**

### **NOTES:**

## **MAJOR COMPONENTS OF FORM 2C**

- I. Outfall location**
- II. Flow, sources of pollution, treatment technologies**
- III. Production information ( if applicable)**
- IV. Improvements (if applicable)**
- V. Intake and effluent characteristics**
- VI. Potential discharges not covered by analysis**
- VII. Biological testing data**
- VIII. Contract analysis information**
- IX. Certification/signature**

## **APPLICATION FORM: REVIEW FOR ACCURACY**

### **Most common mistakes:**

- **Guideline production and flow rates**
- **Long term average, daily average, and daily maximum values**
- **Decimal point errors**
- **Wrong concentration units**
- **Reported values are below known detection limits**

# MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Acenaphthene																				•
Acenaphthylene																•				
Acrylonitrile																				
Aldrin																				
Anthracene			•		•				•		•					•			•	•
Antimony	•			•	•			•			•			•	•	•	•	•		•
Arsenic					•				•					•	•		•	•		•
Barium							•				•									•
Benzo(a)anthracene																•			•	•
Benzene					•			•	•				•	•			•		•	•
Benzo(b)fluoranthene																				
Benzo(k)fluoranthene																•				
Benzo(a)pyrene																				•
Benzo(ghi)perylene																				
Beryllium									•		•									•
Bis(2-chloroethoxy)methane																			•	
Bis(2-ethylhexyl)phthalate	•	•			•							•						•	•	•
Bromoform																				
Bromomethane(methyl bromide)																				
Butyl benzyl phthalate	•											•							•	•

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Acenaphthene		•			•													•
Acenaphthylene															•			•
Acrylonitrile		•		•				•									•	
Aldrin				•														
Anthracene	•	•			•							•						•
Antimony							•						•			•	•	
Arsenic			•	•	•	•		•									•	•
Barium			•					•				•	•			•		
Benzo(a)anthracene					•													•
Benzene		•	•		•	•	•	•			•		•	•				•
Benzo(b)fluoranthene					•													
Benzo(k)fluoranthene																		•
Benzo(a)pyrene					•													
Benzo(ghi)perylene																		
Beryllium																•		
Bis(2-chloroethoxy)methane													•					
Bis(2-ethylhexyl)phthalate		•		•				•				•	•		•		•	
Bromoform																		
Bromomethane(methyl bromide)		•		•														
Butyl benzyl phthalate		•						•				•						

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Cadmium		•		•			•	•	•	•		•			•				•	•
Carbon disulfide									•											
Carbon tetrachloride	•																		•	
Chlordane																				
p-Chloro-m-cresol																				
Chlorobenzene					•				•											
Chlorodibromomethane																				
Chloroethane (ethyl chloride)									•					•			•			
Chloroform	•	•			•				•								•	•		
Chloromethane (methyl chloride)									•					•			•			
2-Chlorophenol								•	•					•	•					
Chromium	•	•			•	•	•	•	•	•		•	•		•	•		•	•	•
Cobalt																				
Copper	•	•	•		•		•		•	•		•	•		•			•	•	•
Cyanide	•					•				•					•	•		•		•
DDE (Dichlorodiphenyl dichloroethylene)																				
DDT (Dichlorodiphenyl trichloroethane)																				
Di-n-butyl phthalate	•	•	•		•				•	•										•
Di-n-octyl phthalate																				•

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Cadmium		•				•	•	•	•	•							•	
Carbon disulfide		•		•		•		•										
Carbon tetrachloride		•	•															
Chlordane				•														
p-Chloro-m-cresol																		•
Chlorobenzene		•		•														
Chlorodibromomethane								•										
Chloroethane (ethyl chloride)		•		•	•													
Chloroform		•		•		•		•	•			•	•					
Chloromethane (methyl chloride)		•		•				•					•		•			
2-Chlorophenol		•				•												
Chromium		•	•		•	•	•	•		•				•			•	•
Cobalt																		
Copper	•	•	•					•	•	•				•	•		•	•
Cyanide	•			•	•	•	•										•	
DDE (Dichlorodiphenyl dichloroethylene)				•														
DDT (Dichlorodiphenyl trichloroethane)				•														
Di-n-butyl phthalate		•	•								•	•			•			
Di-n-octyl phthalate		•							•									

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Dibromomethane (Methylene bromide)																				
1,2-Dichlorobenzene								•	•	•				•	•			•		
1,3-Dichlorobenzene									•									•		
1,4-Dichlorobenzene									•						•			•		
Dichlorobromomethane																				•
Dichlorodifluoromethane									•											
1,1-Dichloroethane																			•	•
trans-1,2-Dichloroethylene					•														•	
2,4-Dichlorophenol														•						
2,4-Dichlorophenoxyacetic acid (2,4-D)																				
1,2-Dichloropropane																				
1,3-Dichloropropene																				
Dieldrin																				
Diethyl phthalate	•				•										•				•	•
Dimethyl phthalate	•																			
2,4-Dimethylphenol (2,4-xlenol)																•				
2,4-Dinitrotoluene								•			•				•					
1,2-Diphenylhydrazine																				
Endosulfan																				

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Dibromomethane (Methylene bromide)		•																
1,2-Dichlorobenzene		•		•													•	
1,3-Dichlorobenzene																		
1,4-Dichlorobenzene		•																
Dichlorobromomethane		•																
Dichlorodifluoromethane								•										
1,1-Dichloroethane		•																
trans-1,2-Dichloroethylene																		
2,4-Dichlorophenol		•		•								•	•					
2,4-Dichlorophenoxyacetic acid (2,4-D)				•									•					
1,2-Dichloropropane																		
1,3-Dichloropropene		•		•														
Dieldrin				•														
Diethyl phthalate								•				•						
Dimethyl phthalate			•					•										
2,4-Dimethylphenol (2,4-xenol)		•			•								•					
2,4-Dinitrotoluene		•																
1,2-Diphenylhydrazine																		
Endosulfan				•														

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Endrin																				
Ethyl Benzene	•		•		•				•				•		•			•	•	
Ethylene dibromide (EDB)																				
Ethylene dichloride																				
Fluoranthene																•			•	•
Fluprene																•				•
Heptachlor																				
Heptachlor Epoxide																				
Hexachloro-1,3-butadiene									•											
Hexachlorobenzene																				•
Hexachlorocyclohexane (Lindane)																				
Hexachloroethane											•			•						
Indeno (1,2,3-cd) pyrene																				
Isobutyl alcohol																	•			
Isophorone																				
Lead	•	•	•	•	•		•		•	•	•			•	•	•		•	•	•
Malathion																				
Mercury	•			•	•				•	•				•	•		•			•
Methoxychlor																				
Methyl ethyl ketone																				

MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Endrin				•														
Ethyl Benzene		•	•		•			•				•	•				•	•
Ethylene dibromide (EDB)		•		•	•													
Ethylene dichloride																		
Fluoranthene		•			•													•
Fluorene		•			•													•
Heptachlor				•														
Heptachlor Epoxide				•														
Hexachloro-1,3-butadiene				•	•													
Hexachlorobenzene		•		•														
Hexachlorocyclohexane (Lindane)				•														
Hexachloroethane		•		•				•					•					
Indeno (1,2,3-cd) pyrene					•													
Isobutyl alcohol		•	•					•										
Isophorone			•					•										
Lead	•	•	•		•	•	•	•	•	•			•	•			•	
Malathion				•														
Mercury		•	•			•									•		•	
Methoxychlor				•														
Methyl ethyl ketone		•						•			•					•		

# MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Methylene chloride	•	•			•				•									•		•
4,4-Methylenebis (2-chloroaniline)																				
Naphthalene			•		•				•		•				•	•		•	•	•
Nickel		•		•	•				•	•			•		•	•		•	•	•
Nitrobenzene															•					
2-Nitrophenol									•											
PCBs (Polychlorinated biphenyls)																				•
Pentachloroethane					•															
Pentachlorophenol	•																	•	•	
Phenanthrene					•			•	•		•			•			•			•
Phenol	•	•	•						•			•	•				•	•	•	•
Pyrene														•		•			•	•
Pyridene								•						•	•					
Selenium							•		•						•	•				•
Silver				•					•	•				•	•		•		•	•
1,1,1,2-Tetrachloroethane									•						•					
1,1,2,2-Tetrachloroethane																				
Tetrachloroethylene (Perchloroethylene)			•		•		•											•	•	•
Tetrachlorophenol									•										•	

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Methylene chloride		•	•			•		•										
4,4-Methylenebis (2-chloroaniline)								•										
Naphthalene	•	•	•		•							•	•					•
Nickel			•			•		•		•				•	•		•	
Nitrobenzene		•			•									•				
2-Nitrophenol		•																
PCBs (Polychlorinated biphenyls)									•				•					
Pentachloroethane																		
Pentachlorophenol		•	•	•													•	•
Phenanthrene		•	•		•	•						•						•
Phenol	•	•	•	•	•	•	•	•				•					•	•
Pyrene		•										•						
Pyridene		•		•		•							•					•
Selenium													•			•	•	
Silver																	•	
1,1,1,2-Tetrachloroethane		•																
1,1,2,2-Tetrachloroethane		•	•					•										
Tetrachloroethylene (Perchloroethylene)		•	•	•	•			•			•	•	•	•			•	•
Tetrachlorophenol		•	•	•														

## MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)

	ADHESIVES	ALUMINUM FORMING	AUTO & OTHER LAUNDRIES	BATTERY MANUFACTURING	COAL MINING	COIL COATING	COPPER FORMING	DYE MANUFACTURING	ELECTRICAL AND ELECTRONIC COMPONENTS	ELECTROPLATING/METAL FINISHING	EXPLOSIVES MANUFACTURING	FOUNDRIES	GUN AND WOOD CHEMICALS	HOSPITALS	INORGANIC CHEMICALS	IRON AND STEEL	LABORATORIES	LEATHER TANNING & FINISHING	MECHANICAL PRODUCTS	NON-FERROUS METALS
Thallium					•				•						•					•
Toluene			•		•			•	•		•		•		•			•	•	
Toxaphene																				
1,2,4-Trichlorobenzene								•	•											•
1,1,1-Trichloroethane					•				•										•	
1,1,2-Trichloroethane																		•		
Trichloroethylene	•	•	•											•						
Trichlorofluoromethane					•			•						•						
2,4,5-Trichlorophenol									•						•			•		
2,4,6-Trichlorophenol																		•		
Trichlorophenoxy-2-propionic acid																				
Vinyl chloride (chloroethylene)																				
Vinylidene chloride																			•	
Zinc	•	•	•	•	•	•	•		•	•		•	•		•	•		•	•	•

**MATRIX OF POLLUTANT OCCURRENCE IN INDUSTRIAL WASTESTREAMS (Continued)**

	ORE MINING & DRESSING	ORGANIC CHEMICALS	PAINT & INK	PESTICIDES	PETROLEUM REFINING	PHARMACEUTICALS	PHOTOGRAPHIC SUPPLIES	PLASTIC & SYNTHETICS	PLASTICS PROCESSING	PORCELAIN ENAMELING	PRINTING & PUBLISHING	PULP PAPER & FIBERBOARD	RUBBER MANUFACTURING	SOAPS & DETERGENTS	STEAM ELECTRIC	STONE, CLAY, GLASS, & CONCRETE PRODUCTS	TEXTILE MILLS	TIMBER PRODUCTS
Thallium				•												•		
Toluene		•	•		•	•	•	•	•				•				•	
Toxaphene				•														
1,2,4-Trichlorobenzene		•		•							•						•	
1,1,1-Trichloroethane				•								•					•	
1,1,2-Trichloroethane		•						•										
Trichloroethylene		•	•	•		•											•	
Trichlorofluoromethane		•																
2,4,5-Trichlorophenol		•		•								•						
2,4,6-Trichlorophenol	•	•		•														
Trichlorophenoxy-2-propionic acid				•														
Vinyl chloride (chloroethylene)		•						•										
Vinylidene chloride																		
Zinc	•		•	•	•	•		•		•			•	•	•		•	

## PRACTICAL EXERCISE

### Review of NPDES Permit Applications

**GIVEN:** NPDES Application Forms 1 and 2C from Luster Glass Inc.

**REQUIREMENT:** Review the permit applications from Luster Glass Inc. and answer the questions below.

#### QUESTIONS:

- (1) Is this facility a POTW or does it have a concentrated animal feeding operation? \_\_\_\_\_
- (2) Who is Mr. Ceccarelli? \_\_\_\_\_
- (3) What does Luster Glass Inc. make? \_\_\_\_\_
- (4) Did the proper official sign the application form? \_\_\_\_\_  
How do you know? \_\_\_\_\_
- (5) To what body of water does Luster Glass Inc. discharge its process water? \_\_\_\_\_
- (6) How many outfalls are there at Luster Glass? \_\_\_\_\_
- (7) Has the company collected any data on the toxicity of its wastewater? \_\_\_\_\_
- (8) Does Luster Glass Inc. have its own analytical laboratory for the analysis of priority pollutants? \_\_\_\_\_
- (9) Based on your cursory review of the application, which pollutants would you limit in a permit for Luster Glass Inc.? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (10) Based on the water flow schematic included in the permit application, what wastewaters are treated at Luster Glass Inc.? What is the total treated wastewater flow? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (11) What is the wastewater flow after treatment shown on the water flow schematic? \_\_\_\_\_
- (12) Does wastewater flow into treatment equal wastewater flow out of treatment on the water flow schematic? \_\_\_\_\_



<b>FORM</b> <b>1</b> <b>GENERAL</b>		<b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b> <b>GENERAL INFORMATION</b> <i>Consolidated Permit Program</i> <i>(Read the "General Instructions" before starting.)</i>	<b>EPA I.D. NUMBER</b> <div style="border: 1px solid black; padding: 2px;">             F 1 2 3 4 5 6 7 8 9 10 11 12           </div>
<b>TABLE ITEMS</b> <div style="border: 1px solid black; padding: 2px;"> <b>I. EPA I.D. NUMBER</b>  <b>III. FACILITY NAME</b>  <b>V. FACILITY MAILING ADDRESS</b>  <b>VI. FACILITY LOCATION</b> </div>		<b>PLEASE PLACE LABEL IN THIS SPACE</b>	
<b>GENERAL INSTRUCTIONS</b> <p>If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.</p>			
<b>II. POLLUTANT CHARACTERISTICS</b>			
<p><b>INSTRUCTIONS:</b> Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.</p>			
<b>SPECIFIC QUESTIONS</b>		<b>MARK "X" FORM ATTACHED</b>	
<b>A.</b> Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)	YES 15	NO 17	FORM ATTACHED 18
<b>C.</b> Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	YES 23	NO 25	FORM ATTACHED 26
<b>E.</b> Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	YES 29	NO 31	FORM ATTACHED 32
<b>G.</b> Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)	YES 35	NO 37	FORM ATTACHED 38
<b>I.</b> Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may effect or be located in an attainment area? (FORM 5)	YES 41	NO 43	FORM ATTACHED 44
<b>B.</b> Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)	YES 19	NO 21	FORM ATTACHED 22
<b>D.</b> Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)	YES 27	NO 29	FORM ATTACHED 30
<b>F.</b> Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)	YES 33	NO 35	FORM ATTACHED 36
<b>H.</b> Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)	YES 39	NO 41	FORM ATTACHED 42
<b>J.</b> Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may effect or be located in an attainment area? (FORM 5)	YES 45	NO 47	FORM ATTACHED 48
<b>III. NAME OF FACILITY</b>			
<div style="border: 1px solid black; padding: 2px;"> <b>1</b> SKIP LUSTER GLASS INC.         </div>			
<b>IV. FACILITY CONTACT</b>			
<b>A. NAME &amp; TITLE (last, first, &amp; title)</b>		<b>B. PHONE (area code &amp; no.)</b>	
<div style="border: 1px solid black; padding: 2px;"> <b>2</b> CECCARELLI IVO ENV. COORD.         </div>		<div style="border: 1px solid black; padding: 2px;">           312 834 4536         </div>	
<b>V. FACILITY MAILING ADDRESS</b>			
<b>A. STREET OR P.O. BOX</b>			
<div style="border: 1px solid black; padding: 2px;"> <b>3</b> PO BOX 319         </div>			
<b>B. CITY OR TOWN</b>		<b>C. STATE</b>	<b>D. ZIP CODE</b>
<div style="border: 1px solid black; padding: 2px;"> <b>4</b> MORRIS         </div>		<div style="border: 1px solid black; padding: 2px;">           IL         </div>	<div style="border: 1px solid black; padding: 2px;">           60123         </div>
<b>VI. FACILITY LOCATION</b>			
<b>A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER</b>			
<div style="border: 1px solid black; padding: 2px;"> <b>5</b> RIVER RIDGE DRIVE         </div>			
<b>B. COUNTY NAME</b>			
<div style="border: 1px solid black; padding: 2px;">           COOK         </div>			
<b>C. CITY OR TOWN</b>		<b>D. STATE</b>	<b>E. ZIP CODE</b>
<div style="border: 1px solid black; padding: 2px;"> <b>6</b> MORRIS         </div>		<div style="border: 1px solid black; padding: 2px;">           IL         </div>	<div style="border: 1px solid black; padding: 2px;">           60123         </div>

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## VII. SIC CODES (4-digit, in order of priority)

A. FIRST				B. SECOND			
7	3211	(specify)	GLASS MANUFACTURING	7		(specify)	
C. THIRD				D. FOURTH			
7		(specify)		7		(specify)	

## VIII. OPERATOR INFORMATION

A. NAME										B. Is the name listed in Item VIII-A also the owner?			
8	LUSTER GLASS INC.									<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO		
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)										D. PHONE (area code & no.)			
F - FEDERAL	M - PUBLIC (other than federal or state)	(specify)								A	312	834	4536
S - STATE	O - OTHER (specify)												
P - PRIVATE													
E. STREET OR P.O. BOX													
PO BOX 319													
F. CITY OR TOWN										G. STATE	H. ZIP CODE	IX. INDIAN LAND	
MORRIS										IL	60123	Is the facility located on Indian lands?	
												<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

## X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)				D. PSD (Air Emissions from Proposed Sources)			
9	N	IL0065432		9	P		
B. UIC (Underground Injection of Fluids)				E. OTHER (specify)			
9	U			9			(specify)
C. RCRA (Hazardous Wastes)				E. OTHER (specify)			
9	R			9			(specify)

## XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well known to the public state underground all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

## XII. NATURE OF BUSINESS (provide a brief description)

AUTO TEMPERED AND AUTO LAMINATED GLASS MANUFACTURED

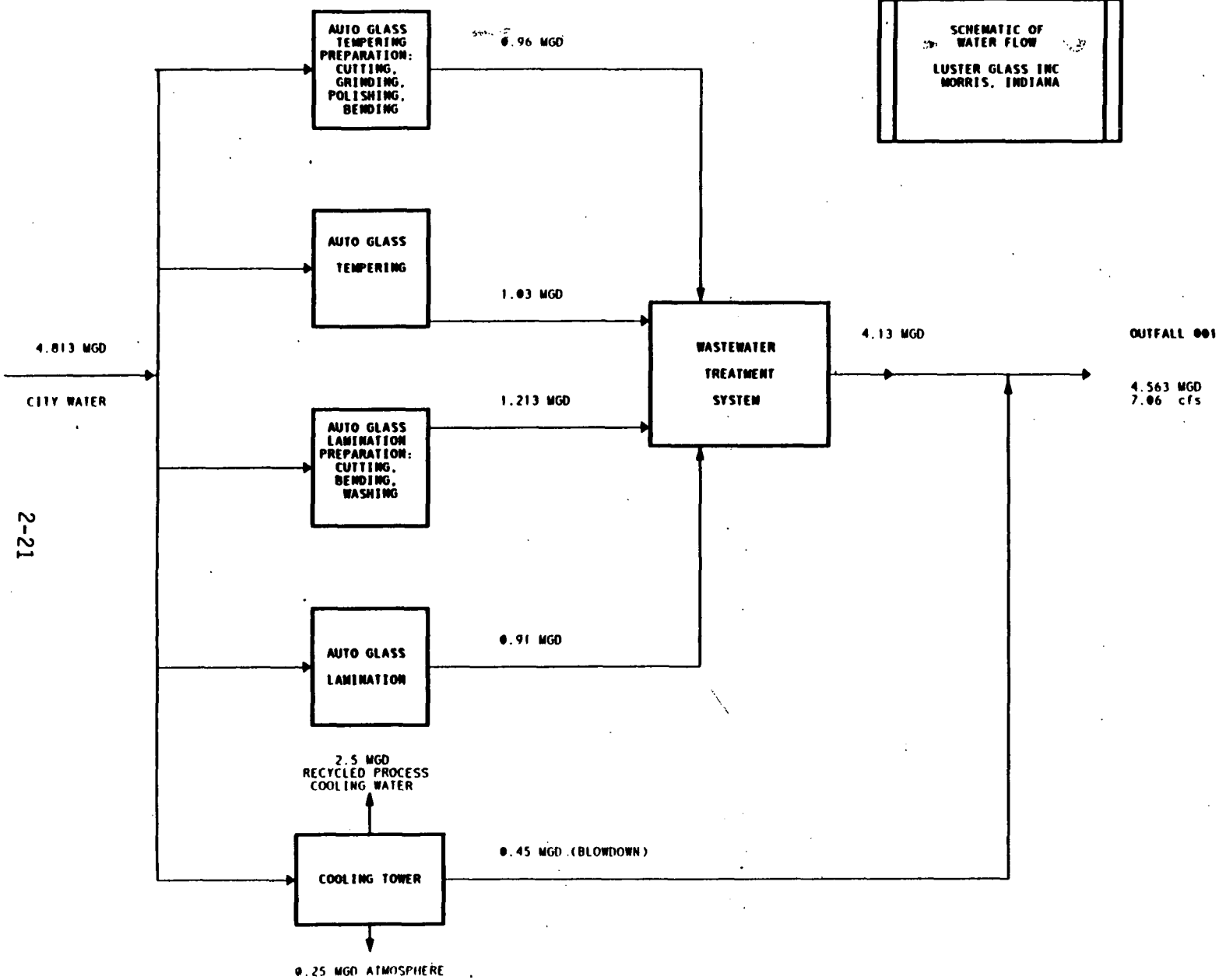
## XIII. CERTIFICATION (see instructions)

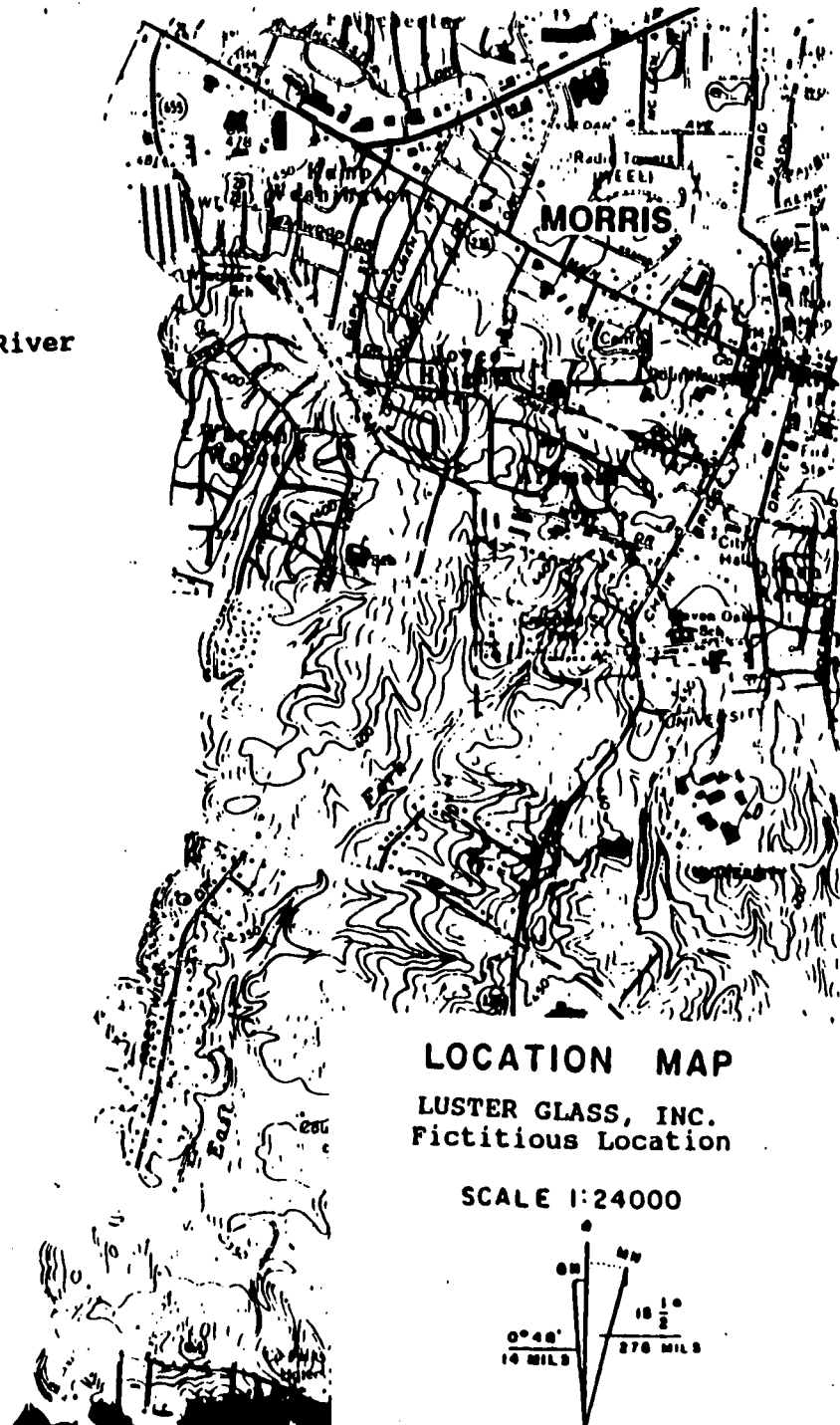
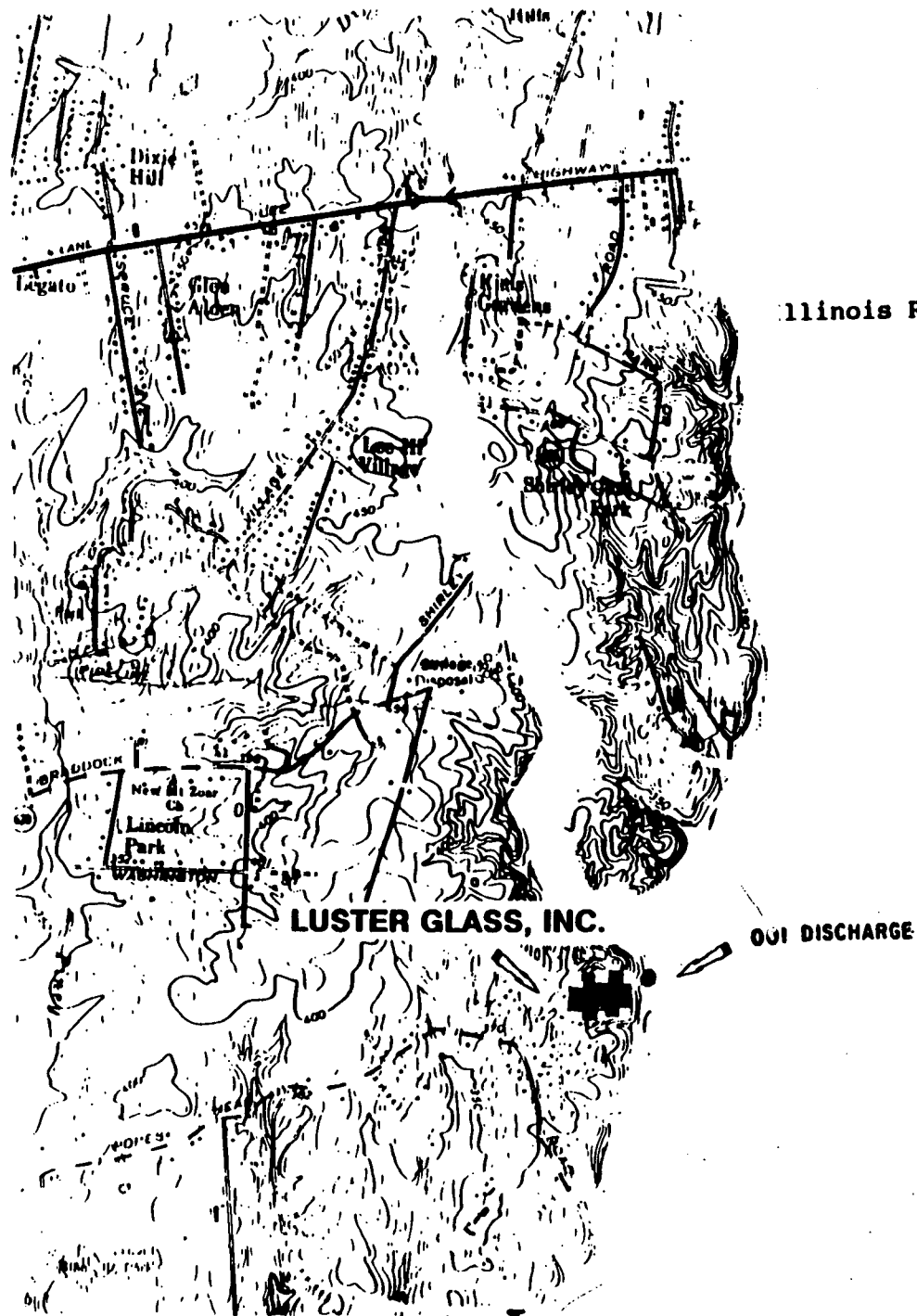
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
JOHN BAKER VICE PRESIDENT	<i>John Baker</i>	2/2/89

## COMMENTS FOR OFFICIAL USE ONLY

C





[illegible]

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**C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?**  
☐ YES (complete the following table) ☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW						5. DUR- ATION (in days)
		A. DAYS PER WEEK (specify average)	B. MONTHS PER YEAR (specify average)	6. FLOW RATE (in mgd)		7. TOTAL VOLUME (specify with units)				
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

**III. PRODUCTION**

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☒ YES (complete Item III-B)

☐ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☐ YES (complete Item III-C)

☒ NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall numbers)
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	
40,000	Ft <sup>2</sup> /DAY	AUTO TEMPERED GLASS	001
275,000	Ft <sup>2</sup> /DAY	AUTO LAMINATED GLASS	001

**IV. IMPROVEMENTS**

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of waste-water treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders and grant or loan conditions.

☐ YES (complete the following table)

☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	A. NO.	B. SOURCE OF DISCHARGE		1. ISSUED	2. REQUIRED

B. OPTIONAL: You may attach additional sheets describing any additional programs (or other environmental projects) which may affect each program is now underway or planned, and indicate your schedule for construction. ☐ MARK "X" IF DESCRIPTION

OPTIONAL CONTROL PROGRAMS IS ATTACHED

CONTINUED FROM PAGE 2

**V. INTAKE AND EFFLUENT CHARACTERISTICS**

A, B, & C: See instructions before proceeding - Complete one set of tables for each outfall - Annotate the outfall number in the space provided.  
NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
N/A	N/A	N/A	N/A

**VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS**

Is any pollutant listed in Item V-C a substance or a component of a substance which you currently use or manufacture as an intermediate or final product or byproduct?

☒ YES (list all such pollutants below)

☐ NO (go to Item VI-B)

ZINC

## VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☒ YES (Identify the test(s) and describe their purposes below)

☐ NO (go to Section VIII)

## Whole Effluent Toxicity -

Acute and chronic Whole Effluent Toxicity tests were conducted to satisfy an NPDES permit requirement for biomonitoring. Initially, in February 1988, a sample was analyzed for acute and chronic toxicity using both Ceriodaphnia dubia and Pimephales promelas (Fathead minnows). The results indicated that Fathead minnows were the more sensitive of the two species and were used in subsequent tests. Chronic toxicity to Fathead minnows varied from 1.3% to 3.5%. Acute toxicity varies from 6.3 to 24.8%. A total of 12 monthly samples were analyzed for acute and chronic toxicity over the course of one year. Results are presented in Table 3.

## VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (List the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)
MEASUREMENT LAB	112 RIVER PARKWAY CHICAGO, IL 60620	312-584-1121	129 PRIORITY POLLUTANTS BOD, TOC, COD, TSS, ZN, CU, PHOSPHORUS, CADMIUM, LEAD

## IX. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

A. NAME & OFFICIAL TITLE (Type or print)	B. PHONE NO. (area code & no.)
JOHN BAKER, VICE PRESIDENT	312-834-4536
C. SIGNATURE <i>John Baker</i>	D. DATE SIGNED 2/2/89

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

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V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

OUTFALL NO  
001

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						D. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)		
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVG. VALUE (if available)			A. CONCENTRATION	B. MASS	E. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	40.0	590.0	---	---	25.0	237.0	4	mg/l	LBS	---	---	---
b. Chemical Oxygen Demand (COD)	50.0	199.7	---	---	---	---	1	mg/l	LBS	---	---	---
c. Total Organic Carbon (TOC)	65.0	221.1	---	---	---	---	1	mg/l	LBS	---	---	---
d. Total Suspended Solids (TSS)	50.0	429.3	---	---	18.8	290.9	52	mg/l	LBS	---	---	---
e. Ammonia (as N)	<0.11	<0.44	---	---	---	---	1	mg/l	LBS	---	---	---
f. Flow	VALUE 4.591		VALUE ---		VALUE 4.563		52	MGD	---	VALUE ---		52
g. Temperature (winter)	VALUE 12		VALUE ---		VALUE ---		1	°C		VALUE ---		---
h. Temperature (summer)	VALUE 28		VALUE ---		VALUE ---		1	°C		VALUE ---		---
i. pH	MINIMUM 6.6	MAXIMUM 9.0	MINIMUM 6.9	MAXIMUM 7.6			STANDARD UNITS					

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK "X"		3. EFFLUENT								4. UNITS			5. INTAKE (optional)		
	a. BE- LIEVED PRE- SENT	b. AL- LIED AB- SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANAL- YSES	e. LONGEN- -RATION	f. MASS	g. LONG TERM AVERAGE VALUE		h. NO. OF ANAL- YSES		
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS			
a. Bromide (24959-67-9)		X														
b. Chlorine, Total Residual		X														
c. Color		X														
d. Fecal Coliform		X														
e. Fluoride (16984 48 8)		X														
f. Nitrate Nitrite (as N)		X														

## ITEM V-8 CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (If available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	B. H. L. PRE-SENT	D. H. L. AD-SENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (If available)		C. LONG TERM AVG. VALUE (If available)		F. NO. OF ANAL-YES	B. CONCENTRATION	D. MASS	E. LONG TERM AVERAGE VALUE		F. NO. OF ANAL-YSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)		X												
h. Oil and Grease	X		22	88			12	39	4	mg/l	lb/d			
i. Phosphorus (as P), Total (7723-14-0)	X			29				19	4		lb/d			
j. Radioactivity														
(1) Alpha, Total		X												
(2) Beta, Total		X												
(3) Radium, Total		X												
(4) Radium 226, Total		X												
k. Sulfate (as SO <sub>4</sub> ) (14808-79-8)		X												
l. Sulfide (as S)		X												
m. Sulfite (as SO <sub>3</sub> ) (14265-45-3)		X												
n. Surfactants		X												
o. Aluminum, Total (7429-80-5)		X												
p. Barium, Total (7440-39-3)		X												
q. Boron, Total (7440-42-8)		X												
r. Cobalt, Total (7440-48-4)		X												
s. Iron, Total (7439-89-6)		X												
t. Magnesium, Total (7439-95-4)		X												
u. Molybdenum, Total (7439-98-7)		X												
v. Manganese, Total (7439-96-6)		X												
w. Tin, Total (7440-31-6)		X												
x. Titanium, Total (7440-32-6)		X												

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CONTINUED FROM PAGE 3 OF FORM 2-C

**PART C -** If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (all 7 pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. GC/MS FRACTIONS	C. GC/MS FRACTIONS	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	D. MASS	B. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
<b>METALS, CYANIDE, AND TOTAL PHENOLS</b>															
1M. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)			X												
6M. Copper, Total (7440-50-8)			X												
7M. Lead, Total (7439-92-1)		X		0.024				0.018		4	mg/l				
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)			X												
10M. Selenium, Total (7782-49-2)			X												
11M. Silver, Total (7440-22-4)			X												
12M. Thallium, Total (7440-28-0)			X												
13M. Zinc, Total (7440-66-6)	X			0.07				0.036		4	mg/l				
14M. Cyanide, Total (57-12-5)			X												
15M. Phenols, Total			X												
<b>DIOXIN</b>															
2,3,7,8-Tetra-chlorodibenzo-p-dioxin (1782-10-6)			X	DESCRIBE IN DETAIL											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT				4. UNITS		5. INTAKE (optional)			
	A. SOURCE NO. WITH ANAL.	B. DATE WHEN SAMPLED	C. DATE WHEN ANALYZED	B. MAXIMUM DAILY VALUE		C. LONG TERM AVG. VALUE (if available)		D. NO. OF ANALYSES	E. CONCENTRATION	F. MASS	G. LONG TERM AVERAGE VALUE		H. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS													
1V. Acrolein (107-02-8)			X										
2V. Acrylonitrile (107-13-1)			X										
3V. Benzene (71-43-2)			X										
4V. Bis (Chloromethyl) Ether (542-88-1)			X										
5V. Bromoform (75-25-2)			X										
6V. Carbon Tetrachloride (56-23-5)			X										
7V. Chlorobenzene (108-90-7)			X										
8V. Chlorodibromomethane (124-48-1)			X										
9V. Chloroethane (75-00-3)			X										
10V. 2-Chloroethylvinyl Ether (110-75-8)			X										
11V. Chloroform (67-66-3)			X										
12V. Dichlorobromomethane (75-27-4)			X										
13V. Dichlorodifluoromethane (75-71-8)			X										
14V. 1,1-Dichloroethane (75-34-3)			X										
15V. 1,2-Dichloroethane (107-06-2)			X										
16V. 1,1-Dichloroethylene (75-35-4)			X										
17V. 1,2-Dichloropropane (78-87-5)			X										
18V. 1,3-Dichloropropylene (542-75-6)			X										
19V. Ethylbenzene (100-41-4)			X										
20V. Methyl Bromide (74-83-9)			X										
21V. Methyl Chloride (74-87-3)			X										

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	B. I.D. NO.	C. I.D. NO.	D. I.D. NO.	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVG. VALUE (if available)		I. NO. OF ANALYSES	A. CONCENTRATION	U. MASS	E. LONG TERM AVERAGE VALUE		H. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
<b>GC/MS FRACTION - VOLATILE COMPOUNDS (continued)</b>															
22V. Methylene Chloride (75-09-2)			X												
23V. 1,1,2,2-Tetrachloroethane (79-34-5)			X												
24V. Tetrachloroethylene (127-18-4)			X												
25V. Toluene (108-88-3)			X												
26V. 1,2-Trans-Dichloroethylene (156-60-6)			X												
27V. 1,1,1-Trichloroethane (71-55-6)			X												
28V. 1,1,2-Trichloroethane (79-00-6)			X												
29V. Trichloroethylene (79-01-6)			X												
30V. Trichlorofluoromethane (75-69-4)			X												
31V. Vinyl Chloride (75-01-4)			X												
<b>C/MS FRACTION - ACID COMPOUNDS</b>															
A. 2-Chlorophenol (85-67-8)			X												
2A. 2,4-Dichlorophenol (120-83-2)			X												
3A. 2,4-Dimethylphenol (105-67-9)			X												
4A. 4,6-Dinitro O-Cresol (834-52-1)			X												
5A. 2,4-Dinitrophenol (51-28-5)			X												
6A. 2-Nitrophenol (88-75-5)			X												
7A. 4-Nitrophenol (100-02-7)			X												
8A. P-Chloro-M-Cresol (59-50-7)			X												
9A. Pentachlorophenol (87-86-5)			X												
10A. Phenol (108-95-2)			X												
11A. 2,4,6-Trichlorophenol															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS-NUMBER (if available)	2. MARK			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. INQ. OR QUIN. AM.	b. NO. OF PMS SENT	c. NO. OF PMS SENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)	E. LONG TERM AVG. VALUE (if available)		f. NO. OF ANAL. YSES	g. CONCENTRATION	h. MASS	F. LONG TERM AVERAGE VALUE		i. NO. OF ANAL. YSES	
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION				(2) MASS			
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
18. Acenaphthene (83-32-8)			X												
28. Acenaphthylene (208-96-8)			X												
38. Anthracene (120-12-7)			X												
48. Benzidine (92-87-5)			X												
58. Benzo (a) Anthracene (56-55-3)			X												
68. Benzo (a) Pyrene (50-32-8)			X												
78. 3,4-Benzo-fluoranthene (205-99-2)			X												
88. Benzo (ghi) Perylene (191-24-2)			X												
98. Benzo (k) Fluoranthene (207-08-9)			X												
108. Bis (2-Chloro-ethyl) Methane (111-91-1)			X												
118. Bis (2-Chloro-ethyl) Ether (111-44-4)			X												
128. Bis (2-Chloro-propyl) Ether (102-60-1)			X												
138. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)			X												
148. 4-Bromophenyl Phenyl Ether (101-55-3)			X												
158. Butyl Benzyl Phthalate (85-68-7)			X												
168. 2-Chloronaphthalene (91-58-7)			X												
178. 4-Chlorophenyl Phenyl Ether (7005-72-3)			X												
188. Chrysene (218-01-9)			X												
198. Dibenzo (a,h) Anthracene (53-70-3)			X												
208. 1,2-Dichlorobenzene (95-50-1)			X												
218. 1,3-Dichlorobenzene (941-73-1)			X												

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS			5. INTAKE (optional)		
	A. TOXIC MILLI- GRAMS	B. OC- CUPID MILLI- GRAMS	C. OC- CUPID MILLI- GRAMS	6. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		E. LONG TERM AVG. VALUE (if available)		F. NO. OF ANAL- YSES	G. CONCENTRATION	H. MASS	I. LONG TERM AVERAGE VALUE		J. NO. OF ANAL- YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
228. 1,4-Dichloro- benzene (106-48-7)			X												
238. 3,3'-Dichloro- benzidine (91-94-1)			X												
248. Diethyl Phthalate (84-66-2)			X												
258. Dimethyl Phthalate (131-11-3)			X												
268. Di-N-Butyl Phthalate (84-74-2)			X												
278. 2,4-Dinitro- toluene (121-14-2)			X												
288. 2,6-Dinitro toluene (606-20-2)			X												
298. Di-N-Octyl Phthalate (117-84-0)			X												
308. 1,2-Diphenyl- hydrazine (as Azo- benzene) (122-86-7)			X												
118. Fluoranthene 206-44-0)			X												
328. Fluorene (86-73-7)			X												
338. Hexachlorobenzene (118-74-1)			X												
348. Hexa- chlorobutadiene (87-68-3)			X												
358. Hexachloro- cyclopentadiene (77-47-4)			X												
368. Hexachloro- ethane (87-72-1)			X												
378. Indeno (1,2,3-cd) Pyrene (193-39-5)			X												
388. Isophorone (78-59-1)			X												
398. Naphthalene (91-20-3)			X												
400. Nitrobenzene (98-95-3)			X												
410. N-Nitro- naphthalene (62-75-0)			X												
420. N-Nitrosodi- N-Propylaniline			X												

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TEST METHOD NO.	B. COL- LECTION POINT	C. COL- LECTION DATE	D. MAXIMUM DAILY VALUE		E. MAXIMUM 30 DAY VALUE		F. LONG TERM AVG. VALUE		G. NO OF ANAL- YSES	H. CONCEN- TRATION	I. MASS	J. LONG TERM AVERAGE VALUE		K. NO. ANAL- YSES
				(1) CON- CENTRATION	(2) MASS	(1) CON- CENTRATION	(2) MASS	(1) CON- CENTRATION	(2) MASS				(1) CON- CENTRATION	(2) MASS	
<b>GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)</b>															
43B. N-Nitro- sodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-9)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Tri- chlorobenzene (120-82-1)			X												
<b>GC/MS FRACTION - PESTICIDES</b>															
1P. Aldrin (309-00-2)			X												
2P. $\alpha$ -BHC (319-84-6)			X												
3P. $\beta$ -BHC (319-85-7)			X												
4P. $\gamma$ -BHC (58-89-9)			X												
6P. $\delta$ -BHC (319-86-8)			X												
P. Chlordane (57-74-9)			X												
P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-65-9)			X												
9P. 4,4'-DDD (72-64-8)			X												
10P. Dieldrin (60-57-1)			X												
11P. $\alpha$ -Endosulfen (115-29-7)			X												
12P. $\beta$ -Endosulfen (115-29-7)			X												
13P. Endosulfen Sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin Aldehyde (7421-91-4)			X												
16P. Heptachlor (76-44-8)			X												

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1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	4. TEST METHOD OR ANAL- YSES	1. BOD 5. BOD 6. BOD	C. BOD 7. BOD 8. BOD	8. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVERAGE VALUE (if available)		6. NO. OF ANAL- YSES	4. CONCENTRATION	b. MASS	4. LONG TERM AVERAGE VALUE		b. NO. OF ANAL- YSES
				(1)	(2) MASS	(1)	(2) MASS	(1)	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53469-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-8)			X												
23P. PCB-1260 (11098-82-5)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												

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# **STANDARD PERMIT CONDITIONS**

## **LEARNING OBJECTIVES**

- **Role of "boilerplate"**
- **Methods for placing conditions in permits**
- **Type of conditions**

## **STANDARD CONDITIONS IN THE PERMIT**

- **Standard conditions must appear in every NPDES permit.**
- **Standard conditions may be placed in permits verbatim or by incorporating them by reference.(§122.41)**

## **TYPES OF STANDARD CONDITIONS**

- **Responsibilities of permittee**
- **Testing procedures**
- **Records retention**
- **Reporting requirements**
- **Penalties for noncompliance**

**NOTES:**

## **RESPONSIBILITIES OF PERMITTEE**

- **Duty to comply**
- **Proper O & M**
- **Duty to mitigate**
- **Need to halt or reduce activity not a defense**
- **Duty to allow inspections/entry**
- **Duty to reapply**
- **Duty to provide information**

## **REPORTING REQUIREMENTS**

- **More frequent monitoring**
- **24 hour report of endangerment**
- **Changed circumstances**
  - **Plant alteration/addition**
  - **Changed pollutants/flow/production**
  - **Sludge use/disposal method**
- **Anticipated noncompliance**
- **Signatory/certification**
- **Upset/bypass reports**
- **Provide information as needed**

## **OTHER STANDARD CONDITIONS**

- **Nontransferability**
- **Enforcement penalties**
- **Monitoring and records**
- **Bypass**
- **Upset**
- **Permit actions**
- **Property rights**

**NOTES:**



**PRACTICAL EXERCISE**

**Identifying Standard Conditions  
Applicable to All NPDES Permits**

**DIRECTIONS:**

Listed below are examples of standard conditions that apply to all NPDES permits. Using the Code of Federal Regulations, look up each standard condition and provide the proper regulatory citation and a brief description of the permittee's obligation. (Hint: All standard conditions may be found in 40 CFR §122.41.)

**Group A**

- (1) Duty to Reapply [ §                      ] \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (2) Bypass [ §                      ] \_\_\_\_\_  
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\_\_\_\_\_
- (3) Permit Transfers [ §                      ] \_\_\_\_\_  
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- (4) Twenty-four Hour Reporting [ §                      ] \_\_\_\_\_  
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- (5) Duty to Mitigate [ §                      ] \_\_\_\_\_  
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**Group B**

- (1) Inspection and Entry [ §                      ] \_\_\_\_\_  
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(2) Upset [ \$                      ] \_\_\_\_\_  
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(3) Planned Changes [ \$                      ] \_\_\_\_\_  
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(4) Permit Actions [ \$                      ] \_\_\_\_\_  
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(5) Need to Halt or Reduce Activity not a Defense [ \$                      ] \_\_\_\_\_  
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Group C

(1) Duty to Comply [ \$                      ] \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(2) Proper Operation and Maintenance [ \$                      ] \_\_\_\_\_  
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(3) Monitoring Reports [ \$                      ] \_\_\_\_\_  
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(4) Signatory Requirements [ \$                      ] \_\_\_\_\_  
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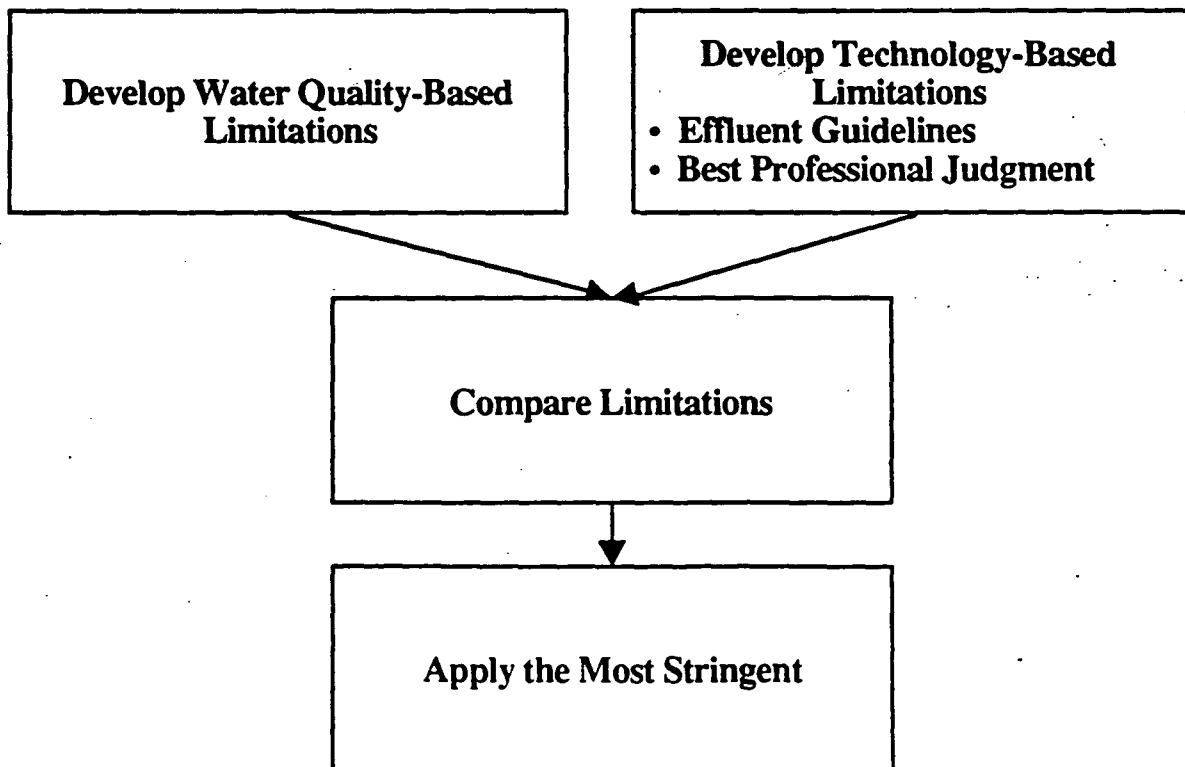
(5) Monitoring and Records [ \$                      ] \_\_\_\_\_  
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# **EFFLUENT LIMITATIONS GUIDELINES-BASED LIMITS**

## **LEARNING OBJECTIVES**

- **What an effluent guideline is**
- **How effluent guidelines are developed**
- **What the relationship is between:**
  - **Effluent guidelines, SIC codes, industrial categories, industrial subcategories, and CFR subparts**
- **How to calculate permit limits using an effluent guideline**

## **DEVELOPMENT OF EFFLUENT LIMITATIONS FOR NPDES PERMITS**



## **EFFLUENT LIMITATIONS GUIDELINES**

- **Definition**
  - **Effluent limitations guidelines are National standards prescribing allowable discharges of pollutants from industrial point source categories corresponding to various levels of treatment or control technologies (BPT, BCT, BAT, PSES, PSNS and NSPS).**
- **Scope**
  - **Guidelines are established for most primary and some secondary industries.**
- **CWA Section 304(m)**
  - **Guidelines may be developed for new or additional industries, such as:**
    - **Solvent recyclers**
    - **Barrel reclaimers**
    - **Tank car/truck cleaners**
    - **Industrial laundries**

### **NOTES:**

## **EFFLUENT GUIDELINES DEVELOPMENT PROCESS**

- **Define industry**
- **Collect data**
  - **308 questionnaire**
  - **Sampling and analysis program**
- **Major regulatory tasks**
  - **Subcategorization**
  - **Select pollutant parameters**
  - **Assess representative treatment technologies**
  - **Compute effluent limits**
  - **Estimate compliance costs**
  - **Select option for guidelines**
  - **Produce development documents**
  - **Perform economic and environmental impact analysis**
  - **Assemble record**
  - **Promulgate effluent guidelines**

**NOTES:**

including the 65 "priority" toxic pollutants and classes of pollutants.

Under the Act, the EPA is required to establish several different kinds of effluent limitations guidelines and standards. They are summarized briefly below:

#### 1. Best Practicable Control Technology Currently Available (BPT)

BPT effluent limitations guidelines are generally based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the category or subcategory for control of familiar (i.e., conventional) pollutants.

In establishing BPT effluent limitations guidelines, EPA considers the total cost in relation to the effluent reduction benefits, the age of equipment and facilities involved, the processes employed, process changes required, engineering aspects of the control technologies, and non-water quality environmental impacts (including energy requirements). The Agency considers the category-wide or subcategory-wide cost of applying the technology in relation to the effluent reduction benefits.

#### 2. Best Available Technology Economically Achievable (BAT)

BAT effluent limitations guidelines, in general, represent the best condition attainable in the category or subcategory. The Act establishes BAT as the principal national means of controlling the direct discharge of toxic and nonconventional pollutants to navigable waters.

In establishing BAT, the Agency considers the age of equipment and facilities involved, the processes employed, the engineering aspects of the control technologies, process changes, the cost of achieving such effluent reduction, and non-water quality environmental impacts.

#### 3. Best Conventional Pollutant Control Technology (BCT)

The 1977 Amendments to the Clean Water Act added section 301(b)(2)(E), establishing "best conventional pollutant control technology" (BCT) for the discharge of conventional pollutants from existing industrial point sources. Section 304(a)(4) designated the following as conventional pollutants: BOD, TSS, fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease a conventional pollutant on July 30, 1979 (44 FR 44501).

BCT is not an additional limitation but replaces BAT for the control of

conventional pollutants. BAT remains in effect for the toxic and nonconventional pollutants. In addition to other factors specified in section 304(b)(4)(B), the Act requires that the BCT effluent limitations guidelines be assessed in light of a two part "cost-reasonableness" test. *American Paper Institute v. EPA*, 660 F.2d 954 (4th Cir. 1981). The first test compares the cost for private industry to reduce its discharge of conventional pollutants with the cost to publicly owned treatment works for similar levels of reduction in their discharge of these pollutants. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT. EPA must find that limitations are "reasonable" under both tests before establishing them as BCT. In no case may BCT be less stringent than BPT.

EPA has promulgated a methodology for establishing BCT effluent limitations guidelines (51 FR 24974, July 8, 1986).

#### 4. New Source Performance Standards (NSPS)

NSPS are based on the performance of the best available demonstrated technology. New plants have the opportunity to install the best and most efficient production processes and wastewater treatment technologies. As a result, NSPS should represent the most stringent national values attainable through the application of best available demonstrated control technology for all pollutants (toxic, conventional and nonconventional).

#### 5. Pretreatment Standards for Existing Sources (PSES)

PSES are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of publicly owned treatment works (POTWs). The Clean Water Act requires pretreatment standards for pollutants that pass through POTWs or interfere with POTWs' treatment processes or sludge disposal methods. The legislative history of the 1977 Act indicates that pretreatment standards are to be technology-based and analogous to the BAT effluent limitations guidelines for removal of toxic pollutants. For the purpose of determining whether to promulgate national category-wide pretreatment standards, EPA generally determines that there is pass through of a pollutant and thus a need for categorical standards if the nation-wide average percentage of a pollutant removed by well-operated POTWs achieving secondary treatment is less than the percent removed by the BAT model treatment system. The General

Pretreatment Regulations, which set forth the framework for categorical pretreatment standards, are found at 40 CFR Part 403. (Those regulations contain a definition of pass through that addresses localized rather than national instances of pass through and does not use the percent removal comparison test described above. See 52 FR 1586, January 14, 1987.)

#### 6. Pretreatment Standards for New Sources (PSNS)

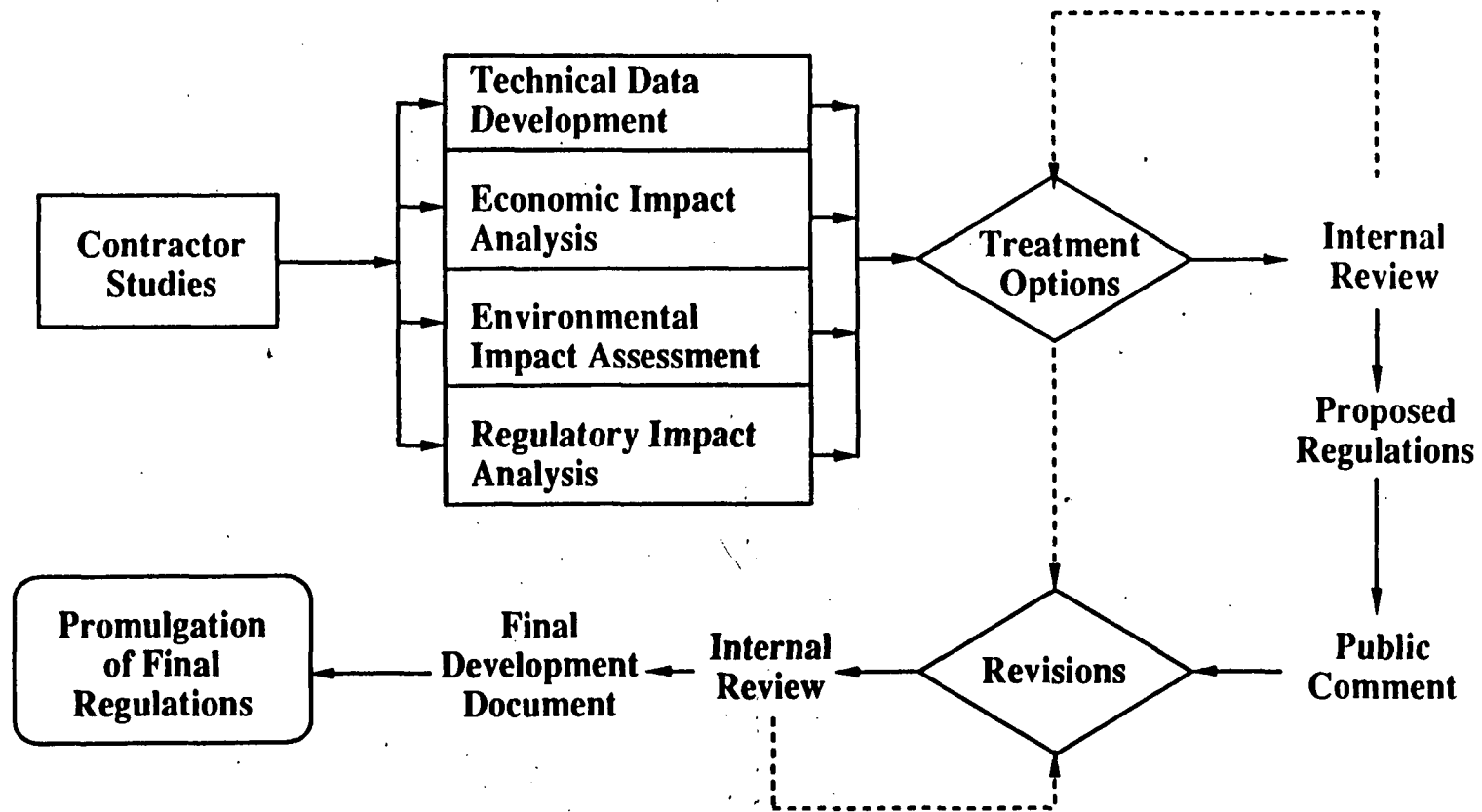
Like PSES, PSNS are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of a POTW. PSNS are to be issued at the same time as NSPS. New indirect dischargers, like new direct dischargers, have the opportunity to incorporate in their plant the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating NSPS.

#### B. Overview of the Industry

The OCPSF industry is large and diverse, and many plants in the industry are highly complex. This industry manufactures over 25,000 different organic chemicals, plastics, and synthetic fibers. However, less than half of these products are produced in excess of 1,000 pounds per year. The industry includes approximately 750 facilities whose principal or primary production activities are covered under the OCPSF SIC groups. There are approximately 200 other plants which are secondary producers of OCPSF products, i.e., OCPSF production is ancillary to their primary production activities. (As discussed above in this preamble, this regulation covers OCPSF discharges from secondary producers, with certain exceptions.) Thus the total number of plants to be regulated totally or in part by the OCPSF industry regulation is approximately 1,000. Secondary OCPSF plants may be part of other chemical producing industries such as the petroleum refining, inorganic chemicals, pharmaceuticals, and pesticides industries as well as chemical formulation industries such as the adhesives and sealants, the paint and ink, and the plastics molding and forming industries.

Some plants produce chemicals in large volumes while others produce only small volumes of "specialty" chemicals. Large volume production tends to use continuous processes. Continuous processes are generally more efficient than batch processes in minimizing

## GUIDELINES AND STANDARDS DEVELOPMENT PROCESS



## **CONSIDERATIONS INVOLVED IN USE OF EFFLUENT GUIDELINES**

- **Determination of proper category and subcategory**
- **Proper use of applicable guidelines to the category or subcategory**
- **Classification of plants which fall under more than one subcategory**
- **Determination of appropriate measures of production or flow**
- **Use of alternative limits**
- **Application of mass vs. concentration limitations**

**NOTES:**

SIC Code Cross Reference  
and Comparison of New  
Toxicity Numbers with Old Values

1972/ 1977	1987		CFR	EGD	Sub-title	Old Tox. No. (converted)	New Toxicity No.	Toxicity Number Reference
SIC	SIC	1987 Title	Part	Code				
Code	Code							
211	211	BEEF CATTLE FEEDLOTS	412	A	All Feedlots Except Ducks		1	2
212	212	BEEF CATTLE, EXCEPT FEEDLOTS		NR	Beef Cattle not in Feedlots		1	2
213	213	HOGS	412	A	All Feedlots Except Ducks		1	2
213	213	HOGS		NR	Hogs not in Feedlots		1	2
214	214	SHEEP AND GOATS	412	A	All Feedlots except Ducks		1	2
214	214	SHEEP AND GOATS		NR	Sheep and Goats not in Feedlots		1	2
219	219	GENERAL LIVESTOCK, NEC		NR	General Livestock Farms		1	2
241	241	DAIRY FARMS	412	A	All Feedlots Except Ducks		1	2
241	241	DAIRY FARMS		NR	DAIRY CATTLE NOT CONFINED		1	2
251	251	BROILER, FRYER AND ROASTER CHICKENS	412	A	All Feedlots Except Ducks		1	2
252	252	CHICKEN EGGS	412	A	All Feedlots Except Ducks		1	2
253	253	TURKEY AND TURKEY EGGS	412	A	All Feedlots Except Ducks		1	2
254	254	POULTRY HATCHERIES		NR	Hatcheries Without Poultry Feeding		1	2
259	259	POULTRY AND EGGS, NEC	412	B	Ducks		1	2
259	259	POULTRY AND EGGS, NEC		NR	Other Poultry Farms		1	2
271	271	FUR-BEARING ANIMALS AND RABBITS		NR			1	2
272	272	HORSES AND OTHER EQUINES		NR			1	2
279	273	ANIMAL AQUACULTURE		NR			1	2
279	279	ANIMAL SPECIALTIES, NEC		NR			1	2
291	291	GENERAL FARMS, PRIMARILY LIVESTOCK		NR			1	2
721	721	CROP PLANTING & PROTECTION		NR	Crop Dusting & Spraying		6	2
721	721	CROP PLANTING & PROTECTION		NR	Crop Planting/Cultivation		1	2
721	291	GENERAL FARMS, PRIMARILY LIVESTOCK		NR			1	2
921	921	FISH HATCHERIES AND PRESERVES		NR	4-7		1	2

SIC Code Cross Reference  
and Comparison of New  
Toxicity Numbers with Old Values

1972/ 1977	1987				Old Tox. No. (converted)	New Toxicity No.	Toxicity Number Reference
SIC Code	SIC Code	1987 Title	CFR Part	EGD Code	Sub-title		
1011	1011	IRON ORES	440	A	Iron Ore	7	1
1021	1021	COPPER ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	10	1
1031	1031	LEAD AND ZINC ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	10	1
1041	1041	GOLD ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	10	1
1041	1041	GOLD ORES	440	M	Gold Placer Mines	5	7
1044	1044	SILVER ORES	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	10	1
1051	1099	METAL ORES, NEC	440	B	Aluminum Ore	10	1
1061	1061	FERROALLOY ORES, EXCEPT VANADIUM	440	F	Tungsten Ore	6	1
1061	1061	FERROALLOY ORES, EXCEPT VANADIUM	440	G	Nickel Ores	8	2
1061	1061	FERROALLOY ORES, EXCEPT VANADIUM	440	J	Cu, Pb, Zn, Ag, Au, Mo Ores	7	1
1061	1061	FERROALLOY ORES, EXCEPT VANADIUM		NR	Ferroalloy Ores, NEC	8	2
1081	1081	METAL MINING SERVICES		NR	Exploration/Development	8	2
1092	1099	METAL ORES, NEC	440	D	Mercury Ores	8	2
1094	1094	URANIUM-RADIUM-VANADIUM ORES	440	C	Uranium-Radium-Vanadium Ores	9	1
1094	1094	URANIUM-RADIUM-VANADIUM ORES	440	H	Vanadium Ore	8	2
1099	1099	METAL ORES, NEC	440	E	Titanium Ores	4	1
1099	1099	METAL ORES, NEC	440	I	Antimony Ore	8	2
1099	1099	METAL ORES, NEC	440	K	Platinum Ores	8	2
1099	1099	METAL ORES, NEC		NR	Metal Ore, NEC	8	2
1111	1231	ANTHRACITE MINING	434	B	Coal Preparation Plants	6	2
1111	1231	ANTHRACITE MINING	434	C	Acid or Ferruginous Mine Drainage	5	2
1111	1231	ANTHRACITE MINING	434	D	Alkaline Mine Drainage	5	2
1111	1231	ANTHRACITE MINING	434	E	Post Mining Areas	5	2

### XIII. Variances and Modifications

Once the OCPSF regulation is in effect, the numerical effluent limitations for the appropriate subcategory must be applied in all Federal and State NPDES permits thereafter issued to OCPSF direct dischargers. The pretreatment standards are directly applicable to indirect dischargers and become effective as discussed in § 414.12 of the regulation.

For the BPT effluent limitations, the only exception to the limitations contained in the regulation is EPA's "fundamentally different factors" variance. See *E. I. duPont de Nemours and Co. v. Train*, 430 U.S. 112 (1977); *Weyerhaeuser Co. v. Costle*, *supra*. This variance recognizes factors concerning a particular discharger that are fundamentally different from the factors considered in this rulemaking. However, the economic ability of the individual operator to meet the compliance cost for BPT standards is not a consideration for granting a variance. See *National Crushed Stone Association v. EPA*, 449 U.S. 64 (1980). Although this variance clause was originally set forth in EPA's 1973-1976 categorical industry regulations, it is now included in the general NPDES regulations and will not be included in the OCPSF or other specific industry regulations. See 40 CFR Part 125, Subpart D.

The BAT limitations in this regulation also are subject to EPA's "fundamentally different factors" variance. However, section 306 of the Water Quality Act of 1987 added a new section 301(n) to the Act which somewhat limits the availability of FDF variances from BAT effluent limitations guidelines. An FDF application must be based solely on information and supporting data submitted to EPA during the rulemaking establishing the limitations that discussed the fundamentally different factors, or on information and supporting data that the applicant did not have a reasonable opportunity to submit during the rulemaking. The alternative requirement must be no less stringent than justified by the fundamental difference and must not result in markedly more adverse non-water quality environmental impacts than those considered by EPA in establishing the guideline.

Indirect dischargers subject to PSES are also eligible for the "fundamentally different factors" variance. See 40 CFR 403.13. They are subject to essentially the same new statutory provisions for FDF variances as discussed above for BAT.

Readers should note that EPA has not yet amended its FDF variance regulation

to conform to the provisions of the Water Quality Act of 1987. The regulation promulgated today refers to the existing regulatory sections. However, EPA recognizes that the new section 301(n) of the Act overrides the existing FDF regulation to the extent of any inconsistency, and EPA does intend to modify the FDF regulation to conform to the new statutory requirements.

Indirect dischargers subject to PSES and PSNS are eligible for credits for toxic pollutants removed by a POTW. See section 307(b) of the CWA and 40 CFR 403.7. The removal credits regulation was remanded to EPA in *Natural Resources Defense Council v. EPA*, 790 F.2d 289 (3rd Cir. 1986). The court held that some of the means by which EPA considered local POTW removal efficiencies were not sufficiently stringent and that credits for POTW removals may not be authorized until comprehensive regulations for the use and disposal of sludge are promulgated under section 405(d) of the CWA. However, it should be noted that pretreatment standards for the OCPSF industry, like other categorical pretreatment standards, have been promulgated based upon the assumptions that indirect dischargers will be required to comply with the standards without removal credits, and thus that they are subject to the full costs of complying with PSES.

### XIV. Implementation of Limitations and Standards

#### A. Flow Basis

The limitations promulgated today are concentration-based and thus do not regulate flow. The permit writer must use a reasonable estimate of process wastewater flows and the concentration limitations to develop mass limitations for the NPDES permit. Process wastewater discharge is defined in the regulation (40 CFR 401.11) to include wastewaters resulting from manufacture of OCPSF products that come in direct contact with raw materials, intermediate products, or final products, and surface runoff from the immediate process area that has the potential to become contaminated. Noncontact cooling waters, utility wastewaters, general site surface runoff, ground waters, and other nonprocess waters generated on site are specifically excluded from the definition of process wastewater discharges. In cases where the process wastewater flow claimed by industry may be excessive, the permit writer may develop a more appropriate process wastewater flow for use in computing the mass effluent or internal plant limitations. The following items should

be considered in developing the more appropriate process wastewater flow:

1. A review of the component flows to insure that the claimed flows are, in fact, process wastewater flows as defined by the regulation;

2. A review of plant operations to insure that sound water conservation practices are being followed. Examples are: minimization of process water uses; cascading or countercurrent washes or rinses, where possible; reuse or recycle of intermediate process waters or treated wastewaters at the process area and in wastewater treatment operations (pump seals, equipment and area washdowns, etc.).

3. A review of barometric condenser use at the process level. Often, barometric condensers will generate relatively large volumes of water contaminated at low levels.

Replacement of barometric condensers with surface condensers can reduce wastewater volumes significantly and result in collection of condensates that may be returned to the process.

The final NPDES permit limitations will be the sum of the mass effluent limitations derived as described above and any mass effluent limitations developed on a case-by-case basis using best professional judgment by the permit writer to take into account nonprocess wastewater discharges.

#### B. Relationship to NPDES Permits

The BPT and BAT limitations and NSPS in this regulation will be applied to individual OCPSF plants through NPDES permits issued by EPA or approved state agencies under section 402 of the Act. As discussed in the preceding section of this preamble, these limitations must be applied in all new, modified and reissued Federal and State NPDES permits except to the extent that variances are expressly authorized. Other aspects of the interaction between these limitations and NPDES permits are discussed below.

One subject that has received different judicial rulings is the scope of NPDES permit proceedings when effluent limitations and standards do not exist. Under current EPA regulations, States and EPA regions that issue NPDES permits before regulations are promulgated must establish effluent limitations on a case-by-case basis. This regulation provides a technical and legal base for new or modified or reissued permits.

One issue that warrants consideration is the effect of this regulation on the powers of NPDES permit-issuing authorities. EPA has developed the limitations and standards in this

concentrations listed above in § 414.85 for the metal pollutants times the flow from metal-bearing waste streams for metals and times the flow from 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 process wastewater streams identified by the control authority on a case-by-case basis as metal or cyanide bearing based upon a determination—

(1) That such streams contain significant amounts of the pollutants identified above and that

(2) 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.

#### Subpart I—Direct Discharge Point Sources That Use End-of-Pipe Biological Treatment

§ 414.90 Applicability; description of the subcategory of direct discharge point sources that use end-of-pipe biological treatment.

The provisions of this subpart are applicable to the process wastewater discharges resulting from the manufacture of the OCPSP products and product groups defined by § 414.11 from any point source that uses end-of-pipe biological treatment or installs end-of-pipe biological treatment to comply with BPT effluent limitations.

§ 414.91 Toxic pollutant effluent limitations and standards for direct discharge point sources that use end-of-pipe biological treatment.

(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.

(b) In the case of chromium, copper, lead, nickel, 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 the metals and times the flow from cyanide-bearing waste streams for total cyanide. 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 process wastewater streams identified by the permitting authority on

a case-by-case basis as metal or cyanide bearing based upon a determination—

(1) That such streams contain significant amounts of the pollutants identified above and that

(2) 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	Effluent limitations BAT and NSPS <sup>1</sup>	
	Maximum for any one day	Maximum for monthly average
Acenaphthene.....	59	22
Acrylonitrile.....	242	96
Benzene.....	136	37
Carbon Tetrachloride.....	38	18
Chlorobenzene.....	28	15
1,2,4-Trichlorobenzene.....	140	68
Hexachlorobenzene.....	28	15
1,2-Dichloroethane.....	211	68
1,1,1-Trichloroethane.....	54	21
Hexachloroethane.....	54	21
1,2-Dichloroethane.....	59	22
1,1,1-Trichloroethane.....	54	21
Chloroethane.....	268	104
Chloroform.....	46	21
2-Chlorophenol.....	92	31
1,2-Dichlorobenzene.....	163	77
1,3-Dichlorobenzene.....	44	31
1,4-Dichlorobenzene.....	28	15
1,1-Dichloroethylene.....	25	16
1,2-trans-Dichloroethylene.....	54	21
2,4-Dichlorophenol.....	112	39
1,2-Dichloropropane.....	230	153
1,3-Dichloropropylene.....	44	29
2,4-Dimethylphenol.....	36	18
2,4-Dinitrotoluene.....	285	113
2,6-Dinitrotoluene.....	641	255
Ethylbenzene.....	108	32
Fluoranthene.....	68	25
Bis(2-Chloroisopropyl) ether.....	757	301
Methylene Chloride.....	89	40
Methyl Chloride.....	190	86
Hexachlorobutadiene.....	49	20
Naphthalene.....	59	22
Nitrobenzene.....	68	27
2-Nitrophenol.....	69	41
4-Nitrophenol.....	124	72
2,4-Dinitrophenol.....	123	71
4,6-Dinitro-o-cresol.....	277	78
Phenol.....	26	15
Bis(2-ethylhexyl) phthalate.....	279	103
Di-n-butyl phthalate.....	57	27
Diethyl phthalate.....	203	81
Dimethyl phthalate.....	47	19
Benzo(a)anthracene.....	59	22
Benzo(a)pyrene.....	61	23

Effluent characteristics	Effluent limitations BAT and NSPS <sup>1</sup>	
	Maximum for any one day	Maximum for monthly average
3,4-Benzofluoranthene.....	61	23
Benzo(k)fluoranthene.....	59	22
Chrysene.....	59	22
Acenaphthylene.....	59	22
Anthracene.....	59	22
Fluorene.....	59	22
Phenanthrene.....	59	22
Pyrene.....	67	25
Tetrachloroethylene.....	56	22
Toluene.....	80	26
Trichloroethylene.....	54	21
Vinyl Chloride.....	268	104
Total Chromium.....	2,770	1,110
Total Copper.....	3,380	1,450
Total Cyanide.....	1,200	420
Total Lead.....	690	320
Total Nickel.....	3,980	1,690
Total Zinc <sup>2</sup> .....	2,610	1,050

<sup>1</sup> All units are micrograms per liter.

<sup>2</sup> Total Zinc for Rayon Fiber Manufacture that uses the viscose process and Acrylic Fiber Manufacture that uses the zinc chloride/solvent process is 6,796 µg/l and 3,325 µg/l for maximum for any one day and maximum for monthly average, respectively.

#### Subpart J—Direct Discharge Point Sources That Do Not Use End-of-Pipe Biological Treatment

§ 414.100 Applicability; description of the subcategory of direct discharge point sources that do not use end-of-pipe biological treatment.

The provisions of this subpart are applicable to the process wastewater discharges resulting from the manufacture of the OCPSP products and product groups defined by § 414.11 from any point source that does not use end-of-pipe biological treatment and does not install end-of-pipe biological treatment to comply with BPT effluent limitations.

§ 414.101 Toxic pollutant effluent limitations and standards for direct discharge point sources that do not use end-of-pipe biological treatment.

(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.

(b) In the case of chromium, copper, lead, nickel, 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

Example of Flow-Based Effluent Guideline Calculations (Daily Maximum)  
Organic Chemicals, Plastics, and Synthetic Fibers  
40 CFR Parts 414 & 416

Component -----	Reported Maximum Flow (MGD) -----
Ground Water	0.60
Process Wastewater	2.40 *
Cooling Towers	0.30
	-----
Total:	3.30

BAT Calculation for Nitrobenzene:

$$68 \text{ ug/L} * 2.40 \text{ MGD} * 8.345 * 0.001 \text{ mg/ug} = 1.3620 \text{ lbs/day}$$

BAT Calculation for Lead:

$$690 \text{ ug/L} * 1.10 \text{ MGD} * 8.345 * 0.001 \text{ mg/ug} = 6.3339 \text{ lbs/day}$$

\* 1.1 MGD of this flow consists of metal-bearing waste streams.

## Sec.

421.302 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

421.303 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

421.304 Standards of performance for new sources.

421.305 Pretreatment standards for existing sources.

421.306 Pretreatment standards for new sources.

421.307 [Reserved].

#### Subpart AC—Secondary Tungsten and Cobalt Subcategory

## Sec.

421.310 Applicability: description of the secondary tungsten and cobalt subcategory.

421.311 Specialized definitions.

421.312 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

421.313 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

421.314 Standards of performance for new sources.

421.315 Pretreatment standards for existing sources.

421.316 Pretreatment standards for new sources.

421.317 [Reserved].

#### Subpart AD—Secondary Uranium Subcategory

## Sec.

421.320 Applicability: description of the secondary uranium subcategory.

421.321 Specialized definitions.

421.322 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

421.323 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

421.324 Standards of performance for new sources.

421.325 [Reserved].

421.326 Pretreatment standards for new sources.

421.327 [Reserved].

#### Subpart AE—Primary Zirconium and Hafnium Subcategory

## Sec.

421.330 Applicability: description of the primary zirconium and hafnium subcategory.

421.331 Specialized definitions.

## Sec.

421.332 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

421.333 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

421.334 Standards of performance for new sources.

421.335 [Reserved].

421.336 Pretreatment standards for new sources.

421.337 [Reserved].

#### Subpart N—Primary Antimony Subcategory

§ 421.140 Applicability: description of the primary antimony subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of antimony at primary antimony facilities.

§ 421.141 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

421.142 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

(a) Sodium Antimonate Autoclave Wastewater.

#### BPT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product		
Antimony	44,848	29,989
Arsenic	32,650	14,530
Mercury	3,908	1,562
Total suspended solids	640,000	304,700
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times.

(b) Fouled anolyte.

#### BPT LIMITATIONS FOR THE PRIMARY ANT-SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electrolysis		
Antimony	44,848	29,989
Arsenic	32,650	14,530
Mercury	3,908	1,562
Total suspended solids	640,000	304,700
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times.

(c) Cathode Antimony Wash Water.

#### BPT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electrolysis		
Antimony	88,696	40,000
Arsenic	65,300	29,060
Mercury	7,812	3,125
Total suspended solids	1,281,000	608,300
pH	(1)	(1)

(1) Within the range of 7.5 to 10.0 at all times.

§ 421.143 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Sodium Antimonate Autoclave Wastewater.

#### BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product		
Antimony	30,150	13,440
Arsenic	21,720	9,687
Mercury	2,344	0.837

(b) Fouled Anolyte.

**BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	30.150	13.440
Arsenic	21.720	9.887
Mercury	2.344	0.937

**(c) Cathode Antimony Wash Water****BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	60.310	28.670
Arsenic	43.430	19.370
Mercury	4.687	1.875

**§ 421.144 Standards of performance for new sources.**

Any new source subject to this subpart shall achieve the following new source performance standards:

**(a) Sodium Antimonate Autoclave Wastewater.****NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product		
Antimony	30.150	13.440
Arsenic	21.720	9.887
Mercury	2.344	0.937
Total suspended solids	234.400	187.500
pH	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

**(b) Fouled Anolyte.****NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	30.150	13.440
Arsenic	21.720	9.887
Mercury	2.344	0.937
Total suspended solids	234.400	187.500
pH	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

**(c) Cathode Antimony Wash Water.****NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	60.310	28.670
Arsenic	43.430	19.370
Mercury	4.687	1.875
Total suspended solids	288.700	375.000
pH	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

**§ 421.145 [Reserved].****§ 421.146 Pretreatment standards for new sources.**

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 the following pretreatment standards for new sources. The mass of wastewater pollutants in primary antimony process wastewater introduced into a POTW shall not exceed the following values:

**(a) Sodium Antimonate Autoclave Wastewater.****PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product		
Antimony	30.150	13.440
Arsenic	21.720	9.887
Mercury	2.344	0.937

**(b) Fouled Anolyte.****PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	30.150	13.440
Arsenic	21.720	9.887
Mercury	2.344	0.937

**(c) Cathode Antimony Washwater.****PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of antimony metal produced by electro-winning		
Antimony	60.310	28.670
Arsenic	43.430	19.370
Mercury	4.687	1.875

**§ 421.147 [Reserved].****Subpart O—Primary Beryllium Subcategory****§ 421.150 Applicability: description of the primary beryllium subcategory.**

The provisions of this subpart are applicable to discharges resulting from the production of beryllium by primary beryllium facilities processing beryllium ore concentrates or beryllium hydroxide raw materials.

**§ 421.151 Specialized definitions.**

For the purpose of this subpart the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

**§ 421.152 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

**(a) Solvent Extraction Raffinate from Bertrandite Ore.****BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY**

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
mg/kg (pounds per million pounds) of beryllium carbonate produced from bertrandite ore as beryllium		
Beryllium	2,783.000	1,235.000
Chromium (total)	988.200	404.300
Copper	4,267.000	2,246.000
Cyanide (total)	651.300	289.500
Ammonia (as N)	299,400.000	131,800.000
Fluoride	78,810.000	44,700.000
Total suspended solids	92,090.000	43,800.000
pH	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range of 7.5 to 10.0 at all times.

**(b) Solvent Extraction Raffinate from Beryl Ore.**

**Example of Production–Based Effluent Guideline Calculations (Daily Maximum)**  
**Non–Ferrous Metals Manufacturing**  
**40 CFR Part 421**

Assume production of 4.7 million lbs/day of sodium antimonate.

Assume production of 2.1 million lbs/day of antimony metal by electrowinning

**BPT Calculation for Mercury:**

**a) Sodium Antimonate Autoclave Wastewater**

$$4.7 \text{ million lbs/day} * 3.906 \text{ lbs/million lbs} = 18.3582 \text{ lbs/day}$$

**b) Fouled Anolyte**

$$2.1 \text{ million lbs/day} * 3.906 \text{ lbs/million lbs} = 8.2026 \text{ lbs/day}$$

**c) Cathode Antimony Wash Water**

$$2.1 \text{ million lbs/day} * 7.812 \text{ lbs/million lbs} = 16.4052 \text{ lbs/day}$$

$$\text{Total effluent limit for mercury:} \quad \text{-----} \quad 42.966 \text{ lbs/day}$$

**BAT Calculation for Mercury:**

**a) Sodium Antimonate Autoclave Wastewater**

$$4.7 \text{ million lbs/day} * 2.344 \text{ lbs/million lbs} = 11.0168 \text{ lbs/day}$$

**b) Fouled Anolyte**

$$2.1 \text{ million lbs/day} * 2.344 \text{ lbs/million lbs} = 4.9224 \text{ lbs/day}$$

**c) Cathode Antimony Wash Water**

$$2.1 \text{ million lbs/day} * 4.687 \text{ lbs/million lbs} = 9.8427 \text{ lbs/day}$$

$$\text{Total effluent limit for mercury:} \quad \text{-----} \quad 25.7819 \text{ lbs/day}$$

## TECHNOLOGY-BASED REQUIREMENTS OF THE CLEAN WATER ACT

<u>POLLUTANT CATEGORY</u>	<u>LEVEL OF TREATMENT</u>	<u>COMPLIANCE DEADLINE</u>
Conventional	BPT	July 1, 1977
Conventional	BCT	March 31, 1989
Non-conventional	BPT	July 1, 1977
Non-conventional	BAT	March 31, 1989
Toxic	BPT	July 1, 1977
Toxic	BAT	March 31, 1989

NOTES:

**INDUSTRIAL TECHNOLOGY DIVISION**

**TECHNICAL PUBLICATIONS**

**AVAILABILITY**

**REPORT**

4-16



**JANUARY 1991**



## INSTRUCTIONS

This report provides a list of the technical publications and studies applicable to the national industrial effluent discharge rulemaking activities which are currently available for review and distribution as follows:

- All publications are made available for review and inspection at the following:

1. ENVIRONMENTAL PROTECTION AGENCY  
Public Information Center  
Waterside Mall, S.E., Garage Level  
401 M. St., S.W.  
Washington, D.C. 20460

Phone Number: 646-6410 (local), or 800-828-4445 (toll free)

2. Any EPA Regional Office Library (Attachment C)

- Publications can be purchased by submitting your request to the following:

NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)  
5215 Port Royal Road  
Springfield, VA 22161

Order Desk Phone Number: (703) 487-4650

Note: NTIS Accession Number is required when ordering

Additionally, the Industrial Technology Division projects and contacts for technical assistance are listed on Attachment B. Requests for further program assistance, questions concerning the availability of publications, or inquiries about the status of rulemaking activities, may be directed to:

ENVIRONMENTAL PROTECTION AGENCY  
Industrial Technology Division (WH 552)  
Attn: Distribution Section  
401 M. St., S.W.  
Washington, D.C.

Phone Number: (202) 382-7113

# LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS

<u>INDUSTRIAL POINT SOURCE CATEGORY</u>	<u>CFR PART NUMBER</u>	<u>SUBCATEGORY</u>	<u>SOURCES OF AVAILABILITY</u>		
			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
ALUMINUM FORMING	467	• Aluminum Forming (Final)	EPA 440/1-84/073		
			Volume I Volume II	PB84244425 PB84244433	---- ----
ASBESTOS MANUFACTURING	427	• Building, Construction and Paper (Final)	EPA 440/1-74/017-a	PB238320/AS	5501-00827
		• Textile, Friction Materials & Sealing Devices (Final)	EPA 440/1-74/035-a	PB240860/AS	----
AUTO AND OTHER LAUNDRIES	444	• Auto and Other Laundries (Guidance)	----	----	----
BATTERY MANUFACTURING	461	• Battery Manufacturing (Proposed)	EPA 440/1-82/067-b	PB83197921	----
		• Battery Manufacturing (Final)	EPA 440/1-84/067		
			Volume I Volume II	PB85121507 PB85121515	---- ----
		• Battery Manufacturing Pretreatment Standards (Guidance)	----	----	----

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
BUILDERS PAPER & BOARD MILLS	431	• Builders Paper & Roofing Felt Segment	EPA 440/1-74/026-a	PB238076	5501-00909
		• Board & Builders' Paper & Board Mills (Proposed)	EPA 440/1-80/025-b	PB81201535	----
		• Pulp, Paper & Paper-Board and Builders' Paper & Board Mills (Final)	EPA 440/1-82/025	PB83163949	----
CANNED & PRESERVED FRUITS & VEGETABLES	407	• Apple, Citrus & Potato Processing	EPA 440/1-74/027-a	PB238649	5501-00790
		• Fruits, Vegetables & Specialties (Interim Final)	EPA 440/1-75/046	----	----
CANNED & PRESERVED SEAFOOD PROCESSING	408	• Catfish, Crab, Shrimp & Tuna (Final)	EPA 440/1-74/020-a	PB238614	5501-00920
		• Fishmeal, Salmon, Bottom Fish, Sardine, Herring, Clam, Oyster, Scallop, & Abalone (Final)	EPA 440/1-75/041-a	PB256840	----

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CANNED & PRESERVED SEAFOOD PROCESSING (Continued)	408	• Report to Congress, Section 74 Seafood Processing Executive Summary	EPA 440/1-80/020-a		
			Volume I	PB81182362	----
			Volume II	PB81182370	----
			Volume III	PB81182388	----
CARBON BLACK	458	• Carbon Black Manufacturing (Interim Final)	EPA 440/1-76/060h	----	----
CEMENT MANUFACTURING	411	• Cement Manufacturing (Final)	EPA 440/1-74/005-a	PB238610/AS	5501-00866
COAL MINING	434	• Coal Mining (Proposed)	EPA 440/1-81/057-b	PB81229296	----
		• Coal Mining (Final)	EPA 440/1-82/057	PB83180422	----
COIL COATING	465	• Coil Coating, Phase I (Final)	EPA 440/1-82/071	PB83205542	----
		• Coil Coating, Phase II- Canmaking (Proposal)	EPA 440/1-83/071-b	PB83198598	----
		• Coil Coating, Phase II- Canmaking (Final)	EPA 440/1-83/071	PB84198647	----
CONCRETE PRODUCTS	452	• Concrete Products (Guidance)	EPA 440/1-78/090		

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
COOLING WATER INTAKE STRUCTURES	402	• Best Technology Available for the Location Design Construction & Capacity of Cooling Water Intake Structures for Minimizing Adverse Environmental Impact (Final)	EPA 440/1-76/015-a	PB253573/AS	----
COPPER FORMING	468	• Copper (Final)	EPA 440/1-84/074	PB84192459	----
DAIRY PRODUCTS PROCESSING	405	• Dairy Products Processing (Final)	EPA 440/1-74/021-a	PB238835/AS	5501-00898
DOMESTIC SEWAGE STUDY - Hazardous Wastes	----	• Report to Congress on the Discharge of Hazardous Wastes to Publicly Owned Treatment Works (Report)	EPA 530-SW-86-004	PB86184017/AS	----
DRUM RECONDITIONING INDUSTRY	----	• Drum Reconditioning	EPA 440/1-89/101	PB90126491	----
ELECTRICAL & ELECTRONIC COMPONENTS	469	• Electrical & Electronic Components Phase I (Final)	EPA 440/1-83/075-b	----	----
		• Electrical & Electronic Components Phase II (Final)	EPA 440/1-84/075-b	PB83199208	----

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
ELECTROPLATING & METAL FINISHING	413 & 433	• Copper, Nickel, Chrome & Zinc (Final)	EPA 440/1-74/003-a	PB238834/AS	5501-00816
		• Electroplating - Pretreatment (Final)	EPA 440/1-79/003	PB80196488	----
		• Metal Finishing (Proposed)	EPA 440/1-82/091-b	PB83102004	----
		• Metal Finishing (Final)	EPA 440/1-83/091	PB84115989	----
		• Electroplating and Metal Finishing Pretreatment (Guidance)	EPA 440/1-84/091-g	----	----
ETHANOL FOR FUEL (SYNFUELS)	472	• Multimedia Technical Support Document for Ethanol for Fuel Industry (Guidance)	EPA 440/1-86/093	PB86177557/AS	----
		• Low BTU Gasifier Wastewater (1986) (Guidance)	----	PB86245438/AS	----
		• Low BTU Coal Gasification (Guidance)	----	----	----

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EXPLOSIVES	457	• Explosives Manufacturing (Interim Final)	EPA 440/1-76/060-j	----	----
FEEDLOTS	412	• Feedlots (Final)	EPA 440/1-74/004-a	PB238651/AS	5501-00842
FERROALLOY MANUFACTURING	424	• Smelting & Slag	EPA 440/1-74/008-a	PB238650/AS	5501-00780
		• Calcium Carbide (Interim Final)	EPA 440/1-75/038	----	----
		• Electrolytic Ferroalloys (Interim Final)	EPA 440/1-75/038-a	----	----
FERTILIZER MANUFACTURING	418	• Basic Fertilizer Chemicals (Final)	EPA 440/1-74/011-a	PB238652/AS	5501-00969
		• Formulated Fertilizer (Final)	EPA 440/1-75/042-a	PB240863/AS	5501-01006
		• Summary Report - Phosphate Fertilizer Subcategory of Fertilizer Point Source (40 CFR 418)	----	----	----

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				<b>NTIS ACCESSION NUMBER</b>	<b>GPO STOCK NUMBER</b>
GLASS MANUFACTURING	426	• Pressed & Blown Glass (Interim Final)	EPA 440/1-75/034-a	PB256854/AS	5501-01036
		• Insulation Fiberglass (Final)	EPA 440/1-74/001-b	PB238078/AS	5501-00781
		• Flat Glass (Final)	EPA 440/1-74/001-c	PB238907	5501-00814
GRAIN MILLS	406	• Grain Processing (Final)	EPA 440/1-74/028-a	PB238316/AS	5501-00844
		• Animal Feed, Breakfast Cereal & Wheat Starch (Final)	EPA 440/1-74/039-a	PB240861/AS	5501-01007
		• Corn Wet Milling	EPA 440/1-75/028-b	----	----
GUM & WOOD CHEMICALS MANUFACTURING	454	• Gum and Wood Chemicals (Interim Final)	EPA 440/1-76/060-b	----	----
HAZARDOUS WASTE TREATMENT INDUSTRY	----	• Hazardous Waste Treatment	EPA 440/1-89/100	PB90126517	----
HOSPITALS	460	• Hospitals (Interim Final)	EPA 440/1-76/060-N	PB87192670	----

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INDUSTRIAL LAUNDRIES	----	• Industrial Laundries	EPA 440/1-89/103	PB90126541	----
INK FORMULATING	447	• Oil Base Solvent Wash Subcategories (Interim Final)	EPA 440/1-75/049	----	----
		• Ink Formulating (Proposal)	EPA 440/1-79/090-b	PB81178188	----
INORGANIC CHEMICALS MANUFACTURING	415	• Major Inorganic Chemical Products (Final)	EPA 440/1-74/007-a	PB238611	5502-00121
		• Inorganic Chemicals Manufacturing Phase II (Proposed)	EPA 440/1-80/007-b	PB81122632	----
		• Inorganic Chemicals (Treatability Study)	EPA 440/1-80/103	----	----
		• Inorganic Chemicals Phase I (Final)	EPA 440/1-82/007	PB82265612	----
		• Inorganic Chemicals Phase II (Final)	EPA 440/1-84/007	PB85156446/XAB	----

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
IRON & STEEL MANUFACTURING	420	• Steel Making	EPA 440/1-74/024-a	PB238837	5501-00906
		• Iron & Steel (Proposed)	EPA 440/1-80/024-b		----
			Volume I	PB81184392	
			Volume II	PB81184400	
			Volume III	PB81184418	
			Volume IV	PB81184426	
			Volume V	PB81184434	
			Volume VI	PB81184442	
			(*Set of Volumes I thru VI)	PB81184384*	
		• Iron & Steel (Final)	EPA 440/1-82/024		----
			Volume I	PB82240425	
			Volume II	PB82240433	
			Volume III	PB82240441	
			Volume IV	PB82240458	
			Volume V	PB82240466	
			Volume VI	PB82240474	
			(*Set of Volumes I-VI)	PB82240417*	
		• Pretreatment Steel Manufacturing Point Source	----	----	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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<u>INDUSTRIAL POINT SOURCE CATEGORY</u>	<u>CFR PART NUMBER</u>	<u>SUBCATEGORY</u>	<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>SOURCES OF AVAILABILITY</u>	
				<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
LEATHER TANNING	425	• Leather Tanning & Finishing (Final)	EPA 440/1-74/016-a	PB238079	5501-00818
		• Leather Tanning (Final)	EPA 440/1-82/016	PB83172593	----
		• Leather Tanning and Finishing (Supplemental Final)	EPA 440/1-88/016-s	PB88213541	----
		• Leather Tanning and Finishing (Guidance)	----	----	----
MACHINERY MANUFACTURING AND REBUILDING INDUSTRY	----	• Machinery Manufacturing	EPA 440/1-89/106	PB90126525	----
MEAT PRODUCTS AND RENDERING	432	• Red Meat Processing (Final)	EPA 440/1-74/012-a	PB238836/AS	5501-00843
		• Renderer (Final)	EPA 440/1-74/031-d	PB253572	----
		• Renderer (Supplement/ Reprint Final)	EPA 440/1-78/031-e	----	----
		• Renderer (Supplement)	EPA 440/1-77/031-e	----	----
METAL FINISHING	433	SEE ELECTROPLATING FOR LISTING			

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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				<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
METAL MOLDING & CASTING (FOUNDRIES)	464	• Metal Molding & Casting (Proposed)	EPA 440/1-82/070-b Volumes I & II	----	----
		• Metal Molding & Casting (Final)	EPA 440/1-85/070	PB86161452/XAB	----
MINERAL MINING & PROCESSING	436	• Minerals for the Construction Industry	EPA 440/1-75/059	PB274593/3	----
		• Mineral Mining and Processing (Final)	EPA 440/1-76/059b	PB80110299	----
		• Report to Congress: The Effects of Discharges from Limestone Quarries on Water Quality and Aquatic Biota (Final)	EPA 440/1-82/059	PB82242207	----
NONFERROUS METALS FORMING	471	• Nonferrous Metals Forming (Final)	EPA 440/1-86/019 Volume I Volume II Volume III (*Set of Volumes I-III)	---- PB87121760 PB87121778 PB87121786 PB87121752*	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
NONFERROUS METALS MANUFACTURING	421	• Bauxite Refining- Aluminum Segment (Final)	EPA 440/1-74/019-c	PB238463	5501-00116
		• Primary Aluminum Smelting - Aluminum Segment (Final)	EPA 440/1-74/019-d	PB240859	5501-00817
		• Secondary Aluminum Smelting - Aluminum Segment (Final)	EPA 440/1-74/019-e	PB238464	5501-00819
OIL & GAS EXTRACTION	435	• Oil & Gas Extraction (Interim Final)	EPA 440/1-76/055-a	----	----
		• Oil & Gas Extraction - Offshore (Interim Final)	EPA 440/1-75/055	----	----
		• Oil & Gas Extraction - Offshore (Proposed)	EPA 440/1-85/055	PB86114949/XAB	----
		• Assessment of Environmental Fate & Effects of Discharge from Offshore Oil and Gas Operations	EPA 440/4-85/002	PB86114964/AS	----
OIL RECLAMATION	----	• Oil Reclamation	EPA 440/1-89/014	PB90126509	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS  
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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
ORE MINING AND DRESSING	440	• Ore Mining and Dressing Volume I (Proposed)	EPA 440/1-78/061-d	PB286520/AS	----
		• Ore Mining and Dressing Volume II (Proposed)	EPA 440/1-78/061-e	PB286521/AS	----
		• Ore Mining & Dressing (Proposed)	EPA 440/1-82/061-b	PB82250952	----
		• Ore Mining & Dressing (Final)	EPA 440/1-82/061	----	----
		• Gold Placer Mining Subcategory (Proposed)	EPA 440/1-85/061-b	----	----
		• Placer Mining and Dressing - Gold Placer Mining (Final)	EPA 440/1-88/061	PB89117790	----

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				<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
ORGANIC CHEMICALS, PLASTICS, AND SYNTHETIC FIBERS MANUFACTURING	414 &416	• Major Organic Products (Final)	EPA 440/1-74/009-a	PB241905	5001-008812
		• Organic Chemicals & Plastics & Synthetic Fibers (Proposed)	EPA 440/1-83/009-b Volume I Volume II Volume III (*Set of Volumes I thru III)	PB83205633 PB83205641 PB83205658 PB83205625*	----
		• Synthetic Resins	EPA 440/1-74/010	PB239241	5501-00815
		• Synthetic Polymers	EPA 440/1-74/036	PB240862	5501-01012
		• Selected Summary of Information in Support of Organic Chemicals, Plastic & Synthetic Fibers, July 1985	----	----	----
		• Organic Chemicals & Plastics & Synthetic Fibers (Final)	EPA 440/1-87/009 Volumes I & II Volume II	PB88171335	----
PAINT FORMULATING	446	• Paint Formulating	EPA 440/1-89/050	PB90126475	----
		• Oil Base Solvent Wash Subcategories (Interim Final)	EPA 440/1-75/049	----	----
		• Paint and Ink Formulating (Interim Final)	EPA 440/1-75/050	----	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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PAVING AND ROOFING (TARS & ASPHALT)	443	• Tars and Asphalt (Final)	EPA 440/1-75/050	----	----
PESTICIDES	455	• Pesticides (Final)	EPA 440/1-78/060	PB285480	----
		• Pesticides (Proposed)	EPA 440/1-89/060-e	PB90126426	
		• Test Methods for Non- Conventional Pesticides Chemical Analysis of Industrial & Municipal Wastewater	----	PB83176636	----
		• Pesticides Chemicals Manufacturing (Interim Final)	EPA 440/1-75/060-d	----	----
		• Pesticides (Final)	EPA 440/1-85/079	PB86150042/XAB	----
		NOTE: FINAL REGULATION WAS WITHDRAWN 1986 -- a restudy has been initiated by the Agency			
PETROLEUM REFINING	419	• Petroleum Refining (Final)	EPA 440/1-74/014-a	PB238612	5501-00912
		• Petroleum Refining (Proposed)	EPA 440/1-79/014-b	PB81228413	----
		• Petroleum Refining (Final)	EPA 440/1-82/014	PB83172569	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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PHARMACEUTICALS MANUFACTURING	439	• Pharmaceutical (Final)	EPA 440/1-83/084	PB84180066	----
		• Pharmaceutical - BCT (Final)	EPA 440/1-86/084	PB87172268	----
PHOSPHATE MANUFACTURING	422	• Phosphorus Derived Chemicals (Final)	EPA 440/1-74/006-a	PB241018/AS	5503-00078
		• Other Non-Fertilizer Phosphate Chemicals (Final)	EPA 440/1-75/043-a	----	----
		• Summary Report - Phosphate Fertilizer Subcategory of Fertilizer Point Source Category (40 CFR 418)	----	Contract # 88-1-4975	----
PHOTOGRAPHIC PROCESSING	459	• Guidance Document for the Control of Water Pollution in the Photographic Processing Industry	EPA 440/1-81/082-g	PB82177643	----
		• Photographic Processing (Interim Final)	EPA 440/1-76/060-I	----	----

**LIST OF DEVELOPMENT DOCUMENTS AND ADDITIONAL U.S. EPA INDUSTRIAL TECHNOLOGY DIVISION PUBLICATIONS**  
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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
PLASTICS MOLDING AND FORMING	463	• Plastics Molding and Forming (Final)	EPA 440/1-84/069-b	PB85186823	----
PORCELAIN ENAMELING	466	• Porcelain Enameling (Proposed)	EPA 440/1-81/072-b	PB81201527	----
		• Porcelain Enameling (Final)	EPA 440/1-82/072	----	----
PRINTING AND PUBLISHING	448	• Summary of Available Information on the Levels of Controls of Toxic Pollutants Dischargers in the Printing and Publishing Point Source Category	EPA 440/1-78/090	----	----
PUBLICLY OWNED TREATMENT WORKS	----	• Fate of Priority Pollutants in Publicly Owned Treatment Works Volume I	EPA 440/1-82/303	PB83122788	----
		Volume II		PB83122796	----
		- 30-Day Study	EPA 440/1-82/302	PB82263880	----
		- Pilot Study	EPA 440/1-79/300	----	----

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
PULP, PAPER AND PAPERBOARD	430	• Unbleached Kraft and Semi-chemical Pulp (Final)	EPA 440/1-74/025-a	PB238833/AS	----
		• Pulp, Paper & Paper- Board and Builders' Paper & Board Mills (Proposed)	EPA 440/1-80/025-b	PB81201535	----
		• Pulp, Paper & Paper- board and Builders' Paper & Board Mills (Final)	EPA 440/1-82/025	PB83163949	----
		• Development Document for Best Conventional Pollutant Control Technology Pulp, Paper, and Paperboard	EPA 440/1-86/025	PB87172250/AS	----
		• Pulp, Paper and Paperboard & Builder's Paper and Board Mills (Guidance)	----	----	----
		• Control of Polychlorinated Biphenyls in the Deink Subcategory (Guidance)	----	----	----

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				<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
RUBBER PROCESSING	428	• Tire & Synthetic (Final)	EPA 440/1-74/013-a	PB238609/AS	5501-00885
		• Fabricated & Reclaimed Rubber (Final)	EPA 440/1-74/030-a	PB241916/AS	5501-01016
SOAPS & DETERGENTS	417	• Soaps & Detergents (Final)	EPA 440/1-74/018-a	PB238613/AS	5501-00867
SOLVENT RECYCLING INDUSTRY	----	• Solvent Recycling	EPA 440/1-89/102	PB90126467	----
STEAM ELECTRIC POWER PLANTS	423	• Steam Electric Power Generating (Final)	EPA 440/1-74/029-a	PB240853	5501-01001
		• Steam Electric (Proposed)	EPA 440/1-80/029-b	PB81119075	----
		• Steam Electric (Final)	EPA 440/1-82/029	----	----
SUGAR PROCESSING	409	• Beet Sugar (Final)	EPA 440/1-74/002-b	PB238462/AS	5501-00117
		• Cane Sugar Refining (Final)	EPA 440/1-74/002-c	PB238147/AS	5501-00826
		• Raw Cane Sugar Processing (Interim Final)	EPA 440/1-75/044	----	----

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			<u>EPA PUBLICATION DOCUMENT NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>	<u>GPO STOCK NUMBER</u>
TEXTILE MILLS MANUFACTURING	410	• Textile Mills (Final)	EPA 440/1-74/022-a	PB238832/AS	5501-00903
		• Textile Mills (Final)	EPA 440/1-82/022	PB83116871	----
TIMBER PRODUCTS PROCESSING	429	• Wood Furniture and Fixtures (Final)	EPA 440/1-74/033-a	----	----
		• Timber Products Processing (Proposed)	EPA 440/1-79/023-b	----	----
		• Timber Products Processing (Final)	EPA 440/1-81/023	PB81227282	----
TRANSPORTATION EQUIPMENT CLEANING INDUSTRY	----	• Transportation Equipment Cleaning	EPA 440/1-89/104	PB90126483	----

National Technical Information Service (NTIS)  
5285 Port Royal Road  
Springfield, VA 22161  
(703) 487-4600

## INDUSTRIAL TECHNOLOGY DIVISION'S PUBLICATIONS AVAILABILITY LIST

GO FOR PART NUMBER	INDUSTRIAL TECHNOLOGY DIVISION PROJECT	STATUS	TITLE OF PUBLICATION	EPA DOCUMENT NUMBER (and I-1728/10 Series)	DATE OF PUBLICATION	NOTE
	Isotope Dilution GC/MS - Organics	Methods	Analysis of Extractable Organic Pollutant Standards by Isotope Dilution GC/MS		July 1988	--
	Sludge Sludge Survey	Methods	Analytical Methods for the National Sludge Survey		March 1988	--
	List of Lists	Report	The 1988 List of Lists - List of TSD/ICM Analytes			
		Report	The 1988 Industrial Technology Division List of Analytes		March 1988	--

PUBLICATIONS AVAILABLE FROM THE INDUSTRIAL TECHNOLOGY DIVISION  
(ANALYTICAL METHODS & REFERENCES)

Method 1613: Tetra- Through Octa-Chlorinated Dioxins and Furans for Isotope Dilution, HNOC/HNOM, Revision A, April 1988.

Method 1618: Organo-halide Pesticides, Organo-phosphorus Pesticides, and Phenoxo-acid Herbicides by Wide Bore Capillary Column Gas Chromatography with Selective Detectors, July 1989.

Method 1620: Metals by Inductively Coupled Plasma Atomic Emission Spectroscopy and Atomic Absorption Spectroscopy (Draft), September 1989.

Method 1624: Volatile Organic Compounds by Isotope Dilution GC/MS and Method 1625: Semivolatile Organic Compounds by Isotope Dilution GC/MS, June 1989.

Aluminum, Copper, and Nonferrous Metals Forming and Metal Powders Pretreatment Standards, A Guidance Manual, December 1989.

List of Lists/A Catalog of Analytes and Methods, EPA, Office of Water, Office of Water Regulations and Standards, September 1990.

Sampling Procedures and Protocols for the National Sludge Survey, August 1989.

Note: Questions concerning the above reference materials should be addressed to:

William A. Tellard  
Industrial Technology Division (WH-552)  
USEPA 401 M St. SW  
Washington, DC 20460  
(202) 382-7131

OWR/ITD Preliminary Data Summaries--1989

EPA 440/1-89/014--Preliminary Data Summary for the Used Oil Reclamation and Re-Refining Industry

EPA 440/1-89/060n--Preliminary Data Summary for the Hospitals Point Source Category

EPA 440/1-89/060a--Preliminary Data Summary for the Pesticide Chemicals Point Source Category

EPA 440/1-89/025--Preliminary Data Summary for the Pulp, Paper and Paperboard Point Source Category

EPA 440/1-89/050--Preliminary Data Summary for the Paint Formulating Paint Source Category

EPA 440/1-89/084--Preliminary Data Summary for the Pharmaceutical Manufacturing Point Source Category

EPA 440/1-89/100--Preliminary Data Summary for the Hazardous Waste Treatment Industry

EPA 440/1-89/101--Preliminary Data Summary for the Drum Reconditioning Industry

EPA 440/1-89/102--Preliminary Data Summary for the Solvent Recycling Industry

EPA 440/1-89/103--Preliminary Data Summary for the Industrial Laundries

EPA 440/1-89/104--Preliminary Data Summary for the Transportation Equipment Cleaning Industry

EPA 440/1-89/105--Preliminary Data Summary for the Coastal, Onshore and Stripper Subcategories of the Oil Gas Extraction Point Source Category

EPA 440/1089/106--Preliminary Data Summary for the Machinery Manufacturing and Rebuilding Industry

# INDUSTRIAL CATEGORIES SUBJECT TO NATIONAL EFFLUENT LIMITATIONS AND STANDARDS

## INDUSTRIAL CATEGORY

## 40 CFR PART NUMBER

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Timber Products Manufacturing	429
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\*Cross reference to Metal Finishing, Part 433

\*\*Cross reference to Electroplating, Part 413.

\*\*\*"Organic Chemicals and Manufacturing" (40 CFR Part 414) had been combined with the "Plastics and Synthetics" point source category (40 CFR Part 416); pretreatment standards for new sources are still in effect as previously identified under 40 CFR Part 414, Subpart B.

\*\*\*\*Category is regulated only by the general pretreatment standards found in 40 CFR Part 403.

## REFERENCES FOR WASTEWATER POLLUTANT INFORMATION

40 CFR 401.15	Toxic Pollutants: List of 65 toxic pollutants developed pursuant to Clean Water Act Section 307(a)(1)
40 CFR 401.16	Conventional Pollutants: List of 5 conventional pollutants developed pursuant to CWA 304(a)(4).
40 CFR Part 423, Appendix A	Priority Pollutants: derived from list of 65 Toxic Pollutants; 126 total. (Note: Originally this list contained 129 pollutants; nos. 17, 49 and 50 have been de-listed.)
	Nonconventional Pollutants: includes all other pollutants not designated as conventional or toxic (priority) pollutants.

---

## OTHER EFFLUENT GUIDELINES CONTACTS

Analytical Support (Chemical Test Methods)	Bill Tellard, Ben Honaker
Coal Remining, Slurry Pipelines	Bill Tellard
Development Documents Interpretation Ordering	Joe Vitalis Linda Stallard
Economic Analysis for Effluent Guidelines	Neil Patel (AED)
Effluent Guidelines Plan (CWA 304m Plan)	Eric Strassler
Ethanol for Fuel	Bill Tellard
Foods & Beverages-Misc.	Don Anderson
Hot Coating	George Jett
Low BTU Gasification	Bill Tellard
Pollution Prevention	Mark Lutner
Statistical Analysis for Effluent Guidelines	Henry Kahn (AED)
Superfund Site Discharges	Woody Forsht
Water Supply	Don Anderson

### **ITD PROJECT RESPONSIBILITY LIST**

<b>Aluminum Forming</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Analytical Support</b>	<b>Bill Telliard</b>	<b>(202) 260-5131</b>
	<b>Ben Honaker</b>	<b>(202) 260-2272</b>
<b>Asbestos</b>	<b>Ron Kirby</b>	<b>(202) 260-7168</b>
<b>Battery Manufacturing</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Carbon Black Manufacturing</b>	<b>George Jett</b>	<b>(202) 260-7151</b>
<b>Cement Manufacturing</b>	<b>Ron Kirby</b>	<b>(202) 260-7168</b>
<b>Centralized (Hazardous) Waste Treaters</b>	<b>Debra DiCianna</b>	<b>(202) 260-7141</b>
<b>Coal Mining</b>	<b>Bill Telliard</b>	<b>(202) 260-5131</b>
<b>Coal Remining</b>		
<b>Coal Slurry Pipelines</b>		
<b>Coil Coating</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>(includes canmaking)</b>		
<b>Copper Forming</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Dairy Products Processing</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Drum Reconditioning</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Electrical &amp; Electronic Components - Phase I &amp; II</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Electroplating</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Ethanol for Fuel</b>	<b>Bill Telliard</b>	<b>(202) 260-5131</b>
<b>Explosives Manufacturing</b>	<b>Tom Fielding</b>	<b>(202) 260-7156</b>
<b>Feedlots</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Ferroalloy Manufacturing</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>

	<b>Tom Fielding</b>	<b>(202) 260-7156</b>
	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>olding</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>g</b>	<b>Wendy Smith</b>	<b>(202) 260-7184</b>
	<b>Don Anderson</b>	<b>(202) 260-7137</b>
	<b>Dick Williams</b>	<b>(202) 260-7186</b>
	<b>Frank Hund</b>	<b>(202) 260-7182</b>
	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>;</b>	<b>Woody Forsht</b>	<b>(202) 260-7190</b>
	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>;</b>	<b>Tom Fielding</b>	<b>(202) 260-7156</b>
	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Finishing</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>on</b>	<b>Bill Telliard</b>	<b>(202) 260-5131</b>
<b>turing</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Rendering</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>s &amp; Beverages</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>ctioneries</b>		
<b>cialty</b>		

<b>Nonferrous Metals Forming</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Nonferrous Metals Manufacturing</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Oil &amp; Gas Extraction</b> Offshore Onshore (Coastal)	<b>Ron Jordan</b>	<b>(202) 260-7115</b>
<b>Ore Mining</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Organic Chemicals, Plastics &amp; Synthetic Fibers</b>	<b>George Jett</b>	<b>(202) 260-7151</b>
<b>Paint Formulation</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Paragraph 4(c) Pollutants</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Paving &amp; Roofing</b>	<b>Bill Telliard</b>	<b>(202) 260-5131</b>
<b>Pesticides</b>	<b>Tom Fielding</b> <b>Jan Goodwin</b>	<b>(202) 260-7156</b> <b>(202) 260-7142</b>
<b>Petroleum Refining</b>	<b>Mary Rubin</b>	<b>(202) 260-7124</b>
<b>Pharmaceuticals</b>	<b>Frank Hund</b>	<b>(202) 260-7182</b>
<b>Photographics</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>Plastics Molding &amp; Forming</b>	<b>Woody Forsht</b>	<b>(202) 260-7190</b>
<b>Platemaking</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Porcelain Enameling</b>	<b>Matt Jarrett</b>	<b>(202) 260-3164</b>
<b>POTW Pilot Study/Pretreatment</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Poultry Processing</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Printing &amp; Publishing</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Pulp &amp; Paper</b>	<b>George Heath</b>	<b>(202) 260-7165</b>
<b>Builders' Paper &amp; Board Mills</b>	<b>Wendy Smith</b>	<b>(202) 260-7184</b>
<b>Converted Paper</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Pulp, Paper &amp; Paperboard</b>		
<b>Dioxin</b>		

<b>Rubber Manufacturing</b>	<b>Joe Vitalis</b>	<b>(202) 260-7172</b>
<b>Seafood Processing (canned &amp; preserved)</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Shipbuilding</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Solvent Recovery</b>	<b>Debra DiCianna</b>	<b>(202) 260-7141</b>
<b>Steam Electric Power Generation</b>	<b>Joe Vitalis</b>	<b>(202) 260-7172</b>
<b>Sugar Processing Beet, Raw Cane Cane Sugar Refining</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>Superfund Site/POTW Guidance</b>	<b>Elwood Forsht</b>	<b>(202) 260-7190</b>
<b>Textile Manufacturing</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Timber Products</b>	<b>Dick Williams</b>	<b>(202) 260-7186</b>
<b>Transportation</b>	<b>Sabita Rajvanshi</b>	<b>(202) 260-7153</b>
<b>Waste Oil Reclamation</b>	<b>Marvin Rubin</b>	<b>(202) 260-7124</b>
<b>Water Supply</b>	<b>Don Anderson</b>	<b>(202) 260-7137</b>
<b>304(m) Revisions</b>	<b>Eric Strassler</b>	<b>(202) 260-7150</b>
<b>40 CFR 401 Revisions</b>	<b>Frank Hund</b>	<b>(202) 260-7182</b>

## **PRACTICAL EXERCISE**

### **Calculating Daily Maximum and Monthly Average Permit Limits Using Effluent Guidelines**

#### **SITUATION**

You are the permit writer responsible for drafting the permit for Luster Glass, Inc., a glass manufacturer in Morris, Illinois (IL0654321). After reviewing the application forms 1 and 2C and the effluent limitations guidelines and standards for the Glass Manufacturing point source category (40 CFR Part 426) you begin to develop the effluent limitations for the process wastewaters, to be included in the permit.

#### **DETERMINE:**

The daily maximum and monthly average effluent limitations for Oil and Grease, TSS, Phosphorus, and pH for the process wastewater contribution to Outfall 001 at Luster Glass. Show all calculations and assumptions.

TABLE OF STUDENTS' *t* VALUES AT THE 99  
PERCENT CONFIDENCE LEVEL

Number of replicates	Degrees of freedom ( <i>n</i> - 1)	<i>t</i> ( <i>n</i> - 1, 1 - $\alpha$ = .99)
7	6	3.143
8	7	2.998
9	8	2.896
10	9	2.821
11	10	2.764
16	15	2.602
21	20	2.528
26	25	2.485
31	30	2.457
61	60	2.390
		2.326

[53 FR 9186, Mar. 21, 1988]

## PART 426—GLASS MANUFACTURING POINT SOURCE CATEGORY

### Subpart A—Insulation Fiberglass Subcategory

#### Sec.

- 426.10 Applicability; description of the insulation fiberglass subcategory.
- 426.11 Specialized definitions.
- 426.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 426.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 426.14 [Reserved]
- 426.15 Standards of performance for new sources.
- 426.16 Pretreatment standards for new sources.
- 426.17 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

### Subpart B—Sheet Glass Manufacturing Subcategory

- 426.20 Applicability; description of the sheet glass manufacturing subcategory.
- 426.21 Specialized definitions.
- 426.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

#### Sec.

- 426.23 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 426.24 Pretreatment standards for existing sources.
- 426.25 Standards of performance for new sources.
- 426.26 Pretreatment standards for new sources.
- 426.27 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

### Subpart C—Rolled Glass Manufacturing Subcategory

- 426.30 Applicability; description of the rolled glass manufacturing subcategory.
- 426.31 Specialized definitions.
- 426.32 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 426.33 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
- 426.34 Pretreatment standards for existing sources.
- 426.35 Standards of performance for new sources.
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- 426.37 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

### Subpart D—Plate Glass Manufacturing Subcategory

- 426.40 Applicability; description of the plate glass manufacturing subcategory.
- 426.41 Specialized definitions.
- 426.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
- 426.43 [Reserved]
- 426.44 Pretreatment standards for existing sources.
- 426.45 Standards of performance for new sources.
- 426.46 Pretreatment standards for new sources.

**Sec.**

**426.47** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT).

**Subpart E—Float Glass Manufacturing Subcategory**

**426.50** Applicability; description of the float glass manufacturing subcategory.

**426.51** Specialized definitions.

**426.52** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.53** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

**426.54** [Reserved]

**426.55** Standards of performance for new sources.

**426.56** Pretreatment standards for new sources.

**426.57** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart F—Automotive Glass Tempering Subcategory**

**426.60** Applicability; description of the automotive glass tempering subcategory.

**426.61** Specialized definitions.

**426.62** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.63** [Reserved]

**426.64** Pretreatment standards for existing sources.

**426.65** Standards of performance for new sources.

**426.66** Pretreatment standards for new sources.

**426.67** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart G—Automotive Glass Laminating Subcategory**

**426.70** Applicability; description of the automotive glass laminating subcategory.

**426.71** Specialized definitions.

**Sec.**

**426.72** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.73** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

**426.74** [Reserved]

**426.75** Standards of performance for new sources.

**426.76** Pretreatment standards for new sources.

**426.77** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart H—Glass Container Manufacturing Subcategory**

**426.80** Applicability; description of the glass container manufacturing subcategory.

**426.81** Specialized definitions.

**426.82** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.83—426.84** [Reserved]

**426.85** Standards of performance for new sources.

**426.86** Pretreatment standards for new sources.

**426.87** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart I—Machine Pressed and Blown Glass Manufacturing Subcategory [Reserved]**

**Subpart J—Glass Tubing (Danner) Manufacturing Subcategory**

**426.100** Applicability; description of the glass tubing (Danner) manufacturing subcategory.

**426.101** Specialized definitions.

**426.102** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.103—426.104** [Reserved]

**426.105** Standards for performance for new sources.

**426.106** Pretreatment standards for new sources.

**Sec.**

**426.107** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart K—Television Picture Tube Envelope Manufacturing Subcategory**

**426.110** Applicability; description of the television picture tube envelope manufacturing subcategory.

**426.111** Specialized definitions.

**426.112** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.113** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

**426.114** [Reserved]

**426.115** Standards of performance for new sources.

**426.116** Pretreatment standards for new sources.

**426.117** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Subpart L—Incandescent Lamp Envelope Manufacturing Subcategory**

**426.120** Applicability; description of the incandescent lamp envelope manufacturing subcategory.

**426.121** Specialized definitions.

**426.122** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.123** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

**426.124** [Reserved]

**426.125** Standards of performance for new sources.

**426.126** Pretreatment standards for new sources.

**426.127** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

**Sec.**

**Subpart M—Hand Pressed and Blown Glass Manufacturing Subcategory**

**426.130** Applicability; description of the hand pressed and blown glass manufacturing subcategory.

**426.131** Specialized definitions.

**426.132** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

**426.133** Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

**426.134** [Reserved]

**426.135** Standards of performance for new sources.

**426.136** Pretreatment standards for new sources.

**426.137** [Reserved]

**AUTHORITY:** Secs. 301, 304 (b) and (c), 306 (b) and (c), 307(c), and 316(b) of the Federal Water Pollution Control Act, as amended; 33 U.S.C. 1251, 1311, 1314, 1316 (b) and (c), 1317(b); 86 Stat. 816 et seq., Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217.

**SOURCE:** 39 FR 2565, Jan. 22, 1974, unless otherwise noted.

**Subpart A—Insulation Fiberglass Subcategory**

**§ 426.10** Applicability; description of the insulation fiberglass subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of insulation fiberglass in which molten glass is either directly or indirectly made, continuously fiberized and chemically bonded into a wool-like material.

**§ 426.11** Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

(b) The term "cullet water" shall mean that water which is exclusively and directly applied to molten glass in order to solidify the glass.

(c) The term "advanced air emission control devices" shall mean air pollution control equipment, such as electrostatic precipitators and high energy

licly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to the navigable waters), shall be the standard set forth in 40 CFR Part 128, except that, for the purpose of this section, 40 CFR 128.133 shall be amended to read as follows:

In addition to the prohibitions set forth in 40 CFR 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in 40 CFR 426.55 provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall, except in the case of standards providing for no discharge of pollutants, be correspondingly reduced in stringency for that pollutant.

**§ 426.57 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.**

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in § 401.16) in § 426.52 of this subpart for the best practicable control technology currently available (BPT).

[51 FR 25000, July 9, 1986]

**Subpart F—Automotive Glass Tempering Subcategory**

SOURCE: 39 FR 5714, Feb. 14, 1974, unless otherwise noted.

**§ 426.60 Applicability; description of the automotive glass tempering subcategory.**

The provisions of this subpart are applicable to discharges of pollutants resulting from the processes in which glass is cut and then passed through a series of processes that grind and

polish the edges, bend the glass, and then temper the glass to produce side and back windows for automobiles.

**§ 426.61 Specialized definitions.**

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

(b) The term "tempering" shall mean the process whereby glass is heated near the melting point and then rapidly cooled to increase its mechanical and thermal endurance.

**§ 426.62 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.**

(a) In establishing the limitation set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator

or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(b) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	1.95	1.22
Oil.....	0.44	.84
pH.....	( <sup>1</sup> )	( <sup>1</sup> )
	English units (lb/1,000 sq ft of product)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	0.40	0.25
Oil.....	0.13	.13
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.0.

§ 426.63 [Reserved]

§ 426.64 Pretreatment standards for existing sources.

The pretreatment standards under section 307(b) of the Act for a source within the automotive glass tempering subcategory which is a user of a publicly owned treatment works and a major contributing industry as defined in 40 CFR Part 128 (and which would be an existing point source subject to section 301 of the Act, if it were to discharge pollutants to the navigable waters), shall be the standard set forth in 40 CFR Part 128, except that, for the purpose of this section, 40 CFR 128.121, 128.122, 128.132, and 128.133

shall not apply. The following pretreatment standard establishes the quantity or quality of pollutants or pollutant properties controlled by this section which may be discharged to a publicly owned treatment works by a point source subject to the provisions of this subpart.

Pollutant or pollutant property	Pretreatment standard
pH.....	No limitation.
Oil.....	Do.
TSS.....	Do.

[40 FR 6444, Feb. 11, 1975]

§ 426.65 Standards of performance for new sources.

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	0.24	0.24
Oil.....	0.49	.49
pH.....	( <sup>1</sup> )	( <sup>1</sup> )
	English units (lb/1,000 sq ft of product)	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	0.05	0.05
Oil.....	0.10	.10
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.0.

§ 426.66 Pretreatment standards for new sources.

The pretreatment standards under section 307(c) of the Act for a source within the automotive glass tempering subcategory, which is a user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to the navigable waters), shall be the standard set forth in 40 CFR Part 128, except that, for the purpose of this section, 40 CFR

128.133 shall be amended to read as follows:

In addition to the prohibitions set forth in 40 CFR 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in 40 CFR 426.65; provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall, except in the case of standards providing for no discharge of pollutants, be correspondingly reduced in stringency for that pollutant.

§ 426.67 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in § 401.16) in § 426.62 of this subpart for the best practicable control technology currently available (BPT).

[51 FR 25000, July 9, 1986]

#### **Subpart G—Automotive Glass Laminating Subcategory**

SOURCE: 39 FR 5714, Feb. 14, 1974, unless otherwise noted.

§ 426.70 Applicability; description of the automotive glass laminating subcategory.

The provisions of this subpart are applicable to discharges of pollutants resulting from the processes which laminate a plastic sheet between two layers of glass, and which prepare the glass for lamination such as cutting, bending and washing, to produce automobile windshields.

§ 426.71 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 426.72 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify

other limitations, or initiate proceedings to revise these regulations.

The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best practicable control technology currently available:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	4.40	4.40
Oil.....	1.76	1.76
Phosphorus.....	1.07	1.07
pH.....	( <sup>1</sup> )	( <sup>1</sup> )
	English units (lb/1,000 sq ft of product)	
TSS.....	0.90	0.90
Oil.....	0.36	.36
Phosphorus.....	0.22	.22
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.0.

**§ 426.73 Effluent limitations guidelines** representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best available technology economically achievable:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of products)	
Phosphorus.....	0.30	.30

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	English units (lb/1,000 sq ft of product)	
Phosphorus.....	0.06	.06

[39 FR 5714, Feb. 14, 1974, as amended at 44 FR 50746, Aug. 29, 1979]

**§ 426.74 [Reserved]**

**§ 426.75 Standards of performance for new sources.**

The following standards of performance establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a new point source subject to the provisions of this subpart:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
	Metric units (g/sq m of product)	
TSS.....	0.86	0.86
Oil.....	1.76	1.76
Phosphorus.....	0.30	.30
pH.....	( <sup>1</sup> )	( <sup>1</sup> )
	English units (lb/1,000 lb of product)	
TSS.....	0.18	0.18
Oil.....	0.36	.36
Phosphorus.....	0.06	.06
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.0.

**§ 426.76 Pretreatment standards for new sources.**

The pretreatment standards under section 307(c) of the Act for a source within the automotive glass laminating subcategory, which is a user of a publicly owned treatment works (and which would be a new source subject to section 306 of the Act, if it were to discharge pollutants to the navigable waters), shall be the standard set forth in 40 CFR Part 128, except that,

for the purpose of this section, 40 CFR 128.133 shall be amended to read as follows:

In addition to the prohibitions set forth in 40 CFR 128.131, the pretreatment standard for incompatible pollutants introduced into a publicly owned treatment works shall be the standard of performance for new sources specified in 40 CFR 426.75; provided that, if the publicly owned treatment works which receives the pollutants is committed, in its NPDES permit, to remove a specified percentage of any incompatible pollutant, the pretreatment standard applicable to users of such treatment works shall, except in the case of standards providing for no discharge of pollutants, be correspondingly reduced in stringency for that pollutant.

**§ 426.77 Effluent limitations guidelines** representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

Except as provided in §§ 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT): The limitations shall be the same as those specified for conventional pollutants (which are defined in § 401.16) in § 426.72 of this subpart for the best practicable control technology currently available (BPT).

(51 FR 25000, July 9, 1986)

#### **Subpart H—Glass Container Manufacturing Subcategory**

**SOURCE:** 40 FR 2956, Jan. 16, 1975, unless otherwise noted.

**§ 426.80 Applicability; description of the glass container manufacturing subcategory.**

The provisions of this subpart are applicable to discharges resulting from the process by which raw materials are melted in a furnace and mechanically processed into glass containers.

**§ 426.81 Specialized definitions.**

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations and methods of analysis set forth in Part

401 of this chapter shall apply to this subpart.

(b) The term "furnace pull" shall mean that amount of glass drawn from the glass furnace or furnaces.

(c) The term "oil" shall mean those components of a waste water amenable to measurement by the technique or techniques described in the most recent addition of "Standard Methods" for the analysis of grease in polluted waters, waste waters, and effluents, such as "Standard Methods," 13th Edition, 2nd Printing, page 407.

**§ 426.82 Effluent limitations guidelines** representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the

# **OVERVIEW OF VARIANCES TO EFFLUENT GUIDELINES**

## **LEARNING OBJECTIVES**

- **Role of variances**
- **Types of variances**
- **Basic process to grant/deny**

## **TECHNOLOGY-BASED VARIANCES**

- **Limited relief from effluent limits and compliance deadlines**
- **Address exceptional circumstances**
- **Ensure relief of NPDES program for "unusual" circumstances**
- **Only granted on rare occasions**
- **Some may be granted by States, others require EPA approval**

**NOTES:**

## VARIANCES ARE FOR EXCEPTIONAL CIRCUMSTANCES

<u>CWA CITE</u>	<u>TYPE</u>	<u>40 CFR CITE</u>	<u>APPROVAL AUTHORITY</u>
301 (c)	Economic	Part 125, Subpart E [Reserved]	EPA - HQ
301 (g)	Water Quality	Part 125, Subpart F [Reserved]	EPA - Region
301(h)	Secondary Treatment Waiver - Ocean Discharge (POTW)	Part 125, Subpart G (§§125.56 - 125.67)	EPA - HQ
301(i)	Extension of Secondary Treatment Deadline (POTW)	Part 125, Subpart J (§§125.90 -125.97)	NPDES State*
301(k)	Innovative Technology	Part 125, Subpart C (§§125.20 - 125.27)	NPDES State*
301(n)	Fundamentally Different Factors (FDFs)	Part 125, Subpart D (§§125.30 - 125.32)	EPA - Regions
316(a)	Thermal Discharges	Part 125, Subpart H (§§125.70 - 125.73)	NPDES State*
--	Intake - Discharge Net Basis (Net/Gross)	§122.45(g)	NPDES State*

\*EPA Region in absence of approved State NPDES program.

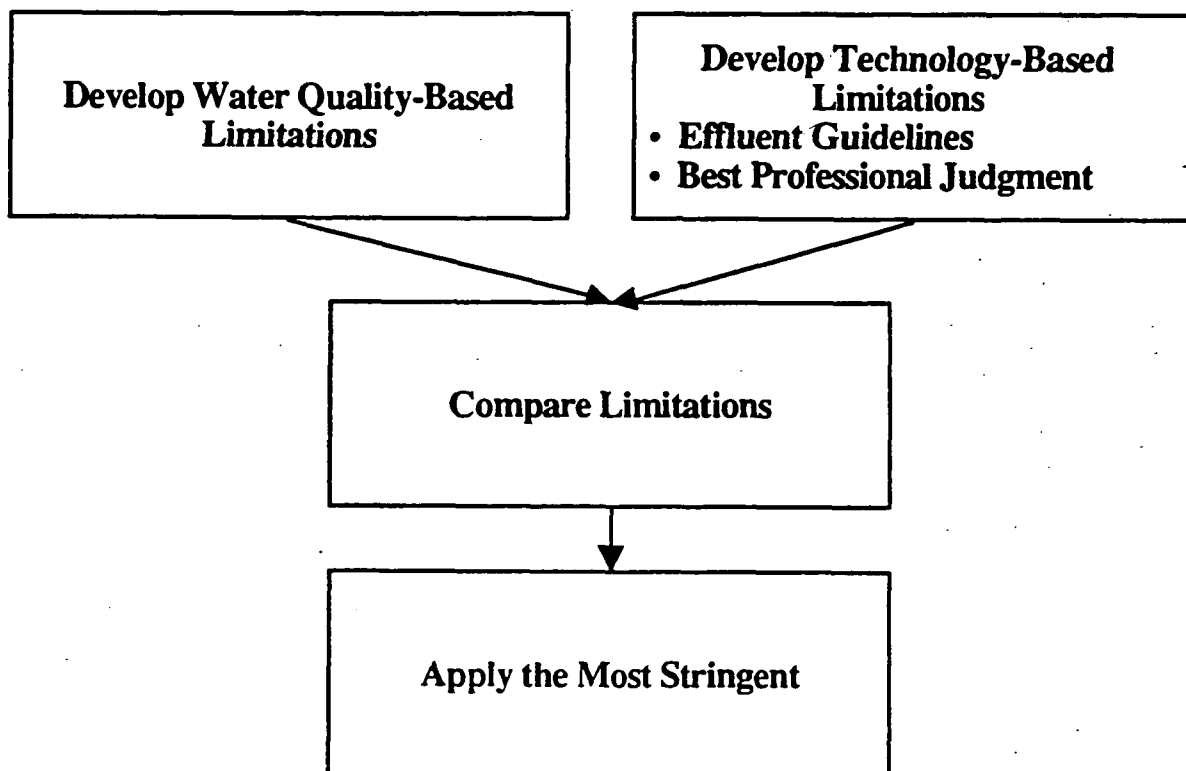
### NOTES:

# **BEST PROFESSIONAL JUDGMENT-BASED LIMITS**

## **LEARNING OBJECTIVES**

- **Define Best Professional Judgment (BPJ)**
- **Authority for BPJ**
- **BPJ tools**
- **Economic achievability protocol**

## **DEVELOPMENT OF EFFLUENT LIMITATIONS FOR NPDES PERMITS**



## **BPJ CANDIDATES**

- **Combined sewer overflows**
- **Hazardous waste treaters**
- **Equipment manufacturers**
- **Waste oil reclaimers**
- **Industrial laundries**
- **Paint and ink facilities**
- **Pharmaceuticals**
- **Barrel reclaimers**
- **Transportation facilities**
- **Mining operations**
- **Water treatment plants**
- **Petroleum industry**

**NOTES:**

## **BPJ IS THE PERMIT WRITER'S OPINION**

- **Technically based NPDES permit conditions, developed using all reasonable available and relevant data, examined and evaluated using a multidisciplined approach.**
- **The multidisciplined approach includes perspectives of an engineer, economist, statistician, chemist, biologist, and attorney.**

## **BPJ FACTORS - DEFINITIONS**

- **Age of equipment and facilities: age of the plant including manufacturing lines, sewer lines, and wastewater treatment system**
- **Process employed: the manufacturing process(es) used, and/or the wastewater treatment process employed**
- **Engineering aspects of the application of various types of control techniques: the design, construction, cost, performance, reliability, etc. of the wastewater treatment processes**
- **Process changes: the feasible manufacturing process changes such as raw material substitution or in-process design (i.e., chemical synthesis)**
- **Cost of achieving the effluent reduction: the capital and operating cost of attaining a specified effluent quality**
- **Non-water quality environmental impacts: the trade-offs associated with achieving a specified effluent quality including energy requirement, air pollution, hazardous waste generation, solid waste disposal, etc.**
- **Other factors the Administrator deems appropriate: any other factor determined to be relevant to the facility's ability to achieve a specified level of effluent quality**

## **BEST PROFESSIONAL JUDGMENT DEFENSIBILITY**

- **Defensibility depends on reasonableness**
- **Reasonableness demonstrated by documentation**
- **Documentation should include:**
  - **What is being imposed?**
  - **Why is it being imposed?**
  - **How it was developed?**

**NOTES:**

## **BPJ PERMITTING TOOLS**

- **Abstracts of industrial NPDES permits**
- **Treatability manual**
- **NPDES best management practices guidance document**
- **Technical support document for the development of water quality-based permit limitations for toxic pollutants**
- **Economic achievability protocol**
- **Report on specific facilities**
  - **Office of Research and Development**
  - **National Enforcement Investigations Center**
- **Effluent guidelines data**
  - **Section 308 questionnaires**
  - **Screening and verification data**
  - **Development documents**
  - **Contractors reports**
  - **Proposed regulations**
- **Other sources of information**
  - **Discharge monitoring reports**
  - **Compliance inspection reports**
  - **Industry teams/national experts**

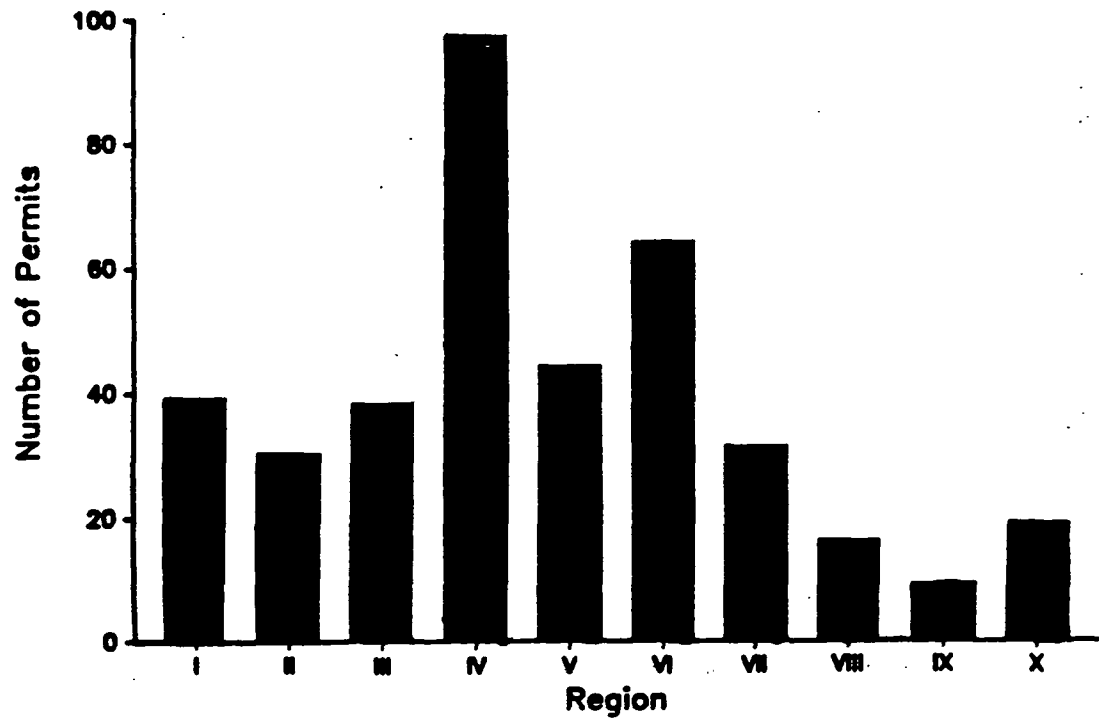
**NOTES:**

## **PERMIT ABSTRACTS**

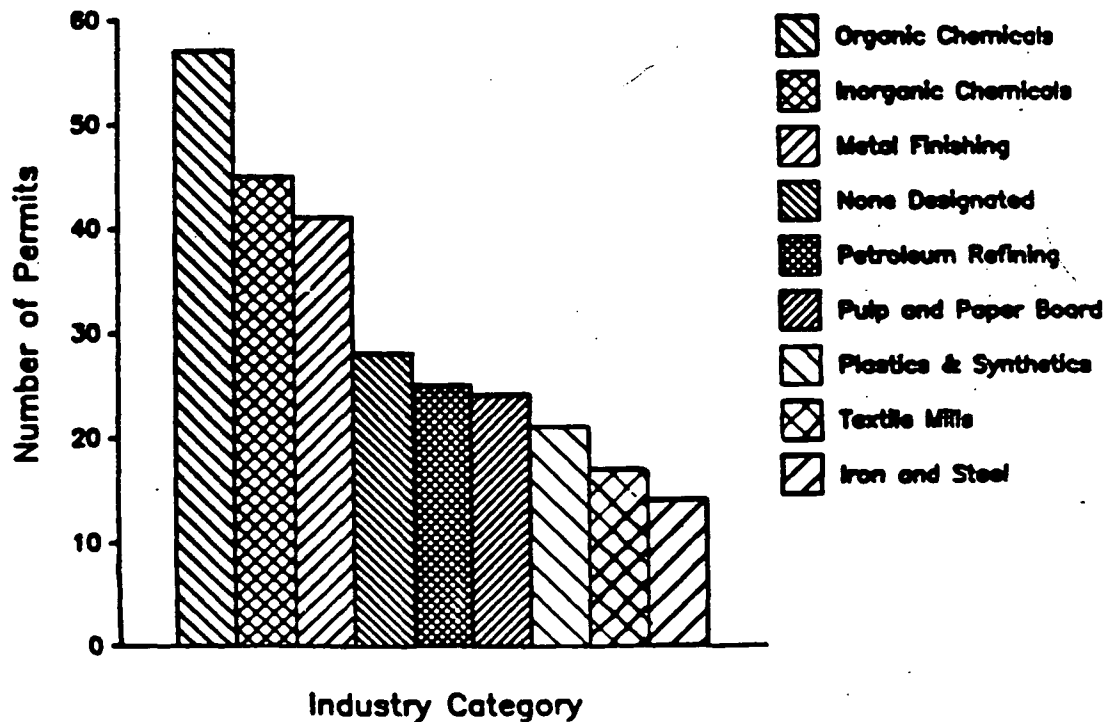
- **Primary purpose:**
  - **To assist permit writers by providing rapid access to information in approximately 500 industrial NPDES permits in a standardized, cross-referenced and easy-to-read format.**
- **Other purposes:**
  - **To answer inquiries from, and provide information to industry, academia, consultants and the public.**

### **NOTES:**

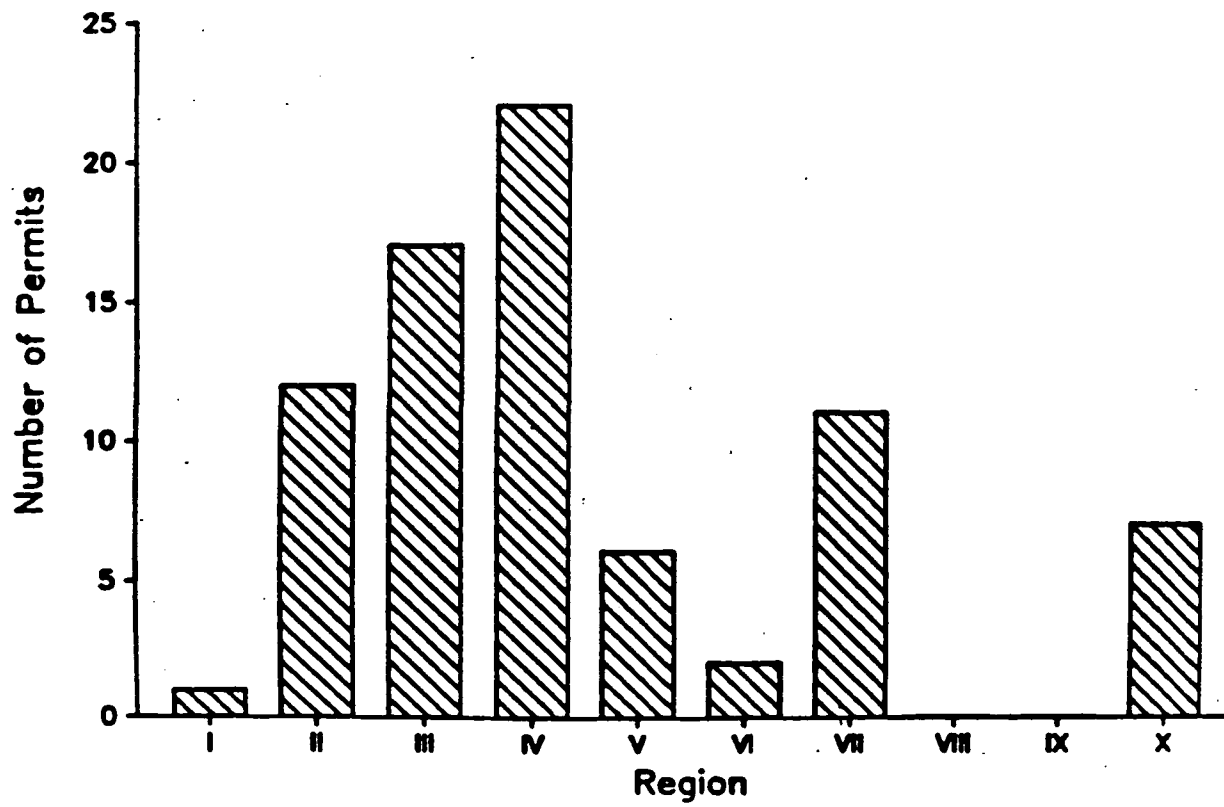
## NUMBER OF ABSTRACTED PERMITS



## EFFLUENT GUIDELINES



## PERMITS WITH BMP PLANS





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# RREL TREATABILITY DATA BASE

---

## WHWTRD 1992 FACT SHEET

---

### Purpose

To provide a thorough review of the effectiveness of proven treatment technologies in the removal/destruction of chemicals in various types of media including, but not limited to, municipal and industrial wastewater, drinking water, groundwater, soil, debris, sludge, and sediment.

### Users

The database is distributed to federal, state and local governments, foreign governments, academe, industry, industrial trade associations, environmental groups, law firms, and engineering firms. The database has a current mailing list of approximately 2,000.

### Organization

Version 4.0 of the Risk Reduction Engineering Laboratory Treatability Data Base was released in February 1992 and contains 1166 chemical compounds and over 9200 sets of treatability data. The chemicals contained in the database are often those regulated under the Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, Toxic Substances Control Act, Superfund Amendments and Reauthorization Act, and other environmental laws enacted by Congress. For each chemical, the database includes: physical/chemical properties, aqueous and solid treatability data, Freundlich isotherm data, other environmental database information sources, and data references including a reference abstract. The physical/chemical properties included are those most routinely used, such as molecular weight, boiling point, melting point, etc. The treatability data summarize the treatment technologies used to treat the specific chemical; the type of waste/wastewater treated; the size of the study/plant; and the treatment efficiency achieved. In addition, each data set is referenced to sources of information, operational information on process(es) sampled and quality-coded based upon analytical methods and reported quality assurance.

### Computer Requirements

The database has been developed using "dBase III Plus" and compiled using "Clipper" and will function without any specialized software. It is designed to operate on an IBM or IBM compatible (MS DOS) personal computer and is menu driven. The database can be set to operate on a local area network system,

although it is the user's responsibility to load and operate such a system. The database has the following hard and software requirements:

- 8 megabyte hard disk storage;
- 640 K RAM memory;
- DOS Version 2.0 to 3.3; and
- 12 pitch printer.

#### **Distribution**

The database is currently available free of charge. To receive a copy of the database and to be placed on a mailing list for all future updates, please send a written request to:

Glenn M. Shaul  
Water and Hazardous Waste Treatment Research Division  
Risk Reduction Engineering Laboratory  
United States Environmental Protection Agency  
26 West Martin Luther King Drive  
Cincinnati, Ohio 45268

or FAX your request to (513) 569-7787. Please specify the type of program diskette required for your computer (i.e., 3½" HD or 5¼" HD).

Accurate tracking and distribution of the RREL Treatability Data Base is necessary for development of future versions of this valuable product. It is recommended that all parties or individuals using the database request a copy through Glenn Shaul at the above address rather than loading the database from a colleague's copy. This will help track the usage of the database and ensure all users receive future updates.

Letters commenting on the utility and effectiveness of the database and any suggestions for improvements are welcomed and can be sent to Glenn Shaul at the above address.

**CONTACT:** Glenn M. Shaul (513/569-7408 or FTS 684-7408)

## LEAD

CAS NO.: 7439-92-1

COMPOUND TYPE: INORGANIC, ELEMENT

FORMULA: PB

## CHEMICAL AND PHYSICAL PROPERTIES

REF.

MOLECULAR WEIGHT: 207.20

333A

MELTING POINT (C): 327

333A

BOILING POINT (C): 1740

333A

VAPOR PRESSURE @ T(C), TORR: 1 @ 970

333A

SOLUBILITY IN WATER @ T(C), MG/L: INSOLUBLE

333A

LOG OCTANOL/WATER PARTITION COEFFICIENT:

NA

HENRY'S LAW CONSTANT, ATM x M3 MOLE-1:

NA

## ENVIRONMENTAL DATA

REF.

CHRONIC NONCARCINOGENIC SYSTEMIC TOXICITY

NA

RISK ESTIMATES FOR CARCINOGENS

NA

DRINKING WATER HEALTH ADVISORIES/STANDARDS

NA

WATER QUALITY CRITERIA

345B

AQUATIC TOXICITY DATABASE

5B

## FREUNDLICH ISOTHERM DATA

FREUNDLICH ISOTHERM DATA NOT AVAILABLE AT THIS TIME !

## LEAD

CAS NO.: 7439-92-1

INFLUENT CONCENTRATION - >1-10 mg/L				EFFLUENT	PERCENT REMOVAL	REFERENCE
TECHNOLOGY	MATRIX	SIC CODE	SCALE	CONCENTRATION ( ug/L )		
AS	D		F28	<59 (6)	>95.1	1B -S-
ChPt	D		P3	<25	>99.58	55E ---
RO	D		P4	140 (8)	96.6	18B ---
RO	D		P3	13 (7)	99.35	18B ---
Sed	D		F5	500 (2)	54	35E -S-
Sed	D		F3	500 (1)	75	31B ---
Sed	D		F24	90 (6)	91.9	86B -S-
AL	I 28		F11	<500 (1)	>68	87B ---
AS	I 28		P	650 (3)	68	1294B ---
AS	I 31		F5	<50 (1)	>96.7	31B ---
ChPt	I 33		B36	38 (1)	99.24	29B --\$
ChPt	I 33		B39	27 (1)	99.46	29B --\$
ChPt	I 99		P1	120	90	7E ---
ChPt	I 34		F	<210 (14)	>82	89B --\$
ChPt (B) + Fil	I 28		F15	120 (1)	98.1	87B ---
ChPt + Fil (B)	I U		B3	22 (1)	99.00	88E ---
ChPt + Fil (B)	I 36		B1	68 (1)	98.3	88E ---
ChPt + Fil (B)	I 28		B2	20 (1)	98.7	88E ---
ChPt+Fil	I 33		B37	3 (1)	99.940	29B --\$
ChPt+Fil	I 33		B38	3 (1)	99.940	29B --\$
ChPt+Fil	I 33		B40	2 (1)	99.960	29B --\$
ChPt+Fil	I 99		P1	26	97.7	7E ---
Fil	I 33		P	600	66	53B --\$
PACT	I 28		P	500 (3)	75	1294B ---
Sed	I 28		P	2,000 (3)	78	1294B ---

INFLUENT CONCENTRATION - >10-100 mg/L				EFFLUENT	PERCENT REMOVAL	REFERENCE
TECHNOLOGY	MATRIX	SIC CODE	SCALE	CONCENTRATION ( ug/L )		
ChPt	I 33		P	1,800	97.1	53B --\$
ChPt (B)	S		B1	<50 (1)	>99.67	43E ---
ChPt (B)	S		B2	<50 (1)	>99.67	43E ---

## LEAD

CONCENTRATION		Removal	Scale	Ref.	Anal.	Comments
Before	After	%			Meth.	
-----						
SLUDGE						
SOLVENT EXTRACTION						
130 mg/kg	46 (1) mg/kg	65	B1(B)	2010A-	TCA	pH 1.5 (H2SO4), 4 H
130 mg/kg	38 (1) mg/kg	71	B10(B)	2010A-	TCA	EDTA, 0.5 X Sto., 4
130 mg/kg	30 (1) mg/kg	77	B11(B)	2010A-	TCA	EDTA, 1 X Sto., 4 H
130 mg/kg	29 (1) mg/kg	78	B12(B)	2010A-	TCA	EDTA, 2 X Sto., 4 H
160 mg/kg	69 (1) mg/kg	57	B13(B)	2010A-	TCA	EDTA, 0.5 X Sto., 4
160 mg/kg	68 (1) mg/kg	58	B14(B)	2010A-	TCA	EDTA, 1 X Sto., 4 H
160 mg/kg	63 (1) mg/kg	61	B15(B)	2010A-	TCA	EDTA, 2 X Sto., 4 H
29 gm/kg	9.2 (1) gm/kg	68	B16(B)	2010A-	TCA	EDTA, 1 X Sto., 4 H
36 gm/kg	7.7 (1) gm/kg	79	B17(B)	2010A-	TCA	EDTA 1 X Sto., 4 HR
130 mg/kg	100 (1) mg/kg	23	B18(B)	2010A-	TCA	NTA, 0.5 X Sto., 4
130 mg/kg	100 (1) mg/kg	23	B19(B)	2010A-	TCA	NTA, 1 X Sto., 4 HR
130 mg/kg	61 (1) mg/kg	53	B2(B)	2010A-	TCA	pH 2 (H2SO4), 4 HR.
130 mg/kg	100 (1) mg/kg	23	B20(B)	2010A-	TCA	NTA, 2 X Sto., 4 HR
160 mg/kg	95 (1) mg/kg	41	B21(B)	2010A-	TCA	NTA, 0.5 X Sto., 4
160 mg/kg	93 (1) mg/kg	42	B22(B)	2010A-	TCA	NTA, 1 X Sto., 4 HR
160 mg/kg	90 (1) mg/kg	44	B23(B)	2010A-	TCA	NTA, 2 X Sto., 4 HR
29 gm/kg	5.3 (1) gm/kg	82	B24(B)	2010A-	TCA	NTA, 1 X Sto., 4 HR
36 gm/kg	6.9 (1) gm/kg	81	B25(B)	2010A-	TCA	NTA, 1 X Sto., 4 HR
29 gm/kg	5.4 (1) gm/kg	81	B26(B)	2010A-	TCA	pH 1.5, 3-STAGE, 3
29 gm/kg	4.7 (1) gm/kg	84	B27(B)	2010A-	TCA	EDTA (1X) 3-STAGE,
29 gm/kg	4.7 (1) gm/kg	84	B28(B)	2010A-	TCA	NTA (1X) 3-STAGE, 3
130 mg/kg	63 (1) mg/kg	52	B3(B)	2010A-	TCA	pH 3 (H2SO4), 4 HR.
130 mg/kg	83 (1) mg/kg	36	B4(B)	2010A-	TCA	pH 4 (H2SO4), 4 HR.
160 mg/kg	100 (1) mg/kg	38	B5(B)	2010A-	TCA	pH 1.5 (H2SO4), 4 H
160 mg/kg	100 (1) mg/kg	38	B6(B)	2010A-	TCA	pH 2 (H2SO4), 4 HR.
160 mg/kg	110 (1) mg/kg	31	B7(B)	2010A-	TCA	pH 3 (H2SO4), 4 HR.
29 gm/kg	9.4 (1) gm/kg	68	B8(B)	2010A-	TCA	pH 1.5 (H2SO4), 4 H
36 gm/kg	10 (1) gm/kg	72	B9(B)	2010A-	TCA	pH 1.5 (H2SO4), 4 H

## **ECONOMIC ACHIEVABILITY PROTOCOL**

- **Definition**
  - **"Economically achievable" for the purpose of this protocol means that the cost of the pollution control device will not cause the plant to shut down**
- **Purpose**
  - **To determine if a particular pollution control device is economically achievable**
- **Scope**
  - **Applicable to "best professional judgments" about BAT**
  - **Typically requires use of "economic specialist"**

### **NOTES:**

## PRACTICAL EXERCISE

### Best Professional Judgement (BPJ)

- GIVEN:**
- (a) NPDES Application Forms 1 and 2C from Luster Glass, Inc.
  - (b) 40 CFR Part 426 - Glass Manufacturing Point Source Category
  - (c) 40 CFR Part 423 - Steam Electric Power Generating Point Source Category
  - (d) Selected NPDES permit abstracts

**REQUIREMENT:** Set a technology-based limit for zinc which is present in the cooling tower blowdown using your BPJ.

### QUESTIONS:

- (1) Does 40 CFR Part 426 - Glass Manufacturing Point Source Category regulations set an effluent limitation for zinc? \_\_\_\_\_
- (2) Looking for reference limits for zinc in cooling tower blowdown, does 40 CFR Part 423 - Steam Electric Power Generating Point Source Category effluent guidelines, contain effluent limitations for zinc? \_\_\_\_\_  
If so, what are they? \_\_\_\_\_
- (3) Looking for reference limits for zinc in cooling tower blowdown, do other NPDES permits contain effluent limitations for zinc? (HINT: Use the Keyword Index in the EPA NPDES Industrial Permit Abstracts; only refer to facilities in Illinois (i.e., permit numbers beginning with IL) discharging cooling water blowdown) \_\_\_\_\_  
If so, which permit(s) and what limit(s) are used? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (4) What other resources could be considered in setting a BPJ effluent limitation? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (5) Using the information you have been given, what effluent limitation could be used as a basis for setting a limitation for zinc using BPJ? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (6) Should you establish concentration or mass limits for zinc at Outfall 001? \_\_\_\_\_  
Why? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (7) At what alternative location(s) could zinc limits be applied in the permit? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



[Metric units (kg/kkg of product); English units (lb/1,000 lb of product)]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
Total phosphorus (as P).....	0.56	0.28
Fluoride (as F).....	.21	.11

[44 FR 50744, Aug. 29, 1979]

§ 422.64 [Reserved]

§ 422.65 Standards of performance for new sources.

The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the standards of performance for new sources:

[Metric units (kg/kkg of product); English units (lb/1,000 lb of product)]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
TSS.....	0.35	0.18
Total phosphorus (as P).....	.56	.28
Fluoride (as F).....	.21	.11
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.5.

§ 422.66 [Reserved]

§ 422.67 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology.

Except as provided in §§ 125.30 through 125.32, the following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this section, which may be discharged by a point source subject to the provisions of this subpart after application of the best conventional pollutant control technology:

[Metric units (kg/kkg of product); English units (lb/1,000 lb of product)]

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days shall not exceed—
TSS.....	0.35	0.18
pH.....	( <sup>1</sup> )	( <sup>1</sup> )

<sup>1</sup> Within the range 6.0 to 9.5.

[51 FR 25000, July 9, 1986]

**PART 423—STEAM ELECTRIC POWER GENERATING POINT SOURCE CATEGORY**

Sec.

423.10 Applicability.

423.11 Specialized definitions.

423.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

423.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

423.14 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

423.15 New source performance standards (NSPS).

423.16 Pretreatment standards for existing sources (PSES).

423.17 Pretreatment standards for new sources (PSNS).

**APPENDIX A—126 PRIORITY POLLUTANTS**

**AUTHORITY:** Secs. 301; 304(b), (c), (e), and (g); 306(b) and (c); 307(b) and (c); and 501, Clean Water Act (Federal Water Pollution Control Act Amendments of 1972, as amended by Clean Water Act of 1977) (the "Act"; 33 U.S.C. 1311; 1314(b), (c), (e), and (g); 1316(b) and (c); 1317(b) and (c); and 1361; 86 Stat. 816, Pub. L. 92-500; 91 Stat. 1567, Pub. L. 95-217).

**SOURCE:** 47 FR 52304, Nov. 19, 1982, unless otherwise noted.

§ 423.10 Applicability.

The provisions of this part are applicable to discharges resulting from the operation of a generating unit by an

establishment primarily engaged in the generation of electricity for distribution and sale which results primarily from a process utilizing fossil-type fuel (coal, oil, or gas) or nuclear fuel in conjunction with a thermal cycle employing the steam water system as the thermodynamic medium.

#### § 423.11 Specialized definitions.

In addition to the definitions set forth in 40 CFR Part 401, the following definitions apply to this part:

(a) The term "total residual chlorine" (or total residual oxidants for intake water with bromides) means the value obtained using the amperometric method for total residual chlorine described in 40 CFR Part 136.

(b) The term "low volume waste sources" means, taken collectively as if from one source, wastewater from all sources except those for which specific limitations are otherwise established in this part. Low volume waste sources include, but are not limited to: wastewaters from wet scrubber air pollution control systems, ion exchange water treatment system, water treatment evaporator blowdown, laboratory and sampling streams, boiler blowdown, cleaning wastes, and recirculating house service water systems. Sanitary and air conditioning wastes are not included.

(c) The term "chemical metal cleaning waste" means any wastewater resulting from the cleaning of any metal process equipment with chemical compounds, including, but not limited to, boiler tube cleaning.

(d) The term "metal cleaning waste" means any wastewater resulting from cleaning [with or without chemical cleaning compounds] any metal process equipment including, but not limited to, boiler tube cleaning, boiler fire-side cleaning, and air preheater cleaning.

(e) The term "fly ash" means the ash that is carried out of the furnace by the gas stream and collected by mechanical precipitators, electrostatic precipitators, and/or fabric filters. Economizer ash is included when it is collected with fly ash.

(f) The term "bottom ash" means the ash that drops out of the furnace

gas stream in the furnace and in the economizer sections. Economizer ash is included when it is collected with bottom ash.

(g) The term "once through cooling water" means water passed through the main cooling condensers in one or two passes for the purpose of removing waste heat.

(h) The term "recirculated cooling water" means water which is passed through the main condensers for the purpose of removing waste heat, passed through a cooling device for the purpose of removing such heat from the water and then passed again, except for blowdown, through the main condenser.

(i) The term "10 year, 24/hour rainfall event" means a rainfall event with a probable recurrence interval of once in ten years as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States," May 1961 or equivalent regional rainfall probability information developed therefrom.

(j) The term "blowdown" means the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the discharge of which would cause concentration in amounts exceeding limits established by best engineering practices.

(k) The term "average concentration" as it relates to chlorine discharge means the average of analyses made over a single period of chlorine release which does not exceed two hours.

(l) The term "free available chlorine" shall mean the value obtained using the amperometric titration method for free available chlorine described in "Standard Methods for the Examination of Water and Wastewater," page 112 (13th edition).

(m) The term "coal pile runoff" means the rainfall runoff from or through any coal storage pile.

#### § 423.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

(a) In establishing the limitations set forth in this section, EPA took into

account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, utilization of facilities, raw materials, manufacturing processes, non-water quality environmental impacts, control and treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES Permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations. The phrase "other such factors" appearing above may include significant cost differentials. In no event may a discharger's impact on receiving water quality be considered as a factor under this paragraph.

(b) Any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction by

the application of the best practicable control technology currently available (BPT):

(1) The pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0.

(2) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(3) The quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS.....	100.0	30.0
Oil and grease.....	20.0	15.0

(4) The quantity of pollutants discharged in fly ash and bottom ash transport water shall not exceed the quantity determined by multiplying the flow of fly ash and bottom ash transport water times the concentration listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS.....	100.0	30.0
Oil and grease.....	20.0	15.0

(5) The quantity of pollutants discharged in metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of metal cleaning

wastes times the concentration listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS .....	100.0	30.0
Oil and grease .....	20.0	15.0
Copper, total .....	1.0	1.0
Iron, total .....	1.0	1.0

(6) The quantity of pollutants discharged in once through cooling water shall not exceed the quantity determined by multiplying the flow of once through cooling water sources times the concentration listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum concentration	Average concentration
Free available chlorine .....	0.5	0.2

(7) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown sources times the concentration listed in the following table:

Pollutant or pollutant property	BPT effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine .....	0.5	0.2

(8) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total resid-

ual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level or chlorination.

(9) Subject to the provisions of paragraph (b)(10) of this section, the following effluent limitations shall apply to the point source discharges of coal pile runoff:

Pollutant or pollutant property	BPT effluent limitations
	Maximum concentration for any time (mg/l)
TSS .....	50

(10) Any untreated overflow from facilities designed, constructed, and operated to treat the volume of coal pile runoff which is associated with a 10 year, 24 hour rainfall event shall not be subject to the limitations in paragraph (b)(9) of this section.

(11) At the permitting authority's discretion, the quantity of pollutant discharged may be expressed as a concentration limitation instead of the mass based limitations specified in paragraphs (b)(3) through (7) of this section. Concentration limitations shall be those concentrations specified in this section.

(12) In the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property controlled in paragraphs (b)(1) through (11) of this section attributable to each controlled waste source shall not exceed the specified limitations for that waste source.

(The information collection requirements contained in paragraph (a) were approved by the Office of Management and Budget under control number 2000-0194)

[47 FR 52304, Nov. 19, 1982, as amended at 48 FR 31404, July 2, 1983]

§ 423.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this part must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(b)(1) For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling water from each discharge point times the concentration listed in the following table:

Pollutant or pollutant property	BAT Effluent Limitations
	Maximum concentration (mg/l)
Total residual chlorine .....	0.20

(2) Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

(c)(1) For any plant with a total rated generating capacity of less than 25 megawatts, the quantity of pollutants discharged in once through cooling water shall not exceed the quantity determined by multiplying the flow of once through cooling water sources times the concentration listed in the following table:

Pollutant or pollutant property	BAT effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine .....	0.5	0.2

(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(d)(1) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed below:

Pollutant or pollutant property	BAT effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine .....	0.5	0.2

Pollutant or pollutant property	Maximum for any 1 day — (mg/l)	Average of daily values for 30 consecutive days shall not exceed — (mg/l)
The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except	( <sup>1</sup> )	( <sup>1</sup> )
Chromium, total .....	0.2	0.2
Zinc, total .....	1.0	1.0

<sup>1</sup> No detectable amount.

(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total resid-

ual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(3) At the permitting authority's discretion, instead of the monitoring specified in 40 CFR 122.11(b) compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136.

(e) The quantity of pollutants discharged in chemical metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of chemical metal cleaning wastes times the concentration listed in the following table:

Pollutant or pollutant property	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
Copper, total .....	1.0	1.0
Iron, total .....	1.0	1.0

(f) [Reserved—Nonchemical Metal Cleaning Wastes].

(g) At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass based limitations specified in paragraphs (b) through (e) of this section. Concentration limitations shall be those concentrations specified in this section.

(h) In the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property controlled in paragraphs (a) through (g) of this section attributable to each controlled waste source

shall not exceed the specified limitation for that waste source.

(The information collection requirements contained in paragraphs (c)(2) and (d)(2) were approved by the Office of Management and Budget under control number 2040-0040. The information collection requirements contained in paragraph (d)(3) were approved under control number 2040-0033.)

[47 FR 52304, Nov. 19, 1982, as amended at 48 FR 31404, July 8, 1983]

§ 423.14 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

§ 423.15 New source performance standards (NSPS).

Any new source subject to this subpart must achieve the following new source performance standards:

(a) The pH of all discharges, except once through cooling water, shall be within the range of 6.0-9.0.

(b) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(c) The quantity of pollutants discharged from low volume waste sources shall not exceed the quantity determined by multiplying the flow of low volume waste sources times the concentration listed in the following table:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS .....	100.0	30.0
Oil and grease .....	20.0	15.0

(d) The quantity of pollutants discharged in chemical metal cleaning wastes shall not exceed the quantity determined by multiplying the flow of chemical metal cleaning wastes times

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the concentration listed in the following table:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS.....	100.0	30.0
Oil and grease.....	20.0	15.0
Copper, total.....	1.0	1.0
Iron, total.....	1.0	1.0

(e) [Reserved—Nonchemical Metal Cleaning Wastes].

(f) The quantity of pollutants discharged in bottom ash transport water shall not exceed the quantity determined by multiplying the flow of the bottom ash transport water times the concentration listed in the following table:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed (mg/l)
TSS.....	100.0	30.0
Oil and grease.....	20.0	15.0

(g) There shall be no discharge of wastewater pollutants from fly ash transport water.

(h)(1) For any plant with a total rated electric generating capacity of 25 or more megawatts, the quantity of pollutants discharged in once through cooling water from each discharge point shall not exceed the quantity determined by multiplying the flow of once through cooling water from each discharge point times the concentration listed in the following table:

Pollutant or pollutant property	NSPS effluent limitations
	Maximum concentration (mg/l)
Total residual chlorine.....	0.20

(2) Total residual chlorine may not be discharged from any single generating unit for more than two hours per day unless the discharger demonstrates to the permitting authority that discharge for more than two hours is required for macroinvertebrate control. Simultaneous multi-unit chlorination is permitted.

(i)(1) For any plant with a total rated generating capacity of less than 25 megawatts, the quantity of pollutants discharged in once through cooling water shall not exceed the quantity determined by multiplying the flow of once through cooling water sources times the concentration listed in the following table:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine.....	0.5	0.2

(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(j)(1) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed below:

Pollutant or pollutant property	NSPS effluent limitations	
	Maximum concentration (mg/l)	Average concentration (mg/l)
Free available chlorine.....	0.5	0.2

Pollutant or pollutant property	Maximum for any 1 day (mg/l)	Average of daily values for 30 consecutive days shall not exceed — (mg/l)
The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except:	( <sup>1</sup> )	( <sup>1</sup> )
Chromium, total.....	0.2	0.2
Zinc, total.....	1.0	1.0

<sup>1</sup> No detectable amount.

(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless

regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(3) At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants in paragraph (j)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136.

(k) Subject to the provisions of § 423.15(l), the quantity or quality of pollutants or pollutant parameters discharged in coal pile runoff shall not exceed the limitations specified below:

Pollutant or pollutant property	NSPS effluent limitations for any time
TSS.....	Not to exceed 50 mg/l.

(l) Any untreated overflow from facilities designed, constructed, and operated to treat the coal pile runoff which results from a 10 year, 24 hour rainfall event shall not be subject to the limitations in § 423.15(k).

(m) At the permitting authority's discretion, the quantity of pollutant allowed to be discharged may be expressed as a concentration limitation instead of the mass based limitation specified in paragraphs (c) through (j) of this section. Concentration limits shall be based on the concentrations specified in this section.

(n) In the event that waste streams from various sources are combined for treatment or discharge, the quantity of each pollutant or pollutant property controlled in paragraphs (a) through (m) of this section attributable to each controlled waste source shall not exceed the specified limitation for that waste source.

(The information collection requirements contained in paragraphs (h)(2), (i)(2), and (j)(2) were approved by the Office of Management and Budget under control number 2040-0040. The information collection requirements contained in paragraph (j)(3) were approved under control number 2040-0033.)

[47 FR 52304, Nov. 19, 1982, as amended at 48 FR 31404, July 8, 1983]

#### § 423.16 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 the following pretreatment standards for existing sources (PSES) by July 1, 1984:

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

(b) The pollutants discharged in chemical metal cleaning wastes shall not exceed the concentration listed in the following table:

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Pollutant or pollutant property	PSSES pretreatment standards
	Maximum for 1 day (mg/l)
Copper, total .....	1.0

(c) [Reserved—Nonchemical Metal Cleaning Wastes].

(d)(1) The pollutants discharged in cooling tower blowdown shall not exceed the concentration listed in the following table:

Pollutant or pollutant property	PSSES pretreatment standards
	Maximum for any time (mg/l)
The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except	( <sup>1</sup> )
Chromium, total .....	0.2
Zinc, total .....	1.0

<sup>1</sup> No detectable amount.

(2) At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136.

## § 423.17 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 the following pretreatment standards for new sources (PSNS).

(a) There shall be no discharge of polychlorinated biphenyl compounds such as those used for transformer fluid.

(b) The pollutants discharged in chemical metal cleaning wastes shall not exceed the concentration listed in the following table:

Pollutant or pollutant property	PSNS pretreatment standards
	Maximum for 1 day (mg/l)
Copper, total .....	1.0

(c) [Reserved—Nonchemical Metal Cleaning Wastes].

(d)(1) The pollutants discharged in cooling tower blowdown shall not exceed the concentration listed in the following table:

Pollutant or pollutant property	PSNS pretreatment standards
	Maximum for any time (mg/l)
The 126 priority pollutants (Appendix A) contained in chemicals added for cooling tower maintenance, except	
Chromium, total .....	0.2
Zinc, total .....	1.0

(2) At the permitting authority's discretion, instead of the monitoring in 40 CFR 122.11(b), compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR Part 136.

(e) There shall be no discharge of wastewater pollutants from fly ash transport water.

## APPENDIX A—126 PRIORITY POLLUTANTS

001	Acenaphthene
002	Acrolein
003	Acrylonitrile
004	Benzene
005	Benzidine
006	Carbon tetrachloride (tetrachloromethane)
007	Chlorobenzene
008	1,2,4-trichlorobenzene
009	Hexachlorobenzene
010	1,2-dichloroethane
011	1,1,1-trichloroethane
012	Hexachloroethane
013	1,1-dichloroethane
014	1,1,2-trichloroethane
015	1,1,2,2-tetrachloroethane

- 016 Chloroethane
- 018 Bis(2-chloroethyl) ether
- 019 2-chloroethyl vinyl ether (mixed)
- 020 2-chloronaphthalene
- 021 2,4, 6-trichlorophenol
- 022 Parachlorometa cresol
- 023 Chloroform (trichloromethane)
- 024 2-chlorophenol
- 025 1,2-dichlorobenzene
- 026 1,3-dichlorobenzene
- 027 1,4-dichlorobenzene
- 028 3,3-dichlorobenzidine
- 029 1,1-dichloroethylene
- 030 1,2-trans-dichloroethylene
- 031 2,4-dichlorophenol
- 032 1,2-dichloropropane
- 033 1,2-dichloropropylene (1,3-dichloropropene)
- 034 2,4-dimethylphenol
- 035 2,4-dinitrotoluene
- 036 2,6-dinitrotoluene
- 037 1,2-diphenylhydrazine
- 038 Ethylbenzene
- 039 Fluoranthene
- 040 4-chlorophenyl phenyl ether
- 041 4-bromophenyl phenyl ether
- 042 Bis(2-chloroisopropyl) ether
- 043 Bis(2-chloroethoxy) methane
- 044 Methylene chloride (dichloromethane)
- 045 Methyl chloride (dichloromethane)
- 046 Methyl bromide (bromomethane)
- 047 Bromoform (tribromomethane)
- 048 Dichlorobromomethane
- 051 Chlorodibromomethane
- 053 Hexachloromyclopentadiene
- 054 Isophorone
- 055 Naphthalene
- 056 Nitrobenzene
- 057 2-nitrophenol
- 058 4-nitrophenol
- 059 2,4-dinitrophenol
- 060 4,6-dinitro-o-cresol
- 061 N-nitrosodimethylamine
- 062 N-nitrosodiphenylamine
- 063 N-nitrosodi-n-propylamin
- 064 Pentachlorophenol
- 065 Phenol
- 066 Bis(2-ethylhexyl) phthalate
- 067 Butyl benzyl phthalate
- 068 Di-N-Butyl Phthalate
- 069 Di-n-octyl phthalate
- 070 Diethyl Phthalate
- 071 Dimethyl phthalate
- 072 1,2-benzanthracene (benzo(a) anthracene)
- 073 Benzo(a)pyrene (3,4-benzo-pyrene)
- 074 3,4-Benzofluoranthene (benzo(b) fluoranthene)
- 075 11,12-benzofluoranthene (benzo(b) fluoranthene)
- 076 Chrysene
- 077 Acenaphthylene
- 078 Anthracene
- 079 1,12-benzoperylene (benzo(ghi) perylene)
- 080 Fluorene
- 081 Phenanthrene
- 082 1,2,5,6-dibenzanthracene (dibenzo(h) anthracene)
- 083 Indeno (1,2,3-cd) pyrene (2,3-o-pheynylene pyrene)
- 084 Pyrene
- 085 Tetrachloroethylene
- 086 Toluene
- 087 Trichloroethylene
- 088 Vinyl chloride (chloroethylene)
- 089 Aldrin
- 090 Dieldrin
- 091 Chlordane (technical mixture and metabolites)
- 092 4,4-DDT
- 093 4,4-DDE (p,p-DDX)
- 094 4,4-DDD (p,p-TDE)
- 095 Alpha-endosulfan
- 096 Beta-endosulfan
- 097 Endosulfan sulfate
- 098 Endrin
- 099 Endrin aldehyde
- 100 Heptachlor
- 101 Heptachlor epoxide (BHC-hexachlorocyclohexane)
- 102 Alpha-BHC
- 103 Beta-BHC
- 104 Gamma-BHC (lindane)
- 105 Delta-BHC (PCB-polychlorinated biphenyls)
- 106 PCB-1242 (Arochlor 1242)
- 107 PCB-1243 (Arochlor 1254)
- 108 PCB-1221 (Arochlor 1221)
- 109 PCB-1232 (Arochlor 1232)
- 110 PCB-1248 (Arochlor 1248)
- 111 PCB-1260 (Arochlor 1260)
- 112 PCB-1016 (Arochlor 1016)
- 113 Toxaphene
- 114 Antimony
- 115 Arsenic
- 116 Asbestos
- 117 Beryllium
- 118 Cadmium
- 119 Chromium
- 120 Copper
- 121 Cyanide, Total
- 122 Lead
- 123 Mercury
- 124 Nickel
- 125 Selenium
- 126 Silver
- 127 Thallium
- 128 Zinc
- 129 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD)

# **WATER QUALITY STANDARDS AND MODELING**

## **LEARNING OBJECTIVES**

- **Water quality standards**
- **Beneficial uses**
- **Water quality criteria**
- **Antidegradation policy**

## **WATER QUALITY STANDARDS**

**A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses.**

**(40 CFR Part 131)**

**NOTES:**

## **ESTABLISHMENT OF WATER QUALITY STANDARDS**

- All "waters of the U.S." have water quality standards
- Water quality standards are adopted for each waterbody in a State
  - Segments of waterbodies
- States are responsible for establishing water quality standards
  - Revised every 3 years
  - EPA has oversight

## **BENEFICIAL USES**

- Common uses
  - Public water supply
  - Fish and wildlife propagation
  - Recreation
    - Primary
    - Secondary
  - Agricultural
  - Industrial
  - Navigation
- Outstanding national resources water
  - National and State parks
  - Wildlife refuge
  - Ecologically unique water that need additional protection or are of special significance (i.e., swamps, hot springs, etc.)

**NOTES:**

## **STATE WATER QUALITY CRITERIA**

- **Numeric criteria**
  - **Concentrations of chemicals**
- **Narrative criteria**
  - **"Free from ..."**

## **EPA WATER QUALITY CRITERIA**

- **Scientifically derived ambient limits that are developed by EPA for various pollutants of concern**

<b>1968</b>	<b>Green</b>
-------------	--------------

<b>1973</b>	<b>Blue</b>
-------------	-------------

<b>1976</b>	<b>Red</b>
-------------	------------

<b>1980</b>	<b>Toxics</b>
-------------	---------------

<b>1986</b>	<b>Gold</b>
-------------	-------------

- **EPA develops 304(a) criteria goldbook**

**NOTES:**

## **ANTIDEGRADATION PLANS**

- **Ensures that once a use is achieved it will be maintained**
- **Each State is required to adopt an antidegradation policy and method of implementation**
- **EPA reviews State antidegradation plans**
- **Antidegradation plans are designed to minimize adverse effects of economic growth and development**

## **COMPONENTS OF THE ANTIDEGRADATION POLICY**

- **Level of quality necessary to protect the existing uses of a water segment**
- **Protection of actual water quality where water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water**
- **Special protection of waters designated as outstanding natural resource waters**

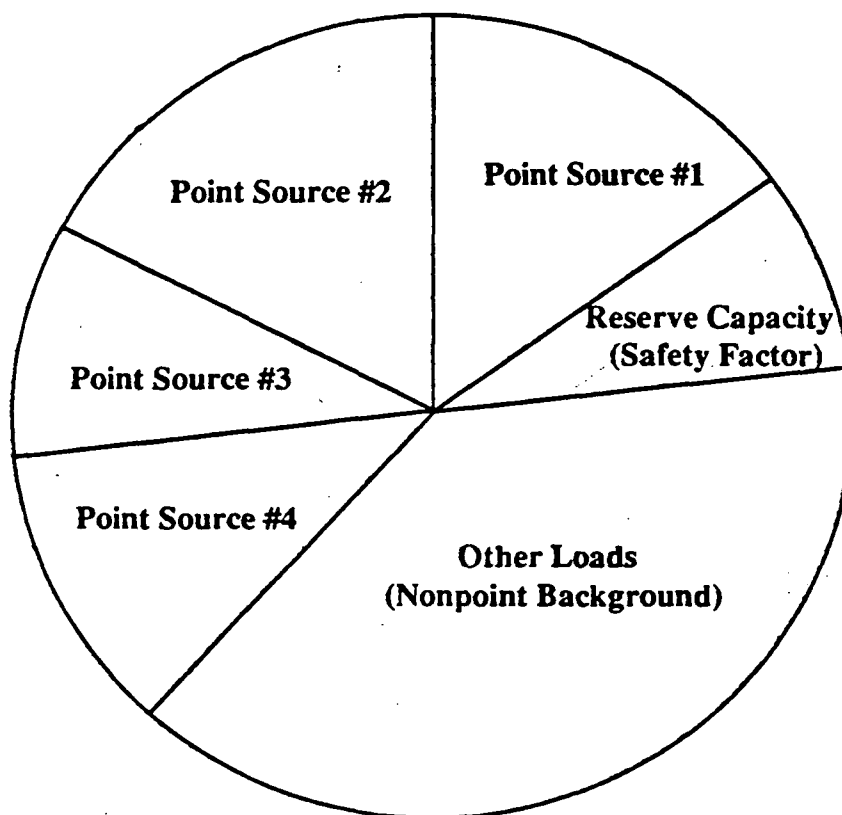
**NOTES:**

## BASIC CONCEPT

**Total Maximum Daily Load (TMDL) = Dilution x Criteria**

**Waste Load Allocation (WLA) = Fraction of TMDL**

## COMPONENTS OF TMDL



**NOTES:**

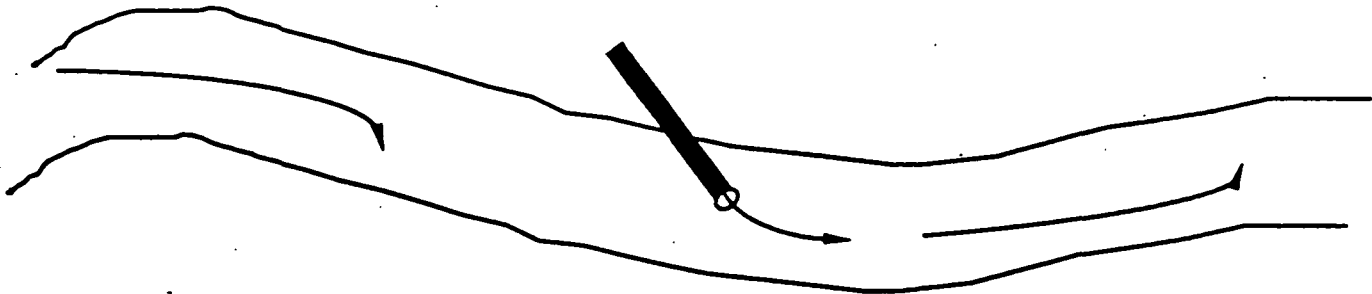
## GENERAL MASS BALANCE FORMULA

$$Q_d C_d + Q_s C_s = Q_r C_r$$

$Q_s, C_s$  Upstream

$Q_d, C_d$  Discharge

$Q_r, C_r$  Downstream



$Q_d$  = Waste discharge flow (mgd or cfs)

$C_d$  = Pollutant concentration in waste discharge (mg/l)

$Q_s$  = Stream flow (mgd or cfs) above discharge point

$C_s$  = Background instream pollutant concentration (mg/l)

$Q_r$  = Stream flow after discharge (mgd or cfs) =  $Q_d + Q_s$

$C_r$  = Instream pollutant concentration (mg/l) after complete mixing

To determine pollutant concentration in the stream:

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

NOTES:

## DILUTION FACTOR

- Mass balance

$$Q_r C_r = Q_d C_d + Q_s C_s$$

(Receiving Stream) (Discharge) (Upstream)

- Solve for  $C_r$ :

$$C_r = \frac{Q_d C_d + Q_s C_s}{Q_r}$$

- If  $C_s = 0$ , then:

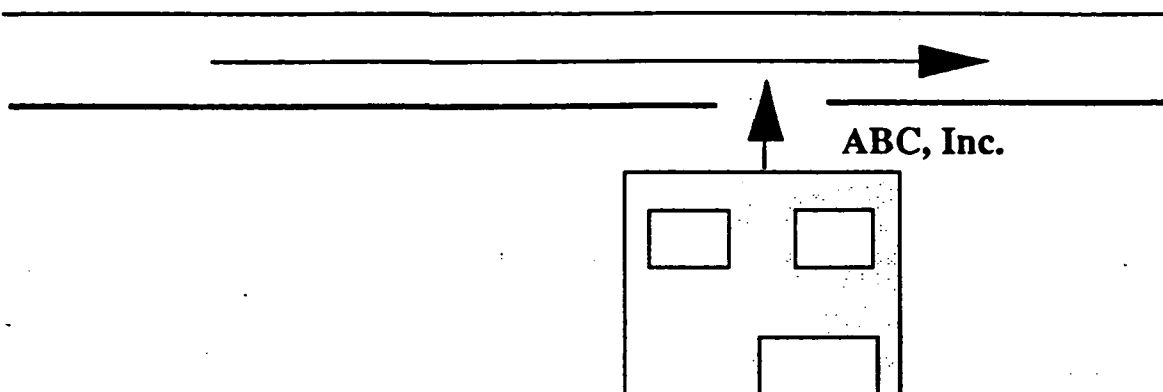
$$C_r = \frac{Q_d C_d}{Q_r}$$

- Define Dilution Factor (DF) as  $Q_r/Q_d$
- Therefore:  $C_r = C_d/DF$

NOTES:

## EXAMPLE

ABC, Inc. discharges treated wastewater from a zinc plating process. The only pollutant found in measurable amounts is zinc. What is the downstream receiving water concentration assuming zinc in the total form, complete mixing, and no settling or biological uptake?



$$Q_s = \text{Upstream river flow} = 1.2 \text{ cfs}$$

$$Q_d = \text{Discharge flow} = 0.31 \text{ cfs}$$

$$C_s = \text{Upstream river conc.} = 0.8 \text{ mg/l}$$

$$C_d = \text{Discharge concentration} = 1.75 \text{ mg/l}$$

$$C_r = \frac{C_d Q_d + C_s Q_s}{Q_r}$$

$$C_r = \frac{(1.75)(0.31) + (0.8)(1.2)}{(0.31 + 1.2)}$$

$$C_r = 1.0 \text{ mg/l}$$

NOTES:

## **SPECIFIC CONSIDERATIONS IN THE WATER QUALITY MODELING PROCESS**

- **Conservative pollutants**
  - **Mitigated by natural stream dilution**
  - **Heavy metals**
- **Non-conservative pollutants**
  - **Mitigated by natural stream dilution and biodegradation in the receiving stream**
  - **BOD<sub>5</sub>, ammonia, bacteria**

## **EXAMPLE MODEL INPUTS**

- **Stream flow**
- **Wastewater flow**
- **Upstream concentration**
- **Effluent concentration**
- **Reaction rates**
- **Mixing zones**

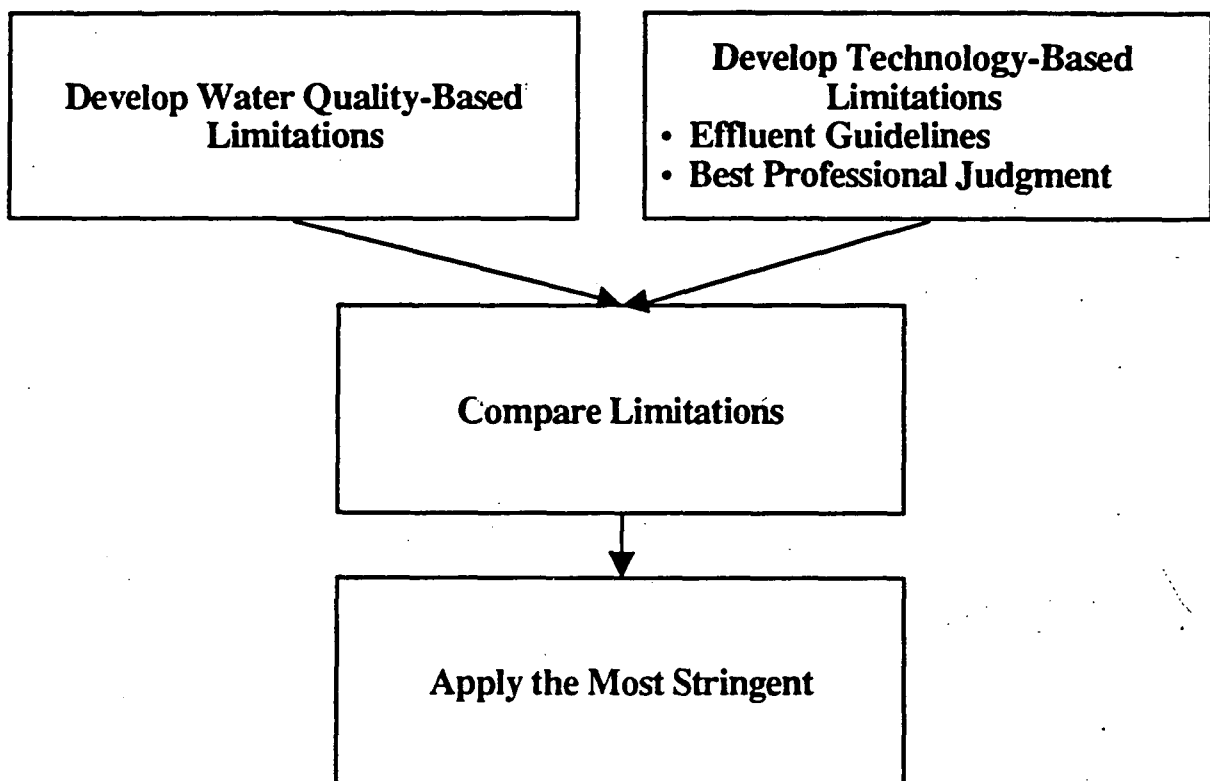
**NOTES:**

**DETERMINING THE NEED FOR AND  
DERIVATION OF WATER QUALITY-  
BASED LIMITS**

## **LEARNING OBJECTIVE**

- **Determining when water quality-based limits are needed**
- **Calculating water quality-based permit limits**

## **DEVELOPMENT OF EFFLUENT LIMITATIONS FOR NPDES PERMITS**



**NOTES:**

## **PROTECTING WATER QUALITY STANDARDS**

- **Getting data to make a decision**
  - **Permit application**
  - **Ask (308 authority)**
  - **Previous permit**
- **Deciding to set limits**
  - **Follow 40 CFR §122.44(d)**
  - **Options:**
    - 1) **Set limit**
    - 2) **Monitor and reopener**
    - 3) **Monitor**
- **Setting limits**

### **NOTES:**

## **USE OF WATER QUALITY-BASED LIMITS**

**Water quality-based limitations are used when it has been determined that more stringent limits than technology-based effluent guidelines must be applied to a discharge in order to protect "designated use" of the receiving waters. (40 CFR §122.44(d)(1))**

## **WATER QUALITY-BASED LIMITS**

**Limitations must control all pollutants which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard. (40 CFR §122.44(d)(1)(i))**

**NOTES:**

## **WATER QUALITY-BASED LIMITS**

**Limits must consider (40 CFR §122.44(d)(ii)):**

- **Effluent variability**
- **Existing controls on point and non point sources**
- **The sensitivity of species to toxicity testing**
- **Where appropriate, the dilution of the effluent**

## **WATER QUALITY-BASED LIMITS NUMERIC CRITERIA**

**If it is determined that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for:**

- **An individual pollutant, then the permit must contain effluent limits for that pollutant.  
(40 CFR §122.44(d)(1)(iii))**
- **Whole effluent toxicity, then the permit must contain effluent limits for whole effluent toxicity.  
(40 CFR §122.44(d)(1)(iv))**

**NOTES:**

## **WATER QUALITY-BASED LIMITS NARRATIVE CRITERIA**

- **If it is determined that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion, the permit must contain effluent limits for whole effluent toxicity. (40 CFR §122.44(d)(1)(v))**

## **WATER QUALITY-BASED LIMITS NARRATIVE CRITERIA**

- **Where a State has not established a water quality criterion for a specific pollutant**
  - **Use numeric water quality criterion derived from proposed State criterion or State policy or regulations, supplemented as appropriate**
  - **Use EPA's water quality criteria published under Section 307(a) of the CWA, supplemented as appropriate**
  - **Use an indicator parameter for the pollutant of concern (40 CFR §122.44(d)(1)(vi))**

**NOTES:**

## DETERMINING THE NEED

Solve for Cr for both acute and chronic values

$$Cr = \frac{C_d Q_d + C_s Q_s}{Q_r}$$

$$Q_{r_{acute}} = 1Q_{10}$$

$$Q_{r_{chronic}} = 7Q_{10}$$

If  $Cr >$  State WQ standard, then need to establish a WQ limit.

If  $Cr <$  State WQ standard, then no need to establish a WQ limit.

**\*If  $Cr =$  State WQ standards or is slightly below must consider variability of data in determining the need for WQ limit**

NOTES:

## **EXAMPLE**

$$\text{Cd}_{(\text{chronic})} = 1.2 \text{ mg/l}$$

- **Compare acute and chronic values for Cd**

$$\text{Cd}_{(\text{chronic})} < \text{Cd}_{(\text{acute})}$$

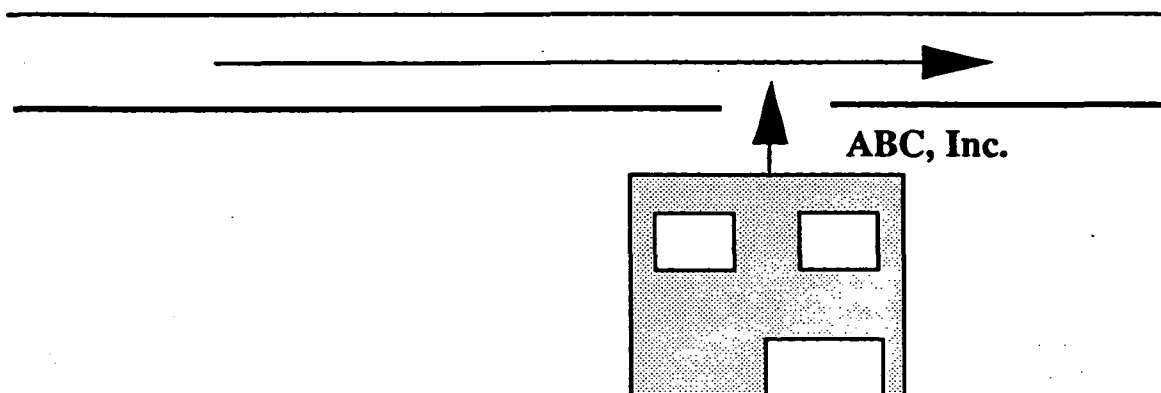
$$1.2 \text{ mg/l} < 1.75 \text{ mg/l}$$

- **Choose 1.2 mg/l as maximum daily limit**

**NOTES:**

## EXAMPLE

ABC, Inc. discharges treated wastewater from a zinc plating process. The only pollutant found in measurable amounts is zinc. What is the maximum allowable concentration in the effluent assuming zinc in the total form, complete mixing, and no settling or biological uptake.



$Q_s$  = Upstream river flow = 1.2 cfs  
 $Q_d$  = Discharge flow = 0.31 cfs  
 $C_s$  = Upstream river conc. = 0.8 mg/l  
 $C_r$  = Acute water quality standard = 1.0 mg/l

$$C_{d(\text{acute})} = \frac{C_r(Q_d + Q_s) - C_s Q_s}{Q_d}$$

$$C_{d(\text{acute})} = \frac{(1.0)(0.31 + 1.2) - (0.8)(1.2)}{0.31}$$

$$C_{d(\text{acute})} = 1.75 \text{ mg/l}$$

NOTES:

## **EPA TECHNICAL SUPPORT DOCUMENT FOR WATER QUALITY-BASED TOXICS CONTROL**

- **Provides the most current procedural recommendations and guidance for identifying, analyzing, and controlling adverse water quality impacts caused by toxic discharges.**
- **Provides support to States and Regions for supplementing their existing procedures.**

### **WHAT YOU MUST DO**

- **Protect acute and chronic water quality standards ( and wasteload allocations)**
- **Write maximum daily and monthly average permit limits**

#### **NOTES:**



## PRACTICAL EXERCISE

### Determining the Need for Chemical-Specific, Water Quality-Based Effluent Limitations

#### DIRECTIONS:

You are a permit writer and have received a permit renewal application from a glass manufacturer, Luster Glass Inc. The previous permit was issued using effluent limits derived from technology-based effluent limitation guidelines and best professional judgement (BPJ). Since that time, the State has revised its water quality standards to ensure aquatic life protection. Therefore, you must determine whether water quality-based limits are needed.

#### GIVEN:

$$Cr = \frac{(Cd)(Qd) + (Cs)(Qs)}{(Qd + Qs)}$$

where Cr = the receiving water concentration,  
Cd = the effluent concentration,  
Qd = the effluent flow,  
Cs = the receiving water background concentration, and  
Qs = the appropriate receiving water flow.

<u>Pollutant</u>	<u>Effluent Concentration (Cd)* (mg/l)</u>	<u>Receiving Water Background Concentration (Cs) (mg/l)</u>
Lead	0.38	0
Zinc	0.21	0.07

\* - Maximum daily concentration as reported in the discharge monitoring reports

The State water quality regulations require that water quality standards be achieved under the following critical receiving water flow conditions:

Chronic water quality standards:  
7 day, 10 year return frequency flow (7Q10)

Acute water quality standards:  
One-third (1/3) of the 7Q10 flow

The 7Q10 for the Illinois River is 70.9 cubic feet per second (cfs)

- (1) Calculate the following receiving water concentrations (Cr) using the equation and data supplied above.

- (a) Zinc (acute) \_\_\_\_\_ (c) Lead (acute) \_\_\_\_\_  
(b) Zinc (chronic) \_\_\_\_\_ (d) Lead (chronic) \_\_\_\_\_

- (2) Compare each receiving water concentration calculated in question (1) with the State Water Quality Standard for aquatic life protection given in the table below. Which one is larger? What does this mean? For which pollutant(s) do you need to set a water quality-based limit? \_\_\_\_\_

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STATE WATER QUALITY STANDARDS\*

<u>Pollutant</u>	<u>Acute Protection (<math>\mu\text{g/l}</math>)</u>	<u>Chronic Protection (<math>\mu\text{g/l}</math>)</u>
Lead	82	3.2
Zinc	120	110

\* - All State standards are applied as "not to exceed" concentrations.

- (3) What effect would a stream flow ( $Q_s$ ) of 0 cfs have on the receiving water concentration? What about a stream flow of 500 cfs? \_\_\_\_\_

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- (4) Are there other pollutants that are discharged that should be evaluated for chemical-specific water quality-based effluent limitations? \_\_\_\_\_  
If yes, then list the pollutants and briefly explain why below: \_\_\_\_\_

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## PRACTICAL EXERCISE

### Calculating Chemical Specific Water Quality-Based Limits

#### DIRECTIONS:

Assuming there is a need for chemical specific water quality-based limitations for lead and zinc discharges from Luster Glass, Inc., calculate the end-of-pipe effluent limitations using the following procedure.

#### GIVEN:

The following equation is used to calculate the effluent concentration [which is commonly referred to as the waste load allocation (WLA)] that will ensure protection of the water quality standard.

$$Cd = WLA = \frac{Cr (Qd + Qs) - (Cs)(Qs)}{Qd}$$

where      Cd = WLA = waste load allocation,  
            Cr = the applicable water quality standard,  
            Qd = the effluent flow = 7.06 cfs,  
            Qs = the appropriate receiving water flow, and  
            Cs = the receiving water background concentration.

<u>Pollutant</u>	<u>Cr = Acute State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.082 mg/l	0 mg/l
Zinc	0.12 mg/l	0.07 mg/l

<u>Pollutant</u>	<u>Cr = Chronic State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.0032 mg/l	0 mg/l
Zinc	0.11 mg/l	0.07 mg/l

Qs = 70.9 cfs (for chronic protection)

Qs = 23.6 cfs (for acute protection)

- (1) Calculate the waste load allocations for lead using the equation and data supplied above.

(a) Lead (acute) \_\_\_\_\_

(b) Lead (chronic) \_\_\_\_\_

- (2) Calculate the waste load allocations for zinc using the equation and data supplied above.

(a) Zinc (acute) \_\_\_\_\_

(b) Zinc (chronic) \_\_\_\_\_

- (3) Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), calculate a maximum daily limitation (MDL) and an average monthly limitation (AML) for lead and zinc using the waste load allocations calculated above. [Note: Assume a ratio of daily maximum to monthly average of 1.6 for lead and 1.0 for zinc based upon effluent guideline for BAT.]

- (4) Compare the chemical specific water quality-based limits calculated above with the technology-based effluent limitations given below for Outfall 001. In which case(s) is (are) the water quality based limit(s) less stringent?

Technology-Based Effluent Limitations

<u>Pollutant</u>	<u>Maximum Daily</u>	<u>Average Monthly</u>
Lead	0.62 mg/l	0.38 mg/l
Zinc	0.1 mg/l	0.1 mg/l

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## **WHOLE EFFLUENT TOXICITY (WET)**

**The total toxic effect of an effluent measured directly with a toxicity test.**

### **WET TESTS**

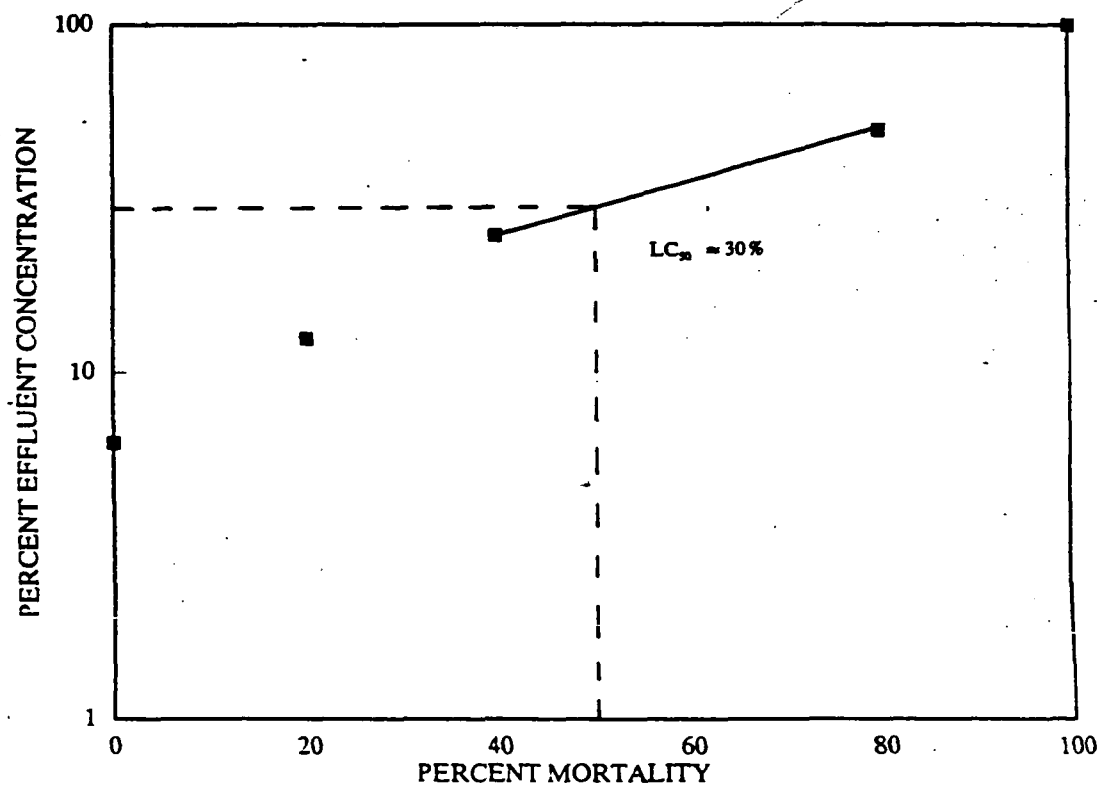
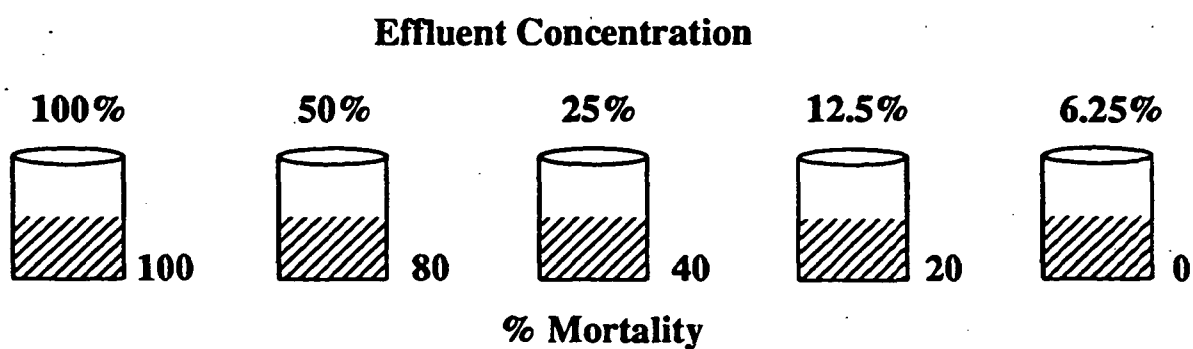
- **Acute**
  - **Endpoint: Mortality**
  - **Test duration: 48 hours**
- **Chronic**
  - **Endpoint: Mortality, growth, reproduction, etc.**
  - **Test duration: 96 hours**

**NOTES:**

## DEFINITION OF $LC_{50}$

Concentration of a toxicant which is lethal to 50 percent of the exposed organism.

### EXAMPLE OF ACUTE TEST DATA



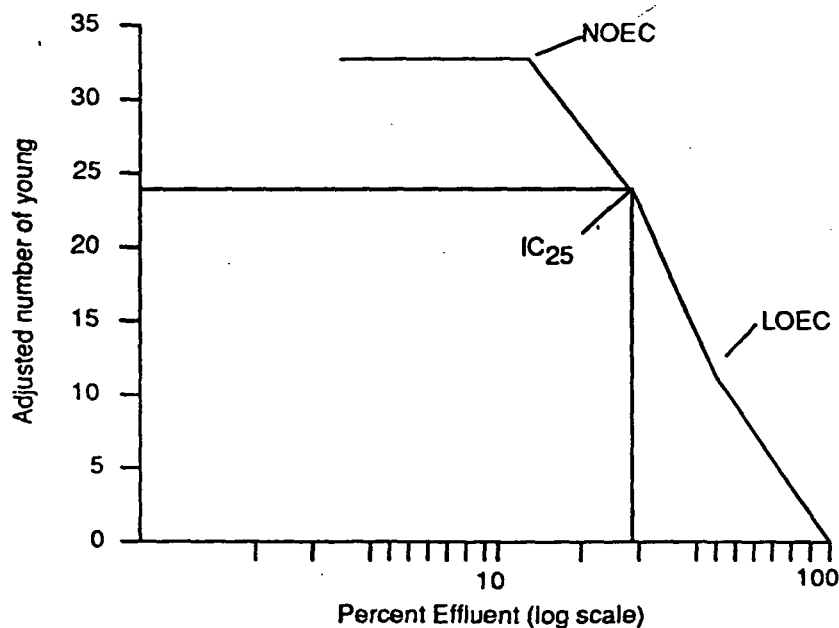
## DEFINITION OF NOEC

- **No Observed Effect Concentration (NOEC)** - the highest concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms.

## DEFINITION OF LOEC

- **Lowest Observed Effect Concentration (LOEC)** - the lowest concentration of an effluent or toxicant that results in observable adverse effects in the aquatic test population.

## RESPONSE CURVE FOR CERIODAPHNIA DUBIA CHRONIC TEST



NOTES:

## EXAMPLES OF TOXIC UNITS (TU)

**Acute:** Assuming  $LC_{50} = 28\%$

- $TU_a = \frac{100}{LC_{50}}$
- $TU_a = \frac{100}{28}$
- $TU_a = 3.6$

**Chronic:** Assuming  $NOEC = 10\%$

- $TU_c = \frac{100}{NOEC}$
- $TU_c = \frac{100}{10}$
- $TU_c = 10$

## DEFINITION OF ACUTE-CHRONIC RATIO

- **Acute-chronic ratio (ACR)** - the ratio of the acute toxicity of an effluent or a toxicant to its chronic toxicity. It is used as a factor for estimating chronic toxicity on the basis of acute toxicity data, or for estimating acute toxicity on the basis of chronic toxicity data.
- **Example:**

$$ACR = \frac{LC_{50}}{NOEC} = \frac{TU_c}{TU_a}$$

$$ACR = \frac{LC_{50}}{NOEC} = \frac{28\%}{10\%}$$

$$ACR = 2.8$$

## PRACTICAL EXERCISE

### Whole Effluent Toxicity Water Quality-Based Effluent Limitations

#### DIRECTIONS:

Preliminary examination of toxicity testing data submitted by Luster Glass, Inc. indicates that toxicity is present in the effluent discharged to the Illinois River. Therefore, you must determine if there is a need for developing whole effluent toxicity (WET) effluent limitations for the Luster Glass permit. If you determine a need for WET effluent limitations, then calculate those limits.

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#### GIVEN:

$$Cr = \frac{(Cd)(Qd) + (Cs)(Qs)}{(Qd + Qs)}$$

Where

Cr = receiving water concentration  
Cd = effluent concentration  
Qd = effluent flow  
Cs = receiving water background concentration  
Qs = appropriate receiving water flow

Toxicity Data (Fathead minnows) from Discharge Monitoring Reports:

	<u>LC<sub>50</sub></u> <u>(% effluent)</u>	<u>NOEC</u> <u>(% effluent)</u>	<u>Acute to Chronic</u> <u>Ratio</u>
	58.0	50	1.16
	25.2	3	8.40
	55.0	10	5.50
	46.3	30	1.54
	44.8	25	1.79
	5.9	1	5.90
	67.8	10	6.78
	3.9	1	3.90
	50.1	30	1.67
	52.0	10	5.20
	32.1	3	10.70
	<u>41.7</u>	<u>30</u>	<u>1.39</u>
Average	40.2	16	4.5

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- (1) Select the effluent concentrations (Cd) for acute (LC<sub>50</sub>) and chronic (NOEC) toxicity representing the most toxic concentration and convert into toxic units (TU).

Acute

Chronic

- (2) Calculate the receiving water concentration (Cr) in toxic units for both acute and chronic toxicity given the following:

$$C_s = 0$$

$$Q_s = 23.6 \text{ cfs (for acute protection)}$$

$$Q_s = 70.9 \text{ cfs (the 7Q10 for chronic protection)}$$

$$Q_d = 7.06 \text{ cfs}$$

Acute

Chronic

- (3) Determine the need for WET limitations by comparing each receiving water concentration calculated in question (2) with the State water quality standards for acute and chronic protection. Given that:

State Water Quality Standard for Acute Protection = 0.3 TU<sub>c</sub>

State Water Quality Standard for Chronic Protection = 1.0 TU<sub>c</sub>

Are WET effluent limitations necessary? Explain your answer.

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- (4) If it was determined in question (3) above that WET limitations are needed, then calculate the waste load allocations for acute and chronic WET using the following equation:

$$C_d = WLA = \frac{C_r (Q_d + Q_s) - (C_s)(Q_s)}{Q_d}$$

- (5) Convert the acute WLA (in TU<sub>a</sub>) to TU<sub>c</sub> using the acute to chronic ratio (ACR) provided with the toxicity data.
- (6) Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), calculate a maximum daily limitation (MDL) and an average monthly limitation (AML) for WET using the waste load allocations calculated above. [Note: Assume a ratio of daily maximum to monthly average of 1.6 for WET.]

# **MONITORING CONDITIONS AND ANALYTICAL METHODS**

## **LEARNING OBJECTIVES**

- **General monitoring conditions**
- **Permit writer's responsibility**
- **Quality assurance/quality control**

## **PURPOSE OF MONITORING**

- **Determine compliance with permit conditions**
- **Assess treatment efficiency**
- **Establish a basis for enforcement actions**

**NOTES:**

## **MONITORING TYPES**

- **Self monitoring**
  - **Permittee performs sampling and analysis; submits results to regulatory authority on discharge monitoring report (DMR)**
- **Compliance monitoring**
  - **Permitting authority, or a designated representative, performs a compliance inspection**

## **ELEMENTS OF MONITORING**

- **Sample location**
- **Sample frequency**
- **Type of sample**
- **Test methods**
- **Reporting**

**NOTES:**

## **SAMPLE LOCATION QUESTIONS**

- **Is the sample point on the facility property?**
- **Is the sample point accessible?**
- **Will the results be representative?**
- **Are monitoring internal points needed?**

## **FREQUENCY CONSIDERATIONS**

- **Size of facility**
- **Type of treatment**
- **Location of discharge**
- **Frequency of discharge**
- **Compliance history**
- **Nature of pollutants**

**NOTES:**

## EXAMPLE: MONITORING FREQUENCY

### PLANT CAPACITY (MGD)

### FLOW

### OTHER PARAMETERS

0 - 0.099

Weekly

Quarterly

0.1 - 0.99

Daily

Monthly

1.0 - 4.99

Record continuously  
report daily

Weekly

> 5.0

Record continuously  
report daily

Daily

## TYPES OF SAMPLING

- Grab
- Composite
  - Time proportional
  - Flow proportional
- Continuous

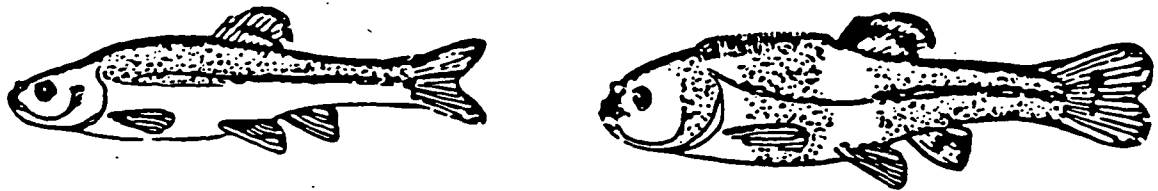
NOTES:

## **TEST METHODS**

- **Analytical methods**
  - **40 CFR Part 136**
  - **Alternative methods**
- **Whole Effluent Toxicity**
  - **Specific tests**
  - **Specific procedures**
  - **Use multiple species**
  - **Specify endpoints**
  - **Get QA/QC information**

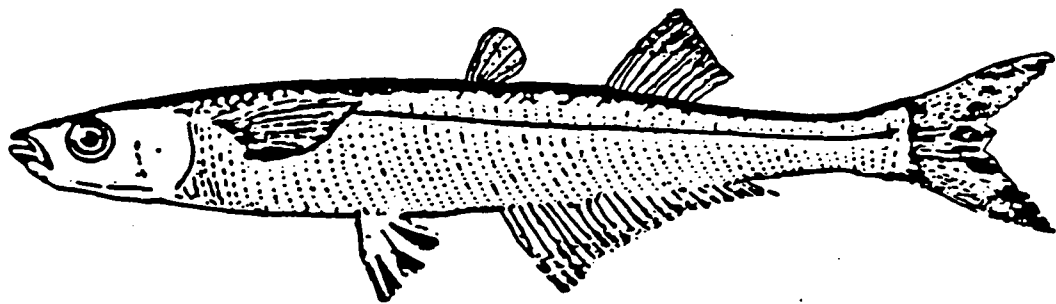
**NOTES:**

## FRESHWATER FISH



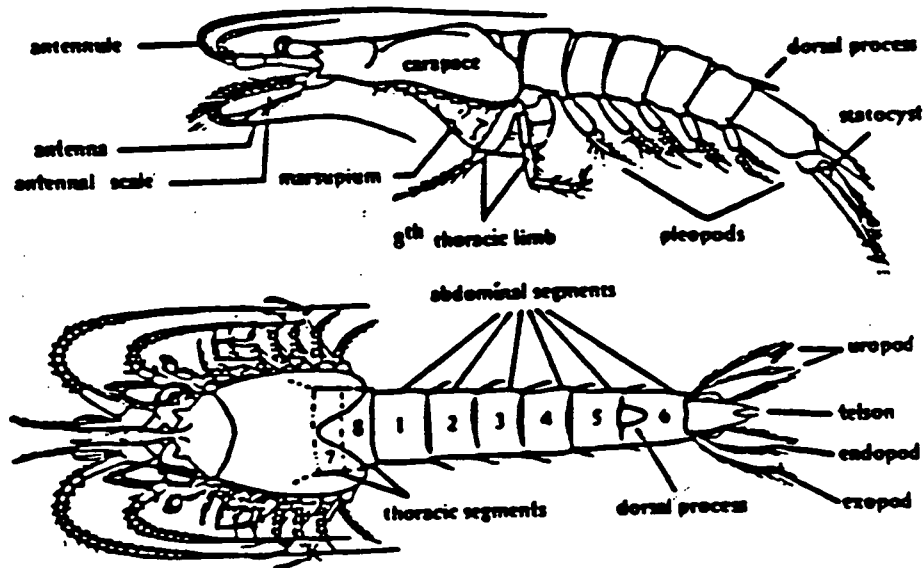
Fathead minnow: adult female (left) and breeding male (right).

## SALTWATER FISH



Silverside (Menidia)

# SALTWATER MYSID SHRIMP



Lateral and dorsal view of a typical mysid.

## ANALYTICAL COSTS

<b>Priority pollutants scan (8080, 8240, 8270, cyanide, total phenols, priority pollutant metals)</b>	<b>\$1000 - \$1500</b>
<b>Purgeable holocarbons and aromatics</b>	<b>\$150 - \$300</b>
<b>Gasoline (BTX)</b>	<b>\$50 - \$150</b>
<b>Total organic carbon</b>	<b>\$40 - \$75</b>
<b>BOD<sub>5</sub></b>	<b>\$25 - \$40</b>
<b>Metals</b>	
<b>(As, Cd, Pb, Se, Sb, Ti)</b>	<b>\$10 - \$20 each</b>
<b>(Ag, Ba, Be, Ca, Cr, Cu, Fe, K, Mg, Mn, Mo,     Na, Ni, V, Zn)</b>	<b>\$10 - \$20 each</b>
<b>Hex-chrome</b>	<b>\$25 - \$50</b>
<b>Cyanide (total)</b>	<b>\$25 - \$50</b>
<b>Phenols (total)</b>	<b>\$40 - \$75</b>
<b>PCP</b>	<b>\$120 - \$165</b>
<b>Pesticides</b>	<b>\$100 - \$200</b>
<b>Herbicides</b>	<b>\$110 - \$250</b>
<b>EP Toxicity (metals)</b>	<b>\$125 - \$175</b>
<b>Oil and grease</b>	<b>\$25 - \$50</b>
<b>Odor, color, turbidity</b>	<b>\$20 - \$35</b>
<b>Total suspended solids</b>	<b>\$10 - \$20</b>
<b>Volatile organics (VOA)</b>	<b>\$200 - \$300</b>
<b>Chlorinated pesticides and PCBs</b>	<b>\$125 - \$200</b>
<b>Polynuclear aromatic hydrocarbons (PAH)</b>	<b>\$150 - \$200</b>
<b>Fecal coliform</b>	<b>\$10 - \$25</b>

**NOTES:**

**PERMIT ANALYTICAL COSTS (ANNUAL)**  
**PERMIT NO. 1**

	<u>Times Per Year</u>	<u>Unit Cost(\$)</u>	<u>Annual Cost(\$)</u>
BOD <sub>5</sub>	104	30	3,120
TSS	104	15	1,560
Fecal Coliform	104	15	1,560
Oil and Grease	104	35	<u>3,640</u>
<b>Total</b>			<b>9,880</b>

**PERMIT ANALYTICAL COSTS (ANNUAL)**  
**PERMIT NO. 2**

	<u>Times Per Year</u>	<u>Unit Cost(\$)</u>	<u>Annual Cost(\$)</u>
Priority Pollutants	4	1,250	5,000
Phenols	52	50	2,600
BOD <sub>5</sub>	156	30	4,680
TSS	156	15	2,340
BTX	52	100	5,200
Nickel	156	15	2,340
Chromium	156	15	2,340
Copper	156	15	2,340
Lead	156	15	2,340
Zinc	156	15	2,340
Cyanide	52	35	1,820
Hardness	156	15	<u>2,340</u>
<b>Total</b>			<b>35,680</b>

## **QUALITY ASSURANCE/QUALITY CONTROL**

- **Standard operating procedures manual**
- **Standard test protocols**
- **Reference toxicant testing**
- **Chain-of-custody**
- **Data logs**
- **Laboratory certification**

## **REPORTING**

- **What is reported**
- **When is information reported**
- **Who is responsible for reporting**
- **What format is used for reporting**

## **RECORD KEEPING**

- **How long are records kept**
- **What kind of records**
- **Where are the records maintained**
- **Who keeps the records**

# **MUNICIPAL NPDES PERMIT DEVELOPMENT**

## **LEARNING OBJECTIVES**

- **Permit applications**
- **Development of effluent limits**
- **Special conditions**
  - **Pretreatment**
  - **Sludge**
  - **Combined Sewer Overflows (CSOs)**
- **Key responsibilities of the municipal permit writer**

## **SOURCES OF FACILITY INFORMATION**

- **Application Form 1 and Form A (2A)**
- **Supplemental information (sludge, toxicity, pretreatment, CSOs)**
- **Construction grants - "NEEDS"**
- **Solid waste agencies**
- **Pretreatment program submission**
- **Annual pretreatment performance report**
- **Pretreatment audit/PCI**

**NOTES:**

**TECHNOLOGY-BASED REQUIREMENTS FOR  
MUNICIPAL DISCHARGERS SECONDARY TREATMENT**  
(40 *CFR* PART 133)

	<u>30 Day Avg.</u>	<u>7 Day Avg.</u>
<b>5 - Day BOD</b>	<b>30 mg/l</b>	<b>45 mg/l</b>
<b>TSS</b>	<b>30 mg/l</b>	<b>45 mg/l</b>
<b>pH</b>	<b>6 - 9</b>	<b>--</b>
<b>Removal</b>	<b>85% BOD<sub>5</sub> and TSS</b>	<b>--</b>

**EXCEPTIONS/ALTERNATIVES TO SECONDARY  
TREATMENT REQUIREMENTS**

- **Substitution of CBOD<sub>5</sub> for BOD<sub>5</sub>** **[§133.102(a)(4)]**
- **Substitution of COD or TOC for BOD<sub>5</sub>** **[§133.104(b)]**
- **Adjustments to reflect:**
  - **Combined sewers** **[§§133.103(a-e)]**
  - **Industrial wastes**
  - **Waste stabilization ponds**
  - **Less concentrated influent for separate sewers**
  - **Less concentrated influent for combined sewers**
- **Treatment Equivalent to Secondary** **[§133.105]**
- **Waiver from secondary treatment for marine discharges** **[§§125.56-125.67]**

## **EQUIVALENT TO SECONDARY**

- **Must be trickling filter or lagoon**
- **Biological treatment = 51+ % treatment**
- **Plant exceeds 30/30 with proper O & M**
- **Water quality not adversely affected**
- **E.T.S. limits:**
  - **Up to 45 mg/l (30 day average)**
  - **Up to 65 mg/l (7 day average)**
  - **Not less than 65% removal**
- **Guidance distributed December 1985**

## **PRETREATMENT PROGRAM REQUIREMENTS**

- **What is pretreatment**
- **Statutory authority**
- **Role of the POTW**
- **NPDES permit requirements**

**NOTES:**

## **NATIONAL PRETREATMENT PROGRAM**

- **Major goal is controlling discharges in order to:**
  - **Prevent interference with POTW processes**
  - **Prevent pass through of pollutants**
  - **Protect sludge management options**
- **Additional programmatic goals**
  - **Encourage recycling and reclamation**
  - **Ensure POTW personnel health and safety**

**NOTES:**

## **STATUTORY AUTHORITY - CLEAN WATER ACT**

- **Section 307(b) - National Pretreatment Standards**
  - **Basis for technology-based National pretreatment standards and general and specific prohibitions to prevent pass through and interference**
  - **Provision for adjustment of technology-based standards to account for POTW removal (through removal credits)**
- **Section 402(b)(8) - NPDES Permit Requirements**
  - **POTWs must identify indirect dischargers**
  - **POTWs must establish local programs to ensure compliance with pretreatment standards by indirect dischargers**

## **REGULATORY REQUIREMENTS - GENERAL PRETREATMENT REGULATIONS (40 *CFR* PART 403)**

- **Objectives:**
  - **Prevent pass through**
  - **Prevent interference, including protection of sludge use and disposal**
  - **Promote reuse and reclamation of effluents and sludges**
- **Elements:**
  - **National Pretreatment Standards**
  - **Requirements for POTW and State programs**
  - **Industrial and POTW reporting requirements**
- **Effluent Limitations Guidelines (40 *CFR* 405-471)**
  - **Including categorical pretreatment standards**

## **NATIONAL PRETREATMENT STANDARDS**

- **Prohibited discharge standards**
- **National categorical pretreatment standards**
- **Local limits**

## **PROHIBITED DISCHARGE STANDARDS**

- **General prohibitions**
- **Specific prohibitions**

**NOTES:**

## **SPECIFIC PROHIBITED DISCHARGES [§403.5(b)]**

- **Fire/explosive hazard**
  - **Flashpoint less than 140°F/60°C**
- **pH lower than 5.0**
- **Solid or viscous substances which obstruct flow to the POTW**
- **Any pollutant (including BOD) at flow or concentration rate which interferes with the POTW**
- **Thermal discharges causing headworks to exceed 104°F/40°C, unless POTW designed for such temperatures**
- **Petroleum/mineral oils causing interference or pass through**
- **Pollutants which create toxic gases/fumes causing worker health and safety problems**
- **Trucked or hauled wastes except at points designated by the POTW**
- **Generally, treatment cannot be achieved by dilution**

### **NOTES:**

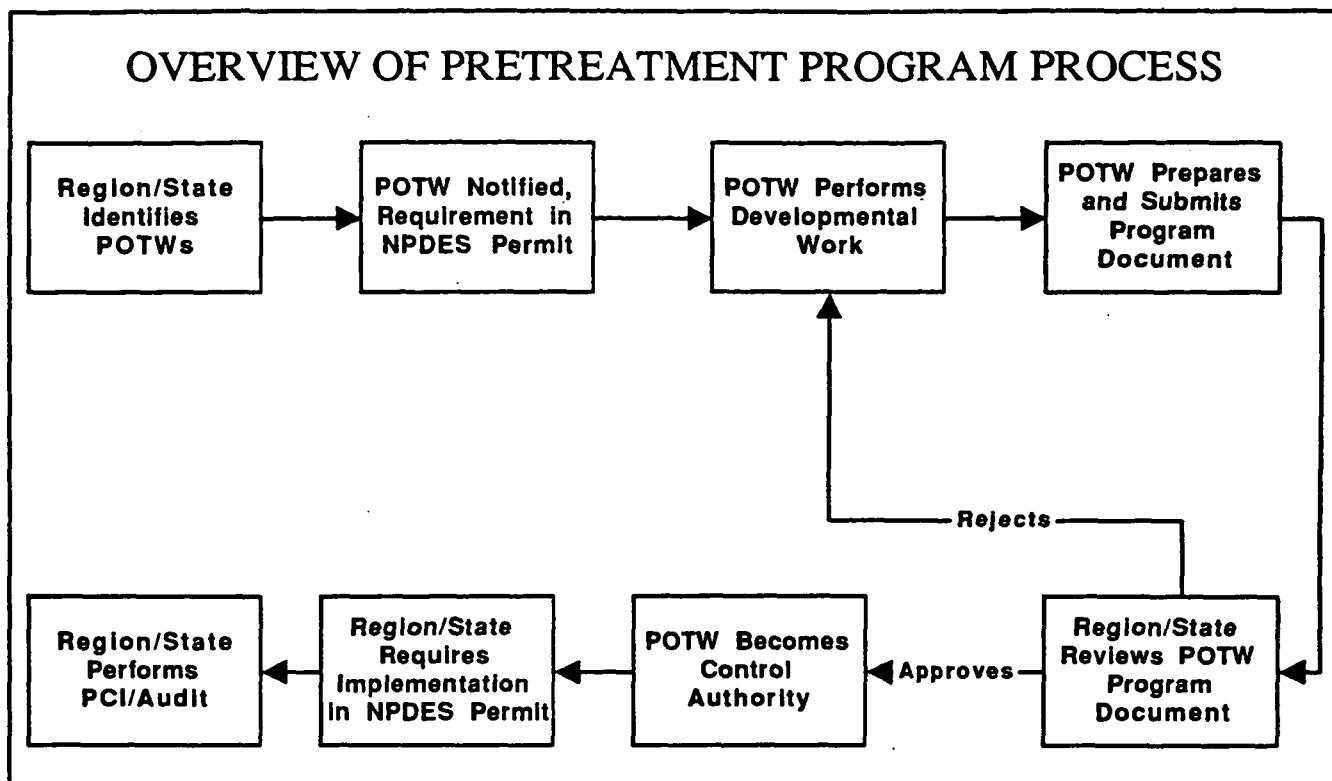
## **NATIONAL CATEGORICAL PRETREATMENT STANDARDS**

- **Uniform, technology-based requirements for industries in specific industrial categories**

## **LOCAL LIMITS**

- **Locally established limits, designed to implement the general and specific prohibitions and achieve environmental objectives**
  - **Protection of water quality**
  - **Protection of sludge quality**
  - **Plant operations (e.g., inhibition)**
  - **Worker health and safety**
  - **Air emissions (future?)**

**NOTES:**



**NOTES:**

## **PRETREATMENT PROGRAM DEVELOPMENT**

- **Who?**
  - **POTWs > 5 MGD**
  - **POTWs < 5 MGD with past problems**
- **What?**
  - **Legal authority**
  - **Industrial user survey**
  - **Individual control mechanisms for all SIUs**
  - **Compliance/enforcement**
  - **Resources**
  - **Data management**

## **NPDES PERMITS DRIVE THE PRETREATMENT PROGRAM BY REQUIRING:**

- **Adequate legal authority**
- **Maintain industrial user inventory**
- **Develop/implement local limits**
- **Issue individual control mechanisms to all SIUs**
- **Conduct compliance monitoring activities**
- **Take swift and effective enforcement**
- **Perform data management and recordkeeping**
- **Report to the approval authority (EPA or State)**
- **Ensure public participation**

## **KEY RESPONSIBILITIES OF THE MUNICIPAL PERMIT WRITER**

- **Write a good permit**
- **Identify need for, and set where appropriate, water quality-based controls**
  - **Chemical-specific**
  - **WET**
- **Incorporate pretreatment requirements**
- **Incorporate sludge requirements**
- **Incorporate CSO controls**
- **Coordinate permit issuance with the pretreatment, sludge and CSO coordinator/expert**

**NOTES:**

## **Organization of the Pretreatment Program and Summary of Responsibilities**

### **EPA Headquarters**

- **Oversee Program Implementation at All Levels**
- **Develop and Modify Regulations for the Pretreatment Program**
- **Develop Policies to Clarify and Further Define the Program**
- **Develop Technical Guidance for Program Implementation**
- **Initiate Enforcement Action as Appropriate.**

### **EPA Regions**

- **Fulfill Approval Authority Responsibilities for States without Program Delegation**
- **Oversee State Program Implementation**
- **Initiate Enforcement Actions as Appropriate.**

### **Approval Authorities**

**(NPDES States with Pretreatment Program Delegation)**

- **Notify POTWs of Their Responsibilities**
- **Review and Approve POTW Pretreatment Programs**
- **Review Modifications to Categorical Pretreatment Standards**
- **Oversee POTW Program Implementation**
- **Provide Technical Guidance to POTWs**
- **Regulate Industries in Nonpretreatment Cities**
- **Initiate Enforcement Action Against Noncompliant POTWs or Industries.**

### **Control Authorities**

**(POTWs with an Approved Pretreatment Program)**

- **Develop and Maintain an Approved Pretreatment Program**
- **Evaluate Compliance of Regulated Industrial Users**
- **Initiate Enforcement Action Against Industries as Appropriate**
- **Submit Reports to Approval Authority.**
- **Develop Local Limits (or demonstrate that they are not necessary)**
- **Develop and Implement an Enforcement Response Plan**

### **Industrial Users**

- **Comply with Applicable Pretreatment Standards: Prohibited Discharge Standards, Categorical Standards, State Requirements, and Local Limits**
- **Comply with Federal and POTW Reporting Requirements.**

## **PRESENTATION PREVIEW**

- 1. What is hazardous waste?**
- 2. NPDES pretreatment implications**
- 3. POTW RCRA permit -by-rule**
- 4. Available guidance**

## **ONLY "SOLID" WASTES CAN BE HAZARDOUS WASTES**

- **Solid wastes - any material which is:**
  - **Abandoned for disposal**
  - **Burned**
  - **Stored (even if to be reused later)**
  - **Treated/reconditioned**
  - **Accumulated for speculation**
- **Exclusions**
  - **Wastes regulated by other Federal law**
    - **NPDES effluents**
    - **Radioactive materials**
    - **Sludge (depends on disposal practice)**
  - **Domestic sewage and any other wastes which mix with domestic sewage in sewer**

**NOTES:**

## **RCRA REQUIREMENTS ASSUME THAT:**

- **NPDES (secondary treatment) and pretreatment (local limits, categorical standards, and prohibited discharges) adequately address wastes being discharged to sewer systems**

## **SOLID WASTES ARE HAZARDOUS WASTES IF:**

- **They exhibit hazardous characteristics**
  - **Ignitable (flashpoint <140°F)**
  - **Corrosive (pH <2.5 or >12.5)**
  - **Reactive (unstable in water)**
  - **Toxic (TCLP test - 40 substances)**
  - **Exclusion for household wastes and special recycled wastes: sludge conditioner or treatment aid at POTW**
- **The waste/or process is listed in Federal or State regulations**

### **NOTES:**

## **FOUR TYPES OF LISTED WASTES**

- 1. Generic industrial sources (21)**
- 2. Specific industrial processes (88)**
- 3. Acutely hazardous chemicals (204)**
- 4. Toxic (known characteristic wastes) (454)**

## **PRESSURES TO DISPOSE OF HAZARDOUS WASTES AT POTWS**

- Land ban and RCRA closure requirements make self-disposal costly/impossible**
- Limited number of permitted TSDFs**
- Domestic sewage exclusion is attractive to generators**
- Increasing number of CERCLA cleanups approaching POTWs for partial treatment**

**NOTES:**

## **NPDES PERMIT IMPLICATIONS OF ACCEPTING HAZARDOUS WASTES**

- **Inhibition of biological treatment (permit violation)**
- **Pass through (permit violation)**
- **Sludge contamination (permit violation)**
- **Possible worker health and safety effects**
- **Increased self-monitoring**
- **Report new/changed influent**
- **NPDES permit modification**

## **PRETREATMENT IMPLICATIONS OF ACCEPTING HAZARDOUS WASTES**

- **Local limits analysis needed to determine acceptability of waste**
- **Local limits development**
- **Designating and monitoring a receiving point for wastes**
- **Treating the source as SIU: permitting, monitoring, tracking and enforcement**
- **New multijurisdictional issues**

**NOTES:**

## **RCRA IMPLICATIONS OF ACCEPTING HAZARDOUS WASTES**

- **POTW has duty to inform potential generators of RCRA requirements for manifesting waste and proper disposal**
- **Treating, storing, or disposing hazardous wastes requires RCRA permit**
- **POTWs having releases of hazardous wastes or hazardous constituents may have to undertake corrective action**
- **POTWs whose sludge is a characteristic waste must manifest and dispose at a TSD facility**

## **REQUIREMENTS FOR POTWs WITH RCRA PERMITS-BY-RULE**

- **NPDES permit/compliance with permit conditions**
- **Waste received by POTW must comply with all pretreatment requirements**
- **EPA hazardous waste facility identification number**
- **Hazardous waste manifest system and written operating record at facility**
- **Biannual reports to State or EPA region waste management division**

**NOTES:**

## **CONTENTS OF PERMIT-BY-RULE RIDER PERMITS**

- **Reporting duties:**
  - **Sample wastes**
  - **Report findings**
- **Corrective action duties:**
  - **Interim emergency measures**
  - **Provide data and facility access**
  - **Develop C.A. plan/reopener**
  - **Implement plan within date certain**

## **RIDER PERMIT ISSUANCE PROCESS**

- **Duration - 10 years**
- **Use RCRA procedures**
- **Consolidate with NPDES when possible**
- **Consolidation requires cooperation between programs**
- **State program issuance complexities**

**NOTES:**

## **AVAILABLE RCRA/CERCLA GUIDANCE**

- **RCRA information on hazardous wastes for POTWs (9/85)**
- **Guidance for the identification of hazardous wastes delivered to POTWs by truck, rail or dedicated pipe (6/87)**
- **Guidance for implementing RCRA permit-by-rule requirements at POTWs (7/87)**
- **Policy on the discharge of wastewater from CERCLA sites into POTWs (4/86)**

## **POTW AS A HAZARDOUS WASTE GENERATOR**

- **Effluent or sludge is hazardous**
  - **Contains listed waste**
  - **Exhibits characteristics**
- **POTWs must:**
  - **Manifest wastes**
  - **Send to permitted TSDF**
  - **Hold long-term liability**

### **NOTES:**

## SUMMARY STATUS OF NATIONAL CATEGORICAL PRETREATMENT STANDARDS: MILESTONE DATES

## FINAL REGULATIONS

Industry Category	40 CFR	Proposed	Promulgation	Effective	BMR Due Date	PSES	90-Day
	Part	New Source Rule Date	Date	Date		Compliance Date	Compliance Report Due Date
Aluminum Forming	467 <sup>2</sup>	11-22-82	10-24-83	12-07-83	06-04-84	10-24-86	01-22-87
Battery Manufacturing	461	11-10-82	03-09-84	04-23-84	10-20-84	03-09-87	06-07-87
Coil Coating (Phase I)	465	01-12-81	12-01-82	01-17-83	07-16-83	12-01-85	03-01-86
Coil Coating (Canmaking)	465	02-10-83	11-17-83	01-02-84	06-30-84	11-17-86	02-15-87
Copper Forming	468	11-12-82	08-15-83	09-26-83	03-25-84	08-15-86	11-13-86
Electrical and Electronic Components (Phase I)	469	08-24-82	04-08-83	05-19-83	11-15-83	07-01-84 (TTO) <sup>3</sup> 11-08-85(As)	09-29-84 02-06-86
Electrical and Electronic Components (Phase II)	469	03-09-83	12-14-83	01-27-84	07-25-84	07-14-86	10-12-86
Electroplating	413	07-03-80 <sup>4</sup>	01-28-81	03-30-81	09-26-81 (Non-integ.)	04-27-84 (Non-integ.)	07-26-84
		--	07-15-83	08-29-83	06-25-83 (Integrated)	06-30-84 (Integrated)	09-28-84
					02-25-84 (TTO)	07-15-86 (TTO)	10-13-86
Inorganic Chemicals (Interim, Phase I, and Phase II)	415	--	07-20-77	07-20-77	01-16-78	07-20-80 <sup>5</sup>	10-18-80
		07-24-80	06-29-82	08-12-82	05-09-83	06-29-85	09-27-85
		10-25-83	08-22-84	10-05-84	04-03-85	08-22-87	11-20-87
Iron and Steel	420	01-07-81	05-27-82	07-10-82	04-06-83	07-10-85	10-08-85
Leather Tanning and Finishing	425	07-02-79	11-23-82	01-06-83	07-05-83	11-25-85	02-23-86
		01-21-87	04-04-88	05-04-88	10-31-88	03-31-89 (Subpart C) <sup>6</sup>	06-29-89
Metal Finishing	433	08-31-82 <sup>4</sup>	07-15-83	08-29-83	02-25-84	06-30-84 (Part 433, TTO) <sup>7</sup> 07-10-85 (Part 420, TTO) 02-15-86 (Final)	09-28-84 10-08-85 05-16-86
Metal Molding and Casting (Foundries)	464	11-15-82	10-30-85	12-13-85	06-11-86	10-31-88	01-29-89
Nonferrous Metals Forming and Metal Powders	471 <sup>8</sup>	03-05-84	08-23-85	10-07-85	04-05-86	08-23-88	11-21-88
Nonferrous Metals Manufacturing (Phase I)	421	02-17-83	03-08-84	04-23-84	10-20-84	03-09-87	06-07-87
		01-22-87	01-21-88	03-07-88 <sup>9</sup>	09-06-88	02-22-88 (Subpart J) <sup>9</sup>	05-02-88

## SUMMARY STATUS OF NATIONAL CATEGORICAL PRETREATMENT STANDARDS: MILESTONE DATES

## FINAL REGULATIONS

<u>Industry Category</u>	<u>40 CFR Part</u>	<u>Proposed New Source Rule Date<sup>1</sup></u>	<u>Promulgation Date</u>	<u>Effective Date</u>	<u>BMR Due Date</u>	<u>PSES Compliance Date</u>	<u>90-Day Compliance Report Due Date</u>
Nonferrous Metals Manufacturing (Phase II)	421	06-27-84	09-20-85 <sup>10</sup>	11-04-85	05-03-86	09-20-88	12-19-88
Organic Chemicals, Plastics, and Synthetic Fibers	414	03-21-83	11-05-87	12-21-87 <sup>11</sup>	06-20-88	11-05-90	02-04-91
Pesticide Chemicals	455	11-30-82	10-04-85 <sup>12</sup>	—	—	—	—
Petroleum Refining	419	12-21-79	10-18-82	12-01-82	05-30-83	12-01-85	03-01-85
Pharmaceuticals Manufacturing	439	11-26-82	10-27-83	12-12-83	06-09-84	10-27-86	01-25-87
Porcelain Enameling	466	02-27-81	11-24-82	01-07-83	07-06-83	11-25-85	02-23-86
Pulp, Paper, and Paperboard	430,431	01-06-81	11-18-82	01-03-83	07-02-83	07-01-84	09-29-84
Steam Electric Power Generation	423	10-14-80	11-19-82	01-02-83	07-01-83	07-01-84	09-29-84
Timber Products Processing	429	10-31-79	01-26-81	03-30-81	09-26-81	01-26-84	04-25-84

Footnotes:

<sup>1</sup>The term "new source" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed pretreatment standards under Section 307(c) of the Clean Water Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that: (1) the construction occurs at a new or "greenfield" site; (2) the construction on an existing site "totally replaces" the process or production equipment causing the discharge; or (3) the construction is "substantially" independent of an existing source at the same site.

<sup>2</sup>The Aluminum Forming Categorical Pretreatment Standards were revised on 12/27/88, as issued in 53 FR 52366. These revisions include relaxed pretreatment standards for existing sources. New discharge limits were set for oil and grease for all subparts and for chromium, cyanide (T), zinc, and Total Toxic Organics (TTO) for the cleaning or etching rinse of Subparts C and D.

<sup>3</sup>The compliance date for TTO for facilities subject to existing source Electrical and Electronic Components, Phase I regulations, is July 1, 1984. The compliance date for arsenic under this category is November 8, 1985.

<sup>4</sup>The Electroplating proposed rule date is not used to determine the new source/existing source status of a facility. The Metal Finishing proposed rule date is used to make this determination for all electroplating and metal finishing facilities.

## SUMMARY STATUS OF NATIONAL CATEGORICAL PRETREATMENT STANDARDS: MILESTONE DATES

### FINAL REGULATIONS

#### Footnotes (Continued):

<sup>5</sup>The compliance date for Subparts A, B, L, AL, AR, BA, and BC of the Inorganic Chemicals category is July 20, 1980. The compliance date for Subparts AJ, AU, BL, BM, BN, and BO (except discharges from copper sulfate or nickel sulfate processes) is August 22, 1987. The compliance date for copper sulfate or nickel sulfate processes and for all Subparts of Part 415 not listed above is June 29, 1985.

<sup>6</sup>These dates apply only to Subpart C.

<sup>7</sup>Existing sources that are subject to the Metal Finishing standards in 40 CFR Part 433 must comply only with the interim limit for TTO by June 30, 1984. Plants also subject to the Iron and Steel Manufacturing standards in 40 CFR Part 420 must comply with the interim TTO limit by July 10, 1985. The compliance date for metals, cyanide, and final TTO is February 15, 1986, for all sources.

<sup>8</sup>These regulations were revised on March 17, 1989, (54 FR 11346) to allow pollutant discharge from the tube reducing spent lubricant process of Subpart C and Subpart I provided nitrosamine compound discharge limits are met.

<sup>9</sup>These dates are for Subpart J, tungsten category.

<sup>10</sup>On April 26, 1989, a modification of some Nonferrous Metals Manufacturing regulations were proposed (54 FR 18411).

<sup>11</sup>On June 29, 1989, part of the OCPSF regulations were remanded to EPA for additional consideration.

<sup>12</sup>On July 25, 1986, the Eleventh Circuit Court of Appeals remanded to the EPA the final regulation originally promulgated on October 4, 1985, for the Pesticide Chemicals category. EPA removed the regulation from the Code of Federal Regulations on December 15, 1986 (40 FR 44911).

Note: The compliance date for any discharge that is subject to Pretreatment Standards for New Source (PSNS) facilities is within 90 days of the date of the commencement of the discharge. The Baseline Monitoring Report (BMR) for a new source is due 90 days prior to the commencement of discharge.

## DEVELOPMENT DOCUMENTS FOR EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR SPECIFIC INDUSTRIAL CATEGORIES

<u>CFR PART NUMBER</u>	<u>CATEGORY OF BGD INDUSTRIAL STUDIES</u>	<u>SUBCATEGORY</u>	<u>BGD DOCUMENT NUMBER</u>	<u>GPO STOCK NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>
405	Dairy Products Processing	a) Dairy Products Processing (Draft)	EPA 440/1-74/021-a	5501-00898	PB238835/AS
406	Grain Mills	a) Grain Processing (Draft)	EPA 440/1-74/028-a	5501-00844	PB238316/AS
		b) Animal Feed, Breakfast Cereal & Wheat (Draft)	EPA 440/1-74/039-a	5501-01007	PB240861/AS
407	Canned & Preserved Fruits & Vegetables Processing	a) Citrus, Apple & Potatoes (Draft)	EPA 440/1-74/027-a	5501-00790	PB238649/AS
408	Canned & Preserved Seafood Processing	a) Catfish, Crab, Shrimp (Draft)	EPA 440/1-74/020-a	5501-00920	PB238614/AS
		b) Report to Congress, Section 74 Seafood Processing Executive Summary - (Volumes I-III)	EPA 440/1-80/020	-	PB81-182354
409	Sugar Processing	a) Beet (Final)	EPA 440/1-74/002-b	5501-00117	PB238462/AS
		b) Cane	EPA 440/1-74/002-c	5501-00826	PB238147/AS
410	Textile Mills	*a) Textile Mills	EPA 440/1-74/002-a	5501-00903	PB238832/AS
		b) Textile Mills (Final)	EPA 440/1-82/0022	-	PB83-116871
411	Cement Manufacturing	a) Cement Manufacturing (Draft)	EPA 440/1-74/005-a	5501-00866	PB238610/AS
412	Feedlots	a) Feedlots (Draft)	EPA 440/1-74/001-a	5501-00842	PB238651/AS
413	Electroplating	a) Copper, Nickel, Chrome and Zinc (Draft)	EPA 440/1-74/003-a	5501-00816	PB238834/AS
		b) Electroplating Pretreatment (Final)	EPA 440/1-79/003	-	PB80-196488
414	Organic Chemicals Manufacturing	a) Major Organic Products (Draft)	EPA 440/1-74/009-a	5001-008812	PB241905/AS
		b) Organic Chemicals & Plastics & Synthetic Fibers (Proposed)	EPA 440/1-83/009-b	-	PB83-205625
415	Inorganic Chemicals Manufacturing	a) Major Inorganic Chemical Products (Draft)	EPA 440/1-74/007-a	5502-00121	PB238611/AS
		b) Inorganic Chemicals (Proposed)	EPA 440/1-80/007-b	-	PB81-122632
		c) Inorganic Chemicals (Final)	EPA 440/1-82/007	-	PB82-265612
416	Plastic & Synthetic	a) Synthetic Resins (Draft)	EPA 440/1-74/010-a	5501-00815	PB82-3924/AS
		b) Synthetic Polymers	EPA 440/1-74/036	5501-01012	PB240862/AS
		c) Organic Chemicals/Plastic & Synthetic Fibers (Proposed)	EPA 440/1-83/009-b	-	PB83-205625

## DEVELOPMENT DOCUMENTS FOR EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR SPECIFIC INDUSTRIAL CATEGORIES (Continued)

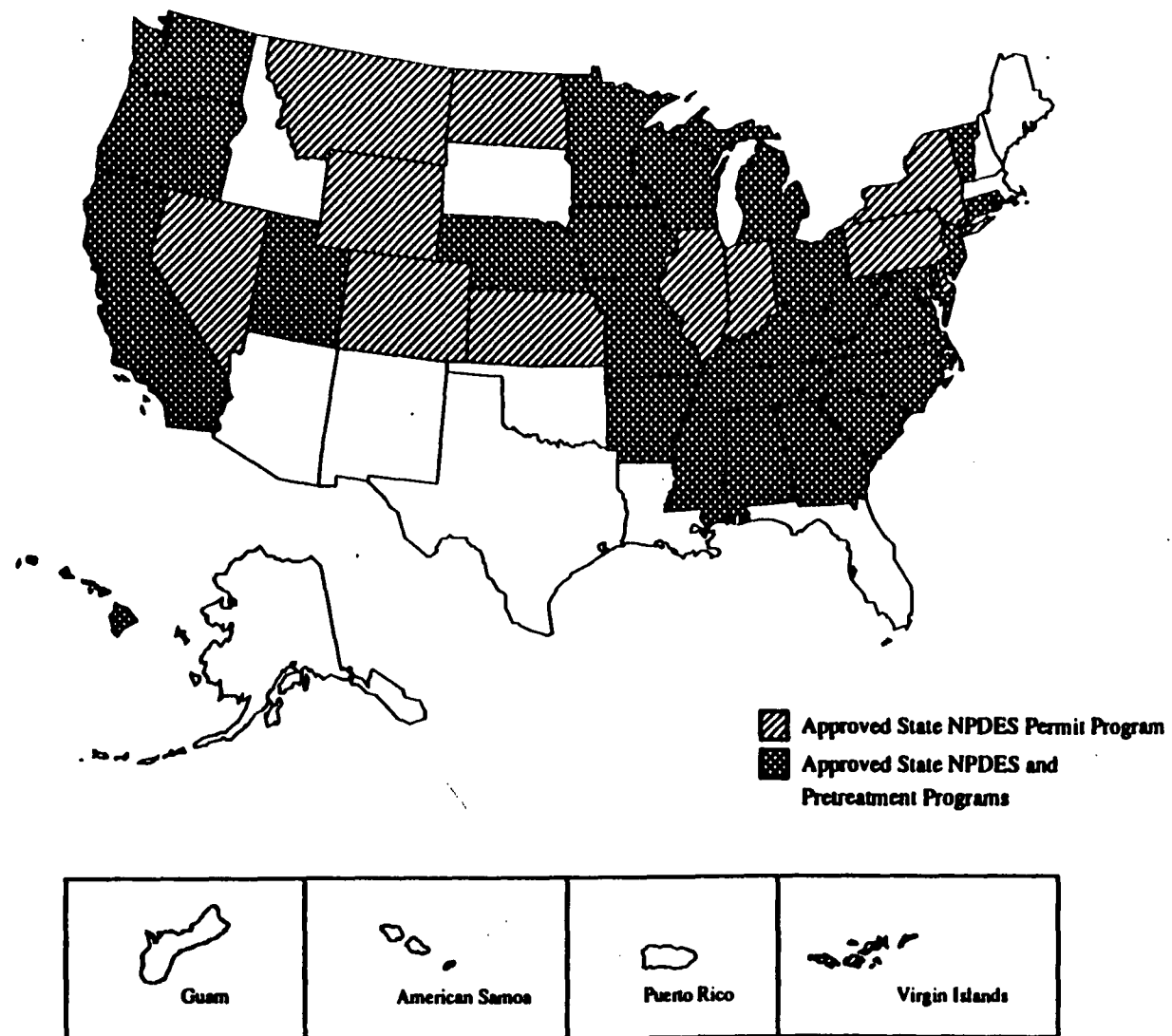
<u>CFR PART NUMBER</u>	<u>CATEGORY OF BGD INDUSTRIAL STUDIES</u>	<u>SUBCATEGORY</u>	<u>BGD DOCUMENT NUMBER</u>	<u>GPO STOCK NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>
417	Soaps & Detergents Manufacturing	a) Soaps & Detergents (Draft)	EPA 440/1-74/018-a	5501-00867	PB258613/AS
418	Fertilizer	a) Basic Fertilizer Chemicals (Draft)	EPA 440/1-74/011-a	5501-00868	PB238652/AS
		b) Formulated Fertilizer (Draft)	EPA 440/1-75/042-a	5501-01006	PB240863/AS
419	Petroleum Refining	a) Petroleum Refining (Draft)	EPA 440/1-74/014-a	5501-00912	PB238612/AS
		b) Petroleum Refining (Proposed)	EPA 440/1-79/014-b	-	PB81-118413
		c) Petroleum Refining (Final)	EPA 440/1-82/014	-	PB83-172569
420	Iron & Steel	a) Steel Making (Draft)	EPA 440/1-74/024-a	5501-00906	PB238837/AS
		b) Iron & Steel Volumes I-V	EPA 440/1-80/024-a	-	PB81-184384
		c) Iron & Steel (Final) Volume I Volume II Volume III Volume IV Volume V Volume VI	EPA 440/1-82/024	-	PB82-240425 PB82-240433 PB82-240441 PB82-240458 PB82-240466 PB82-240484
421	Nonferrous Metals Manufacturing	a) Bauxite Refining	EPA 440/1-74/091-c	5501-00116	PB128463/AS
		b) Primary Aluminum Smelting	EPA 440/1-74/019-d	5501-00817	PB234859/AS
		c) Secondary Aluminum Smelting	EPA 440/1-74/019-e	5501-00819	PB238464/AS
422	Phosphate Manufacturing	a) Phosphorus Derived Chemicals (Draft)	EPA 440/1-74/006-a	5503-00078	PB241018/AS
423	Steam Electric Powerplants	a) Steam Electric Power (Draft)	EPA 440/1-74/029-a	5501-01001	PB230853/AS
		b) Steam Electric (Proposed)	EPA 440/1-80/029-b	-	PB81-119075
424	Ferroalloy	a) Smelting & Slag Processing (Draft)	EPA 440/1-74/008-a	5501-00780	PB238650/AS
425	Leather Tanning	a) Leather Tanning (Draft)	EPA 440/1-74/016-a	5501-00818	PB238648/AS
		b) Leather Tanning (Final)	EPA 440/1-82/016	-	PB83-172593
426	Glass Manufacturing	a) Pressed & Blown Glass	EPA 440/1-75/034-a	5501-01036	-
		b) Insulation Fiberglass	EPA 440/1-74/001-b	5501-00781	PB128078/AS
		c) Flat Glass	EPA 440/1-74/001-c	5501-00814	-
427	Asbestos Manufacturing	a) Building, Construction and Paper (Draft)	EPA 440/1-74/017-a	5501-00827	PB238320/AS

## DEVELOPMENT DOCUMENTS FOR EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR SPECIFIC INDUSTRIAL CATEGORIES (Continued)

<u>CFR PART NUMBER</u>	<u>CATEGORY OF BGD INDUSTRIAL STUDIES</u>	<u>SUBCATEGORY</u>	<u>BGD DOCUMENT NUMBER</u>	<u>GPO STOCK NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>
428	Rubber Processing	a) Tire & Synthetic	EPA 440/1-74/013-a	5501-00885	PB238609/AS
		b) Fabricated & Reclaimed Rubber	EPA 440/1-74/030-a	5501-01016	PB241916/AS
429	Timber Products Processing	a) Plywood & Wood (Draft)	EPA 440/1-74/023-a	5501-00853	PB240811/AS
		b) Timber Products (Final)	EPA 440/1-81/023	-	PB81-22728
430	Pulp, Paper and Paperboard	a) Unbleached Kraft and Semi-chemical Pulp (Draft)	EPA 440/1-74/025-a	-	PB238833/AS
		b) Pulp & Paper & Paperboard and Builder's Paper & Board Mills (Final)	EPA 440/1-82/025	-	PB81-163949
		c) <u>Pulp, Paper &amp; Paperboard and Builder's Paper &amp; Board Mills (Final)</u>	EPA 440/1-82/025	-	PB83-163949
431	Builder's Paper & Board Mills	a) Builder's Paper & Roofing (Draft)	EPA 440/1-74/026-a	5501-00909	PB238076/AS
		b) <u>Pulp, Paper &amp; Paperboard and Builder's Paper &amp; Board Mills (Final)</u>	EPA 440/1-82/025	-	PB83-163949
432	Meat Products and Rendering	a) Red Meat Processing	EPA 440/1-74/012-a	5501-00843	PB238076/AS
		b) Renderer	EPA 440/1-74/031	-	PB238836/AS
433	Metal Finishing	a) Metal Finishing (Proposed)	EPA 440/1-82/091-b	-	PB83-102004
		b) Metal Finishing (Final)	EPA 440/1-82/091	-	PB34-115989
434	Coal Mining	a) Coal Mining (Proposed)	EPA 440/1-81/057-b	-	PB81-119296
		b) Coal Mining (Final)	EPA 440/1-82/057	-	PB83/108042
436	Mineral Mining & Processing	a) Report to Congress The Effects of Discharges from Limestone Quarries on Water Quality and Aquatic Biota	EPA 440/1-82/059	-	PB82-242207
440	Ore Mining and Dressing	a) Volume I	EPA 440/1-78/061-d	-	PB286520/AS
		b) Volume II	EPA 440/1-78/061-e	-	PB286521/AS
		c) Ore Mining & Dressing (Proposed)	EPA 440/1-82/061-b	-	PBS2-250952
455	Pesticides	a) Pesticides	EPA 440/1-76/060-e	-	PB285480/AS
		b) Pesticides (Proposed)	EPA 440/1-82/079-b	-	PB83-153171
		c) Test Methods for Non-Conventional Pesticides Chemical Analysis of Industrial & Municipal Waste-	EPA 440/1-82/079-c	-	PB83-176636

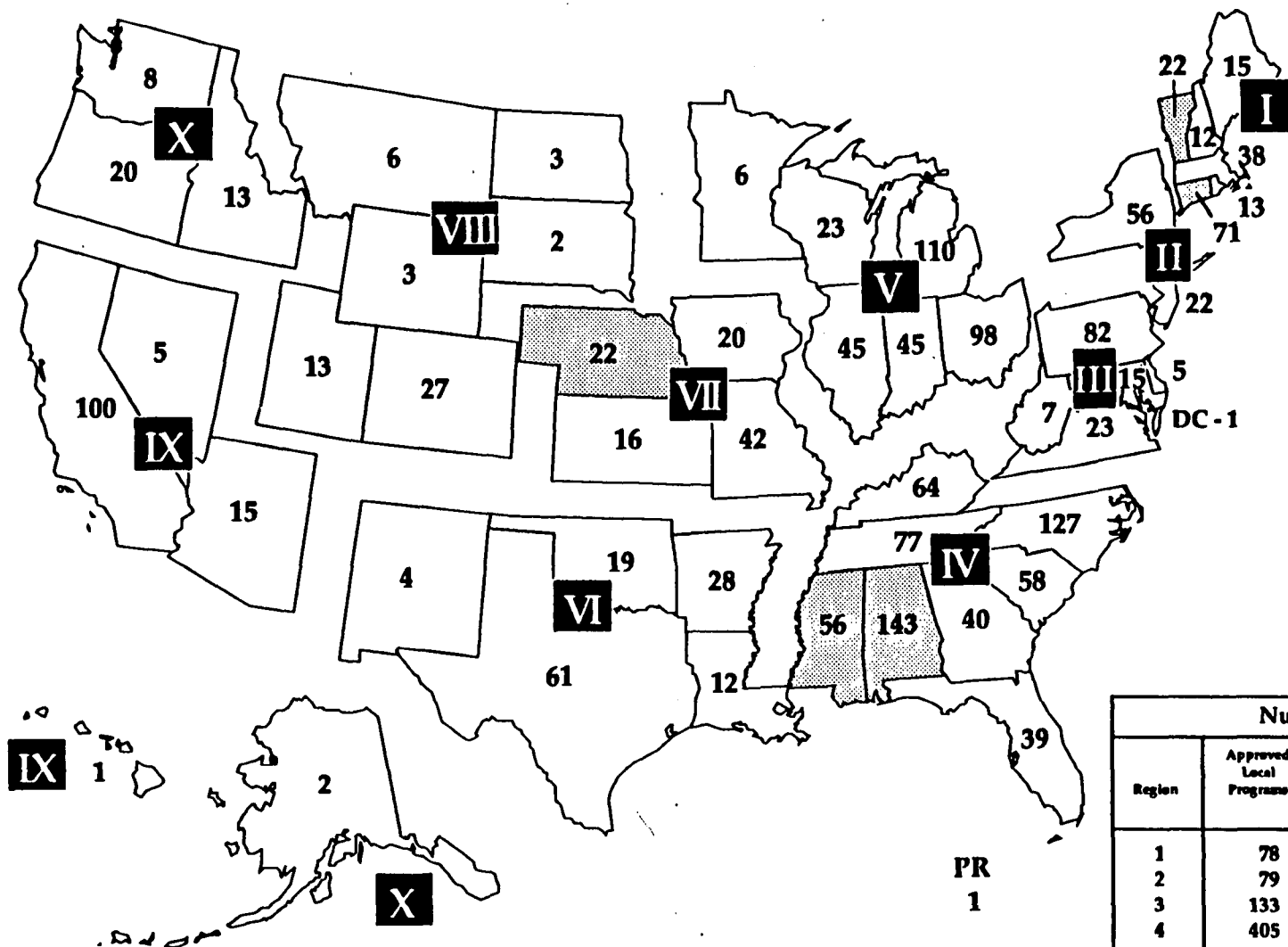
## DEVELOPMENT DOCUMENTS FOR EFFLUENT LIMITATIONS GUIDELINES AND STANDARDS FOR SPECIFIC INDUSTRIAL CATEGORIES (Continued)

<u>CFR PART NUMBER</u>	<u>CATEGORY OF BGD INDUSTRIAL STUDIES</u>	<u>SUBCATEGORY</u>	<u>BGD DOCUMENT NUMBER</u>	<u>GPO STOCK NUMBER</u>	<u>NTIS ACCESSION NUMBER</u>
461	Battery Manufacturing	a) Battery Manufacturing (Proposed)	EPA 440/1-82/067-b	-	PB83-197921
463	Plastic Processing	a) Plastic Molding & Forming (Proposed)	EPA 440/1-84/069-b	-	PB84-171578
465	Coil Coating	a) Coil Coating (Final)	EPA 440/1-82/071	-	PB83-205542
		b) Coil Coating Canmaking (Final)	EPA 440/1-83/071	-	PB84-188647
466	Porcelain	a) Porcelain (Proposed)	EPA 440/1-80/072-b	-	PB81-201527
468	Copper Forming	a) Copper (Final)	EPA 440/1-84/074	-	PB84-192450
469	Electronics	a) Electrical & Electronic Components (Phase I)	EPA 440/1-82/075-b	-	PB82-248673



**Figure 1-1. Status of State NPDES and Pretreatment Program Approvals, November 1990**  
 Thirty-nine States and territories have federally approved NPDES programs. Twenty-seven States have federally approved pretreatment programs.

Source: "National Pretreatment Program Report to Congress"  
 (EPA; 21W-4004; July, 1991)



Source: "National Pretreatment Program Report to Congress"  
(EPA; 21W-4004; July, 1991)

**Figure 1-2. Approved Local Pretreatment Programs  
April 1990**

4147-RTC-a30

Numbers			
Region	Approved Local Programs	Plants in Approved Local Programs	Plants in State-Run Programs
1	78	82	93
2	79	178	-
3	133	174	-
4	405	537	199
5	327	382	-
6	124	252	-
7	78	128	22
8	54	57	-
9	121	163	-
10	43	62	-
<b>Total</b>	<b>1,442</b>	<b>2,015</b>	<b>314</b>

■ State-Run Programs

# **MUNICIPAL SLUDGE PERMIT CONDITIONS**

## **LEARNING OBJECTIVES**

- **Definition of sludge**
- **Statutory requirements**
- **Interim program**
- **Implementation procedures**
- **Long term program**

**NOTES:**

## **STATUTORY AUTHORITY**

- **FWPCA Provisions (1972)**
  - **Prohibit discharge without a permit**
- **CWA Provisions (1977)**
  - **Sludge acknowledged as a resource**
  - **EPA must develop technical regulations**
  - **No implementation mechanism specified**
  - **Contrary POTW disposal unlawful**
- **WQA Provisions (1987)**
  - **Renewed emphasis on developing technical regulations**
  - **Requires that standards be implemented through permits**
  - **405(d)(4) requires interim program**

**NOTES:**

## **PART 503's MISSION:**

**Protect human health and the environment  
and  
Promote beneficial use**

***Accomplished through commitments to:***

**Sound science  
and  
Regulatory flexibility**

**NOTES:**

## **STRUCTURE OF PART 503**

- **Use/disposal methods being considered for coverage in the rule:**
  - **Subpart B - Land application**
  - **Subpart C - Surface disposal**
  - **Subpart E - Incineration**
- **Standards/requirements for each use/disposal method:**
  - **Pollutant limits**
  - **Pathogen/vector attraction requirements**
  - **Management practices**
  - **Monitoring and recordkeeping requirements**
  - **Reporting requirements**

### **NOTES:**

## **STRUCTURE OF PART 503**

### **Subpart B - Land Application**

- **Covers beneficial use through application to:**
  - **Agricultural land**
  - **Forest, public contact sites, reclamation sites**
  - **Home lawns/gardens**
- **General Requirements: Provide notice and necessary information to recipients**
- **Pathogen/vector requirements:**
  - **Pathogens: Either Class A (complete removal) or Class B (partial removal)**
  - **Vector controls**
- **Pollutant limits:**
  - **For metals, limits would be expressed in 3 ways:**
    - **Cumulative loadings**
    - **Annual loading rates**
    - **Concentration limits**
  - **Reflect risk analysis for food, air, groundwater pathways**
  - **Provide  $10^{-4}$  risk protection to highly exposed individuals**
- **Management Practices: Narrative requirements to protect wetlands, floodplains, etc.**
- **Monitoring/Recordkeeping: POTWs and commercial distributors and appliers**
- **Reporting: Class I facilities**

## **STRUCTURE OF PART 503**

### **Subpart C - Surface Disposal**

- **Considering standards which would include:**
  - **Monofills**
  - **Impoundment**
  - **Piles**
- but not include:**
  - **Storage**
  - **Municipal landfills**
- **Considering standards which would distinguish between sites with, and sites without, liners.**
- **Pollutant limits:**
  - **Numerical limits for metals and organics vary according to site factors (groundwater quality, liner)**
  - **Reflect risk analysis for air, groundwater pathways**
  - **Provide  $10^{-4}$  risk protection to highly exposed individuals**
- **Pathogen/vector requirements:**
  - **Pathogens: Class A or B**
  - **Vector controls**

### **NOTES:**

## **STRUCTURE OF PART 503**

### **Subpart C - Surface Disposal (continued)**

- **General Requirements:**
  - **Submit closure plan before closing site**
  - **Notify subsequent site owners**
- **Management practices: Narrative requirements to protect wetlands, endangered species, ensure structural integrity, collect leachate/runoff**
- **Monitoring/Recordkeeping**
- **Reporting: Class I facilities**

### **NOTES:**

## **STRUCTURE OF PART 503**

### **Subpart E - Incineration**

- **Covers the firing of sewage sludge in a sewage sludge incinerator only.**
- **Considering standards like those proposed in November 1990**
- **General Requirements**
  - **Pollutant limits:**
    - **Numeric limits for metals and organics:**
      - \* **Metals require site-specific air dispersion modeling**
      - \* **Organics use THC as surrogate**
      - \* **Limits based on higher protectiveness:  $10^{-5}$  risk**
- **Management Practices: Continuous temperature, THC, O<sub>2</sub>, moisture monitoring**
- **Monitoring/Recordkeeping**
- **Reporting: Class I facilities**

### **NOTES:**

## **DOMESTIC SEPTAGE**

### **Land Application**

- **Application Rate Limit**
  - **Hydraulic loading rate based on nitrogen demand**
- **Pathogen and Vector Attraction Reduction**
  - **Treatment to pH 12 for 30 minutes**
- **Site Restriction**
  - **Food and feed crops**
  - **Public access**
- **Other Requirements**
  - **Threatened and endangered species**
  - **Frozen, snow-covered, or flooded land**
  - **Wetlands**

**NOTES:**

## **DOMESTIC SEPTAGE**

### **Surface Disposal**

- **Pathogen and Vector Attraction Reduction**
  - **Treatment to pH of 12 for 30 minutes**
- **Minimum Frequency of Monitoring**
  - **Each container must be monitored**
- **Other Requirements**
  - **All other requirements apply**

### **NOTES:**

## **IMPLEMENTING PART 503 THROUGH PERMITS**

- **Part 503 intended to be self implementing . . .**
  - **will affect all parties involved in sludge generation, handling, treatment, use, and disposal**
  - **will be directly enforceable**
  - **will be effective one year after publication**
- . . .but also administered through permits**
- **CWA 405(f): Any section 402 permit issued to a POTW or other "treatment works treating domestic sewage" shall include sludge use and disposal requirements**
- **Sludge permitting regulations, promulgated 5/2/89 (54 FR 18716), establish framework for sludge permitting and State sludge programs**
- **Our task: Dovetail new technical standards with existing programmatic framework**

**NOTES:**

## **IMPLEMENTING PART 503 THROUGH PERMITS**

**Who must apply for a permit?**

**Sludge permitting regulations require applications from all  
"Treatment Works Treating Domestic Sewage," i.e. -**

- **All POTWs**
- **All other generators of sewage sludge**
- **All entities providing treatment (including commercial blenders, commercial fertilizer manufacturers)**
- **All entities providing disposal (including sludge-only landfills, incinerators)**

**Parties not required to apply for a permit, but with certain  
Part 503 compliance responsibilities:**

- **Commercial sludge land appliers/haulers, unless designated as a TWTDS (subject to some management practices, recordkeeping and reporting requirements)**
- **Septage haulers/appliers, unless designated as a TWTDS (subject to limited notification and recordkeeping requirements)**
- **Farmers, landowners (still must meet site access restrictions in some cases)**

**NOTES:**

## **IMPLEMENTING PART 503 THROUGH PERMITS**

**When must an application be submitted?**

**Current sludge permitting regulations (§122.21(c)) require either:**

- **Within 120 days of applicable use and disposal standards;**
- or**
- **With next NPDES permit application, if sooner.**

**NOTES:**

## **IMPLEMENTING PART 503 THROUGH PERMITS**

**Proposed expedited rule (May 27, 1992; 57 FR 22197)**  
**would phase in applications:**

- **Applications within 180 days of promulgation, for facilities needing site-specific limits (incinerators and some surface disposal sites)**
- **Preliminary screening information within 1 year for non-NPDES (sludge-only) facilities**
- **Applications for TWTDS as their NPDES permits expire**

**Status of proposed rule:**

- **Comment period closed June 26**
- **12 comments received; generally supportive**
- **Publication of final rule expected in November 1992**

**NOTES:**

## **ADVANTAGES OF A PERMIT**

### **1. General/Process Considerations**

- **Provides an effective way to bring newly regulated facilities into the program (e.g., sludge-only facilities)**
- **Adds certainty to each party's obligations**
- **Facilitates compliance**
- **Provides a limited defense in legal actions when permit compliance is demonstrated**
- **Allows for public participation and can improve public perception**

### **2. Experience with self-implementation shows that it is not the most effective means of implementation**

- **No known Federal enforcement actions related to Part 257**
- **Pretreatment program was recently revised to require "individual control mechanisms" for significant industrial users**

### **NOTES:**

## **ADVANTAGES OF A PERMIT**

**(continued)**

### **3. Permit Content**

- **Site-specific factors**
- **Boilerplate**
  - **Duty to notify of change in use or disposal practice**
  - **Reopener clause**
  - **Duty to mitigate**
  - **Duty of proper operation and maintenance**
  - **Detailed monitoring and reporting requirements**
- **Clarify the permittee's responsibilities and relationships with additional parties (e.g., address interstate transfer issues)**
- **Require pretreatment programs for non-discharging POTWs**

**NOTES:**

## **THE IMPACT OF THE FEDERAL PERMITS ON EXISTING STATE PROGRAMS**

- **Background**
  - **Many States already have strong programs**
  - **Many States are operating under interim agreements**
- **Post 503**
  - **Interim agreements will no longer be valid**

## **EPA AS THE PERMITTING AUTHORITY**

- **Currently there are no approved State sewage sludge programs**
- **Sludge data must be sent to EPA Regions**
- **In States where EPA is implementing the NPDES program, EPA can simply include the 503 standards into the NPDES permits it issues. It will also issue sewage sludge permits to non-NPDES TWTDS.**
- **In States with approved NPDES programs, the NPDES permittee will submit sewage sludge information to the Regional EPA office.**

**NOTES:**

## **IMPACTS OF EPA-ISSUED SLUDGE PERMITS ON STATE SLUDGE PROGRAMS**

- **TWTDS will have to comply with both Federal and State programs.**
- **State sludge requirements are superseded if they are less stringent.**
- **A TWTDS may need both a State and a Federal permit.**
- **If one program is more comprehensive, a TWTDS must comply with the most comprehensive.**

## **CONTROL OVER CHANGES IN USE OR DISPOSAL PRACTICES THROUGH PERMITS**

- **Permit may address several use or disposal methods**
- **Permittees are required to provide notice of changes in use or disposal practices**
- **Permits can be modified, revoked and reissued, or terminated when there are changes in use or disposal practices**

**NOTES:**

# **STORM WATER PERMITTING**

## **LEARNING OBJECTIVES**

- **Storm Water Program Overview**
- **Industrial Requirements**
- **Municipal Requirements**

**NOTES:**

## **WATER QUALITY IMPACTS ATTRIBUTABLE TO STORM WATER**

- **Naturally, pollution from diffuse sources such as runoff from agriculture and urban areas are the leading causes of water quality impairment**
- **Diffuse pollution sources are increasingly important as controls for industrial process dischargers and POTWs are implemented**
- **38 States have reported urban runoff as a major cause of use impairment**
- **21 States report construction site runoff as a major cause of use impairment**
- **In some municipalities, illicit connections to separate storm sewers have had a significant adverse impact. Removing illicit discharges presents opportunities for dramatic improvement in the quality of storm water discharges from urban areas.**
- **One study showed that 14% of the buildings studied within a drainage basin had improper connections to storm sewers; connections approved when the structures were built.**

### **NOTES:**

## **CLEAN WATER ACT REQUIRES PHASED APPROACH FOR PERMITTING STORM WATER DISCHARGES**

- **Prior to 10/1/92, storm water permits are only required for:**
  - **Storm water regulated under an existing permit**
  - **Storm water that is associated with an industrial activity**
  - **Storm water that is discharged from municipal separate storm sewers serving 100,000 or more persons**
  - **Administrator or State Director may designate, for permitting, storm water discharges contributing to a violation of water quality standards or which are significant contributors of pollutants**
- **All other storm water discharges are the subject of 2 EPA studies, and subsequent regulation after 10/1/92**

### **NOTES:**

## **STORM WATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY**

- **Discharge from any conveyance which is used for collecting and conveying storm water**
- **Directly related to manufacturing, processing, or raw materials storage areas**
- **Located at an industrial plant**
- **Other industrial facilities and operations**

## **APPLICATION REQUIREMENTS FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY**

- **Discharges of storm water associated with industrial activity are required to either:**
  - **Apply for an individual permit (Form 2F),**
  - **Apply for a permit through a group application, or**
  - **Seek coverage under a storm water general permit using notice of intent**

### **NOTES:**

## INDUSTRIAL STORM WATER PERMIT APPLICATION DEADLINES

<b>Individual:</b>	<b>October 1, 1992</b>		
<b>Group:</b>	<b><u>Part 1</u> September 30, 1991</b>	<b><u>Review Period</u> 60 days</b>	<b><u>Part 2</u> October 1, 1992</b>
<b>General Permit NOI Non-Construction:</b>	Existing: No later than October 1, 1992 New: 48 hrs. before discharge		
<b>General Permit NOI Construction:</b>	Existing: No later than October 1, 1992 New: Before construction starts		

**Estimated coverage: 100,000 facilities**

## STATUTORY REQUIREMENTS FOR INDUSTRIAL STORM WATER PERMITS

- **Permits must require the achievement of CWA 301 [effluent limitations (BAT/BCT)] and water quality-based limitations**
- **Permitted industries must continue to meet all existing requirements of CWA 402**

**NOTES:**

## **MUNICIPAL SEPARATE STORM SEWER SYSTEMS**

- **Large system - serving a population of 250,000 or more**
- **Medium system - serving a population of 100,000 or more, but less than 250,000**

## **MUNICIPAL PERMIT APPLICATION DEADLINES**

	<b>Part 1</b>	<b>Review Period</b>	<b>Part 2</b>
<b>Medium Municipalities</b>	<b>May 18, 1992</b>	<b>90 Days</b>	<b>May 17, 1993</b>
<b>Large Municipalities</b>	<b>November 18, 1991</b>	<b>90 Days</b>	<b>November 16, 1992</b>

**Estimated coverage: 173 Cities and 47 Counties**

### **NOTES:**

## **STATUTORY REQUIREMENTS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMITS**

- **System or jurisdiction-wide permits allowed**
- **Effectively prohibit non-storm water discharges into storm sewers**
- **Controls to reduce discharge of pollutants to MAXIMUM EXTENT PRACTICABLE (MEP)**

**NOTES:**

# **COMBINED SEWER OVERFLOW (CSO) PERMITTING**

## **LEARNING OBJECTIVES**

- **CSO Overview**
- **Permitting Requirements**

**NOTES:**

## **CSO**

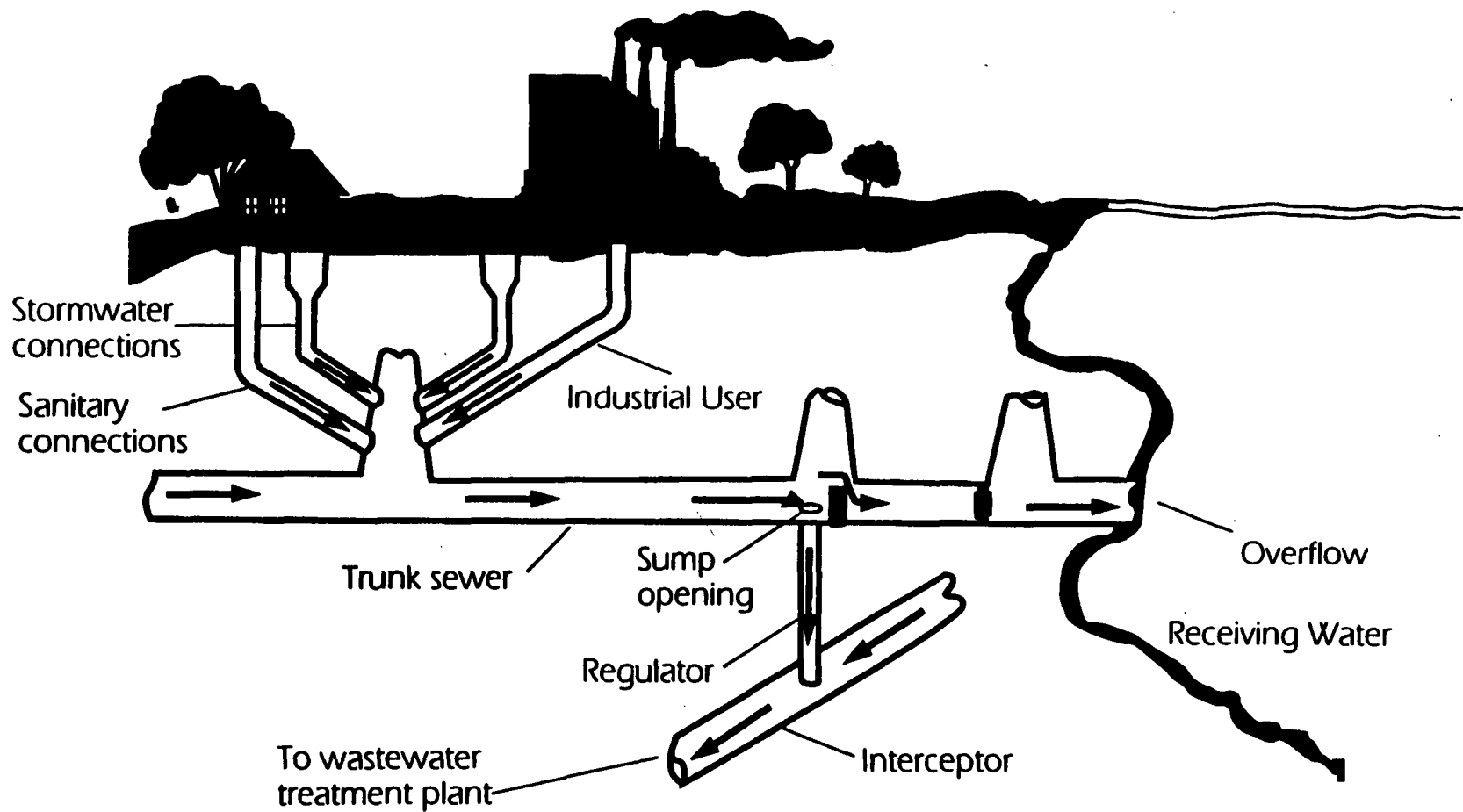
### **Definition**

**CSOs are flows from a combined sewer in excess of the interceptor or regulator capacity that are discharged into a receiving water without going to a Publicly Owned Treatment Works (POTW).**

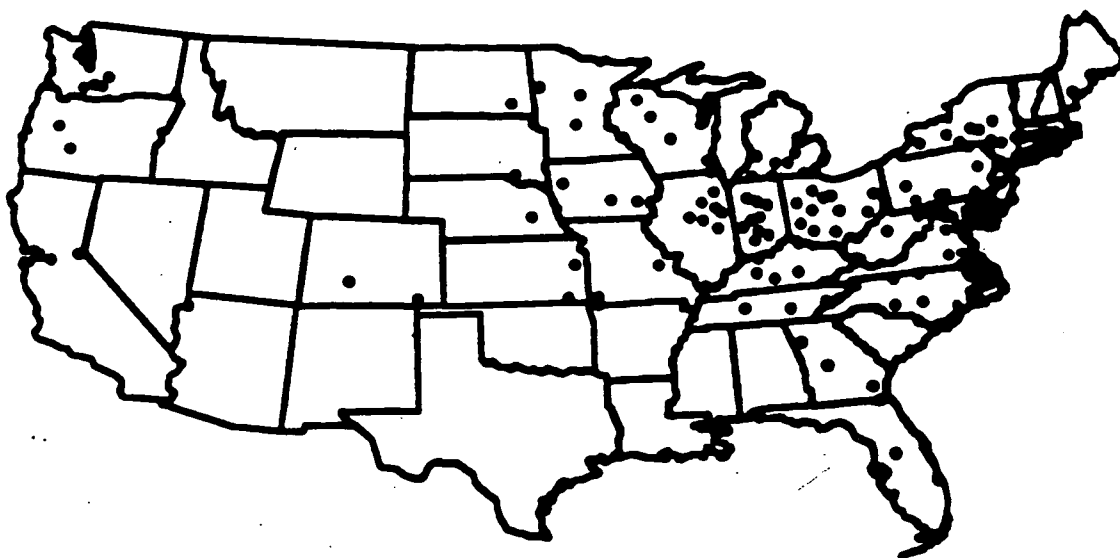
- **CSOs are point sources**
- **CSOs are not bypasses**
- **CSOs are not subject to secondary treatment regulations**
- **CSOs are subject to BCT and BAT and State water quality standards**

**NOTES:**

## Typical Combined Sewer System Configuration



## CSO URBANIZED AREAS



## **CSO PERMIT APPLICATION FORMS**

- **Form 2A - Permitted in conjunction with a POTW**
- **Form 2C - Permitted separately from a POTW**

### **NOTES:**

## **CSO PERMITS**

- **Permit issuance**
- **Minimum technology-based limitations**
- **Additional CSO control measures**
- **Monitoring**

### **NOTES:**

## **MINIMUM BCT/BAT LIMITATIONS**

- **Prohibition of dry weather overflows;**
- **Proper operation and regular maintenance programs for the sewer system and combined sewer overflow points;**
- **Maximum use of the collection system for storage;**
- **Maximization of flow to the POTW for treatment;**
- **Review and modification of pretreatment programs to assure CSO impacts are minimized; and**
- **Control of solid and floatable materials in CSO discharges.**

**NOTES:**

# **SPECIAL PERMIT CONDITIONS**

## **LEARNING OBJECTIVES**

- **Additional nonregulatory monitoring**
- **Compliance schedules in permits**
- **Best management practices**

## **ADDITIONAL NONREGULATORY MONITORING**

- **Used to supplement controls**
- **Used to collect data for future limit development**

**NOTES:**

## **COMPLIANCE SCHEDULES**

- **40 CFR §122.47**
  - **Allows for establishing schedules of compliance that lead to compliance with CWA and regulations**
  - **Interim dates if schedule exceeds 1 year from permit issuance**
  - **Reporting 14 days following each interim date**

### **NOTES:**

## **BEST MANAGEMENT PRACTICES LEGISLATIVE AUTHORITY**

- **Section 304(e)**
  - **The Administrator. . .may publish regulations supplemental to effluent limitations for a class or category of point sources for toxic or hazardous pollutants under Section 307(a) or 311 of the Act to control:**
    - **Plant site runoff**
    - **Spillage or leaks**
    - **Sludge or waste disposal**
    - **Drainage from raw material storage**
  - ...which are associated with or ancillary to the industrial manufacturing or treatment process and may contribute significant amounts of such pollutants to navigable waters.**
- **Section 402(a)(1)**
  - **In the absence of BMPs promulgated for a category of point sources (such as steel mills, petroleum refiners, etc.) under authority of Section 304(e), permit writers may use the authority of Section 402(a)(1) to place BMPs in permits on a case-by-case basis**

**NOTES:**

## **USE BMPs WHEN ...**

- **Numerical limits are infeasible**
- **In lieu of chemical analysis**
- **Where history of leaks and spills exists**
- **Housekeeping is sloppy**
- **Facility is complex and toxic pollutant data lacking**
- **Other options are too expensive**

## **BMPs IN NPDES PERMITS**

- **BMP plan**
- **Site-specific BMPs**
  - **Facility-specific**
  - **Pollutant-specific**

**NOTES:**

## **MINIMUM REQUIREMENTS OF A BMP PLAN**

- **General requirements**
  - **Name and location of facility**
  - **Statement of BMP policy and objectives**
  - **Review by plant manager**
- **Specific requirements**
  - **BMP committee**
  - **Risk identification and assessment**
  - **Reporting of BMP incidents**
  - **Materials compatibility**
  - **Good housekeeping**
  - **Preventive maintenance**
  - **Inspections and records**
  - **Security**
  - **Employee training**

## **BMPs ARE. . .**

- **Flexible**
  - **Procedural**
  - **Qualitative**
- Most effectively used in conjunction with effluent limitations in permits**

**NOTES:**

## **FLEXIBLE**

- Visual inspections,
- Non-destructive testing, or
- A dike or berm

## **PROCEDURAL**

- Conduct routine training
- Maintain maintenance logs
- Perform routine wall-thickness testing

## **QUALITATIVE**

- BMPs generally tell how or what, not how much

## **BUT BMPS ALSO MAY BE:**

- Construction
- Instrumentation
- Monitoring
- Operation and maintenance

**NOTES:**

## **BMPs SHOULD NOT:**

- **Substitute for quantitative controls**
- **Tell managers how to run their plants**
- **Require costly methods when inexpensive ones will suffice**

## **GENERIC BMPs**

- |                                     |                             |
|-------------------------------------|-----------------------------|
| • <b>Preventive maintenance</b>     | • <b>Source elimination</b> |
| • <b>Water conservation/non-use</b> | • <b>Good housekeeping</b>  |
| • <b>Secondary containment</b>      | • <b>Alarm systems</b>      |
| • <b>Nondestructive testing</b>     | • <b>Diverting</b>          |
| • <b>Materials engineering</b>      | • <b>Paving</b>             |
| • <b>Materials handling</b>         | • <b>Runoff control</b>     |
| • <b>Visual inspections</b>         | • <b>Sludge management</b>  |
| • <b>Covering</b>                   | • <b>Training</b>           |
| • <b>Sealing</b>                    | • <b>Monitoring</b>         |
| • <b>Packaging</b>                  | • <b>Security</b>           |
| • <b>Waste stream segregation</b>   |                             |

**NOTES:**



**NPDES**

**Best Management Practices**

**GUIDANCE DOCUMENT**

**U.S. Environmental Protection Agency  
Office of Water Enforcement and Permits  
NPDES Technical Support Branch**

**June 1981**

## **PREFACE**

During the period June 13, 1978, to February 26, 1979, Hydrosience, Inc., under Contract No. 68-03-2568 to the Environmental Protection Agency (EPA), gathered information leading to the identification of best management practices (BMPs) currently used by industry. The result of the data gathering and analysis by Hydrosience, Inc. was a draft report entitled "NPDES Best Management Practices Guidance Document" EPA 600/9-79-045. In response to keen public interest in the draft report, EPA made the report available to the public and provided a 45-day comment period. The comment period subsequently was extended twice, resulting in a total 120-day comment period on the report. After evaluating the comments received, EPA revised the draft report, and published the final document. This document supersedes the Hydrosience draft report dated December, 1979.

## **ABSTRACT**

The purpose of this document is to assist National Pollutant Discharge Elimination System (NPDES) permitting authorities, compliance officers, and permit applicants to develop Best Management Practices (BMP) plans for industry. BMPs are authorized under the 1977 Clean Water Act for the control of discharges to receiving waters of significant amounts of any pollutant listed as hazardous under Section 311 of the Act or toxic under Section 307 of the Act from activities which are associated with or ancillary to industrial manufacturing or treatment processes. The general types of discharges to be controlled by BMPs are plant site runoff, spillage and leaks, sludge and waste disposal and drainage from material storage areas.

This document provides a basis for developing BMP plans. The proper use of the document requires engineering experience with industrial manufacturing and treatment processes and knowledge of current laws and regulations applicable to NPDES permits, BMP plans, and Spill Prevention, Control, and Countermeasure (SPCC) plans.

The guidance herein is based on a review by Hydrosience, Inc. (EPA Contract No. 68-03-2568) of current practices used by industry to control the non-routine discharge of toxic pollutants and hazardous substances. Included in the review are published articles and reports, technical bulletins (also termed material safety data sheets) on specific compounds, and discussions with industry through telephone contacts, written questionnaires, and site visits.

## **SECTION I INTRODUCTION**

### **BACKGROUND**

The Federal Water Pollution Control Act Amendments of 1972 established the objective of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. This objective has remained unchanged in the 1977 amendments to the Act, commonly referred to as the Clean Water Act of 1977, hereinafter "the Act." To achieve this end, the Act sets forth a series of goals, including the goal of eliminating the discharge of pollutants into navigable waters by 1985. The principal mechanism for reducing the discharge of pollutants from point source is through implementation of the National Pollutant Discharge Elimination System (NPDES) established by Section 402 of the Act.

At the time of first round NPDES permit issuance, conventional pollutants (BOD, pH, TSS, etc.) were considered the parameters which most urgently needed controls. In second round permitting, however, the Agency emphasis is shifting from the conventional pollutants to the control of toxic pollutants and hazardous substances.

Traditionally, NPDES permits have contained chemical-specific numerical effluent limits. Effluent guidelines are not always available to prescribe these effluent limits nor to guarantee water quality sufficient for the protection of indigenous aquatic life. To improve water quality, the Act provides for water pollution controls supplemental to effluent limitations guidelines. Best Management Practices (BMPs) are one such supplemental control. Pursuant to sections 304 and 402 of the Act, BMPs may be incorporated as permit conditions. In the context of the NPDES program, BMPs are actions or procedures to prevent or minimize the potential for the release of toxic pollutants or hazardous substances in significant amounts to surface waters. BMPs, although normally qualitative, are expected to be most effective when used in conjunction with numerical effluent limits in NPDES permits.

### **STATUTORY AUTHORITY**

Section 304(e) of the Act authorized the Administrator to publish regulations to control discharges of significant amounts of toxic pollutants listed under Section 307 or hazardous substances listed under Section 311 from activities which the Administrator determines are associated with or ancillary to industrial manufacturing or treatment processes. The discharges to be controlled by BMPs are plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage.

Section 402(a)(1) of the Act allows the Administrator to prescribe conditions in a permit determined necessary to carry out the provisions of the Act. BMPs are one such condition.

BMPs are intended to complement other regulatory requirements imposed by RCRA, OSHA, the Clean Air Act, and SPCC plans for hazardous substances under the Clean Water Act. Pursuant to Section 311 of the Act, EPA has proposed (40 CFR Part 151) requirements for SPCC plans to prevent discharges of hazardous substances from facilities subject to NPDES permitting requirements. The guidelines proposed for hazardous substances SPCC plans are very similar to those required for oil SPCC plans in the Oil Pollution Prevention Regulations, (40 CFR Part 112). Since the Agency has received favorable comments about the Oil Pollution Prevention Regulations, the NPDES BMP regulation has been structured to be similar to the oil SPCC regulation.

#### **BMP REGULATORY HISTORY**

On September 1, 1978, EPA proposed regulations (43 FR 39282) addressing the use of procedures to control discharges from activities associated with or ancillary to industrial manufacturing or treatment processes. The proposed rule indicated how best management practices would be imposed in NPDES permits to prevent the release of toxic and hazardous pollutants to surface waters. The proposed regulation was incorporated as "40 CFR Part 125, Subpart L - Criteria and Standards for Best Management Practices Authorized Under Section 304(e) of the Act" on the August 21, 1978, proposed NPDES regulations (43 FR 37078). A 60-day comment period on proposed Subpart L was provided.

After evaluating the comments received on the proposed regulation, EPA revised Subpart L and promulgated the regulation as Subpart K (44 FR 32954-5) on June 7, 1979. Industries regulated by Subpart K were to develop a BMP program and submit the program with their permit application. Subpart K stated that information on the development of BMP programs was contained in a publication entitled "NPDES Best Management Practices Guidance Document." Subpart K was to become effective on August 13, 1979. However, publication of the report was delayed beyond August 13, 1979. Therefore, on August 10, 1979, EPA deferred applicability of the BMP portions of the NPDES regulations until 60 days after publication in the Federal Register of a notice of availability of the final document (44 FR 47063). EPA announced on March 20, 1980 the availability of the draft report and provided a 45-day comment period (45 FR 17997), which subsequently was extended twice, resulting in a 120-day comment period on the report. Based on public comments on the draft report and

further discussion with industry, the Agency revised the draft report and published this guidance document.

**FINAL BMP REGULATION**

**[Reserved]**

**FINAL GUIDANCE DOCUMENT**

**[Reserved]**

## **SECTION II USE OF THE GUIDANCE DOCUMENT**

This document should be used for guidance in developing BMP plans. The document is not intended to specify site-specific or pollutant-specific BMPs. As its name suggests, the NPDES Best Management Practices Guidance Document is to be considered guidance by NPDES permitting authorities, compliance officers, permit applicants and permittees and should be used in a flexible manner in the formulation of BMP plans. Consequently, the document identifies elements of each specific requirement that should be considered in the development of the BMP plan, but does not require that each element be included in every facility's BMP plan.

In utilizing this document to develop a BMP plan, the applicant/permittee is encouraged to use the most cost-effective and innovative techniques to fit the particular facility or circumstances. The format and content of a BMP plan may vary from site to site and industry to industry, depending upon the specific situation. In addition, an applicant/permittee may add, delete, or modify the elements of the specific requirements presented in the document where equivalent results can be attained.

If an applicant/permittee needs assistance to develop a BMP plan, he or she may contact the appropriate permit issuing authority for advice. The permitting authority, as necessary, may seek assistance from the Technical Program Development Section of the NPDES Technical Support Branch in Washington, D.C.

### **SECTION III BMP PLANS**

#### **SCOPE**

The activities which are associated with or ancillary to the industrial manufacturing or treatment process are subject to BMPs. For brevity, all such activities are referred to as "ancillary sources." The ancillary sources at the plant should be examined to determine if there is a reasonable potential for equipment failure (e.g., spillage or leakage), natural conditions (e.g., plant site runoff or drainage from raw material storage), or other circumstances (e.g., sludge or waste disposal) which could result in the discharge of a significant amount of toxic pollutants or hazardous substances to receiving waters. The ancillary sources are divided for discussion in this document into five categories: material storage areas; loading and unloading areas; plant site runoff; in-plant transfer, process, and material handling areas; and sludge and hazardous waste disposal areas.

Material storage areas include storage areas for toxic and hazardous chemicals as raw materials, intermediates, final products or byproducts. Included are: liquid storage vessels that range in size from large tanks to 55-gallon drums; dry storage in bags, piles, bins, silos, and boxes; and gas storage in tanks and vessels.

Loading and unloading operations involve the transfer of materials to and from trucks or railcars but not in-plant transfers. These operations include pumping of liquids or gases from truck or railcar to a storage facility or vice versa, pneumatic transfer of dry chemicals to or from the loading or unloading vehicle, transfer by mechanical conveyor systems, and transfer of bags, boxes, drums, or other containers from vehicles by fork-lift trucks or other materials handling equipment.

Plant runoff is generated principally from rainfall on a plant site. Runoff from material storage areas, in-plant transfer areas, loading and unloading areas, and sludge disposal sites potentially could become contaminated with toxic pollutants and hazardous substances. Heavy metals from sludge disposal sites are of special concern. Fallout, resulting from the plant air emissions which settle on the plant site, may also contribute to contaminated runoff. Contaminated runoff may reach a receiving body of water through overland flow, drainage ditches, storm or noncontact cooling water sewers, or overflows from combined sewer systems.

In-plant transfer areas, process areas, and material handling areas encompass all in-plant transfer operations from raw material to final product. Various operations could include: transfer of liquids or gases by pipelines with appurtenances such as pumps, valves, and fittings; movement of bulk materials by mechanical conveyor-belt systems; and fork-lift truck transport of bags, drums, and bins. All transfer operations within the process area with a potential for release of toxic pollutants and hazardous substances to other than the process waste water system are addressed in this grouping.

Sludge and hazardous waste disposal areas are potential sources of contamination of receiving waters. These operations include landfills, pits, ponds, lagoons, and deep-well injection sites. Depending on the construction and operation of these sites there may be a potential for leachate containing toxic pollutants or hazardous substances to seep into groundwater, eventually reaching surface waters, or for liquids to overflow to surface waters from these disposal operations. BMP requirements are not intended to duplicate the requirements of RCRA. Actions taken for compliance with RCRA may be referenced in the BMP plan.

#### **MINIMUM REQUIREMENTS**

BMPs may include some of the same practices used by industry for pollution control, SPCC plans for oil and hazardous substances, safety programs, fire protection, protection against loss of valuable raw materials or products, insurance policy requirements or public relations. The minimum requirements of a BMP Plan are listed in Table 1 and are divided into two categories: general requirements and specific requirements.

**Table 1. Minimum Requirements of a BMP Plan**

##### **A. General Requirements**

1. Name and location of facility
2. Statement of BMP policy and objectives
3. Review by plant manager

##### **B. Specific Requirements**

1. RMP Committee
2. Risk Identification and Assessment
3. Reporting of BMP Incidents
4. Materials Compatibility
5. Good Housekeeping

6. Preventive Maintenance
7. Inspections and Records
8. Security
9. Employee Training

## **GENERAL REQUIREMENTS**

The BMP plan should be organized and described in an orderly narrative format and should be reviewed by the plant engineering staff and plant manager. A description of the facility, including the plant name, the type of plant, processes used, and the products manufactured should be included in the BMP plan. A map showing the location of the facility and the adjacent receiving waters also should be part of the plan. Specific objectives for the control of toxic pollutants and hazardous substances should be included in the statement of corporate policy.

## **SPECIFIC REQUIREMENTS**

Each of the 9 specific requirements listed in Table 1 should be addressed in the BMP plan. The size and complexity of the BMP plan will vary with the corporate environmental policy, size, complexity, and location of the facility, among other factors. It is anticipated that the length and detail of the BMP plan will be commensurate with the quantity of toxic and hazardous chemicals onsite and their opportunity for discharge. A fundamental concept of the BMP plan is determining the potential for toxic and hazardous chemicals to reach receiving waters and taking appropriate preventive measures.

Discussions of the specific requirements are presented on the following pages. Each specific requirement contains important elements that should be considered in developing a BMP plan. All elements may not be applicable to all facilities. Elements should be added, deleted, or modified to fit the needs of a particular facility. Permittees are encouraged to use innovative techniques to achieve equivalent results.

### ***1. BMP Committee***

The BMP Committee is that group of individuals within the plant organization which is responsible for developing the BMP plan and assisting the plant management in its implementation, maintenance, and updating. Thus, the Committee's functions are similar to those of a plant fire prevention or safety committee.

The scope of activities and responsibilities of the BMP Committee should include all aspects of the facility's BMP plan, such as identification of toxic and hazardous materials handled in the plant; identification of potential spill sources; establishment of incident reporting procedures; development of BMP inspection and records procedures; review of environmental incidents to determine and implement necessary changes to the BMP plan; coordination of plant incident response, cleanup and notification of authorities; establishment of BMP training for plant personnel; and aiding interdepartmental coordination in carrying out the BMP plan.

Other Committee duties could include review of new construction and changes in processes and procedures at the facility relative to spill prevention and control. The Committee can also periodically evaluate the effectiveness of the overall BMP plan and make recommendations to management on BMP-related matters.

Plant management has overall responsibility for the BMP plan. The plan should contain a clear statement of the management's policies and responsibilities related to BMPs. Authority and responsibility for immediate action in the event of a spill should be clearly established and documented in the BMP plan, with the Committee indirectly involved in that responsibility. The Committee should advise management on the technical aspects of environmental incident control, but should not impede the decisionmaking process for preventing or mitigating spills and incidents.

The size and composition of the BMP Committee should be appropriate to the size and complexity of the plant and the specific toxic and hazardous chemicals handled at the plant. Facility personnel knowledgeable in spill control and waste treatment such as environmental specialists, production foreman, safety and health specialists, and treatment plant supervisor should be included. In some small plants, the Committee might consist of the one manager or engineer assigned responsibility for environmental control. For very small facilities, the Committee function might even have to be fulfilled by competent engineers or managers from the corporate staff or the nearest large plant.

A list of personnel on the BMP Committee should be included in the BMP plan. The list should have the office and home telephone numbers of the Committee members and the names and phone numbers of backup or alternate people.

Elements of the "BMP Committee," listed below, should be considered in developing a BMP plan:

- Inclusion of facility personnel knowledgeable in spill control, safety and health, and waste treatment such as environmental specialists, production foreman, occupational safety and health specialists, and treatment plant supervisor.
- Responsibility for:
  - Providing assistance to plant management for developing a BMP plan
  - Providing assistance to plant management in implementing, maintaining, and updating the BMP plan
  - Identifying toxic and hazardous substances
  - Identifying potential spill sources
  - Establishing BMP incident reporting procedures
  - Developing BMP inspections and records procedures
  - Reviewing environmental incidents
  - Coordinating plant incident response, cleanup, and notification procedures
  - Establishing BMP training for plant and contractor personnel
  - Providing assistance for interdepartmental coordination in carrying out the BMP plan
  - Reviewing new construction and changes in processes and procedures
  - Evaluating the effectiveness of the BMP plan
  - Making recommendations to management in support of corporate policy on BMP-related matters.

## **2. Risk Identification and Assessment**

The areas of the plant subject to BMP requirements should be identified by the BMP Committee, plant engineering group, environmental engineer, or others in the plant. Each area should be examined for the potential risks for discharges to receiving waters of toxic pollutants or hazardous substances from ancillary sources. Any existing physical means (dikes, diversion ditches, etc.) of controlling such discharges also should be identified.

The areas described above should be clearly indicated on a plant plot plan or drawing. A simplified materials flowsheet showing major process operations can be used to indicate the direction and quantity of materials flowing from one area to another. The direction of flow of potential spills and surface runoff could also be estimated based on site topography and indicated on the plant site drawings. Dry chemicals which are toxic pollutants or hazardous substances should be evaluated if they have the potential to reach navigable waters in significant quantities via rainfall runoff, for example.

A hazardous substance and toxic chemical (materials) inventory should be developed as a part of the "Risk Identification and Assessment." The detail of the materials inventory should be proportionate to the quantity of toxic pollutants and hazardous substances on site and their potential for reaching the receiving waters. For example:

1. The plant has determined that materials stored in bulk quantities at a tank farm have a high potential for reaching the receiving waters in the event of structural failure or overfills. Therefore, the materials inventory for the tank farm should be detailed, and should provide the identity, quantities, and locations of each material.
2. The plant has determined that materials stored in small quantities at the research laboratory have a low potential for reaching the receiving waters. Therefore, the materials inventory for the laboratory could be minimally detailed, and may not include the identity, quantity, or location of each material but might include an estimate of the total quantity of toxic and hazardous materials stored and would provide the location of the laboratory. The rationale for the "low risk" nature of the laboratory would be provided in this part of the BMP plan.
3. The plant has determined that materials used in a batch operation in the manufacturing process have a high potential for reaching the receiving water. The plant supplies a variety of products through the batch operation process to accommodate fluctuations in public demand. Consequently, the materials used for the batch process vary from week to week, oftentimes unexpectedly. Therefore, the materials inventory for the batch operation should be detailed but remain flexible. The inventory might include the identification of each material expected for use, and the maximum quantity of material that the batch process can handle. The materials inventory could be updated to include any material substitutions unanticipated at the time of the original inventory.

The examples above illustrate the flexibility of the materials inventory. A materials inventory should be part of the "Risk Identification and Assessment" of every BMP plan but the detail of the inventory will vary with the size and complexity of the plant, the quantities of toxic and hazardous chemicals on site and the potential for those materials to reach surface waters. Determining the potential for incidents reaching receiving waters as well as the detail needed for the materials inventory requires sound engineering judgment.

The materials inventory and other useful technical information should be made available to the BMP Committee but may require separate filing from the BMP plan documents to protect proprietary information or trade secrets. These data may include physical, chemical, toxicological, and health information (e.g., technical bulletins or material safety data sheets) on the toxic pollutants and hazardous substances handled; the quantities involved in various

operations or ancillary sources; and the prevention, containment, mitigation, and cleanup techniques that are used or would be used in the event of a discharge.

Materials planned for future use in the plant should be evaluated for their potential to be discharged in significant amounts to receiving waters. Where the potential is high, the same type of technical data described above should be obtained.

Elements of "Risk Identification and Assessment," listed below, should be considered in developing a BMP plan:

- Identification of areas of the plant subject to BMP requirements
- Examination of identified areas for potential risks of BMP incidents reaching receiving waters
- Identification of existing site-specific or pollutant-specific containment measures
- Plant plot plans or drawings that clearly label the identified areas
- Simplified flowsheet(s) of the major process operations
- Estimation of the direction of flow of potential discharges toward navigable waters
- Evaluation of the potential for materials planned for future use to be discharged to receiving waters in significant amounts.
- Materials inventory system tailored to the need of the particular facility
- Physical, chemical, toxicological, and health information on the toxic and hazardous chemicals on site.

### **3. *Reporting of BMP Incidents***

A BMP incident reporting system is used to keep records of incidents such as spills, leaks, runoff, and other improper discharges for the purpose of minimizing recurrence, expediting mitigation or cleanup activities, and complying with legal requirements. Reporting procedures defined by the BMP Committee should include notification of a discharge to appropriate plant personnel to initiate immediate action; formal written reports for review and evaluation by management of the BMP incident and revisions to the BMP plan; and notification as required by law to governmental and environmental agencies in the event that a spill or other reportable discharge reaches the surface waters.

The reporting system should designate the avenues of reporting and the responsible company and government officials to whom the incidents would be reported. A list of names, office telephone numbers, and residence telephone numbers of key employees in the order of

responsibility should be utilized when necessary for immediate reporting of BMP incidents to plant management for implementation of emergency response plans.

A communications system should be designated and available for notification of an impending or actual BMP incident. Reliable communications with the person or persons directly responsible would expedite immediate action and countermeasures to prevent incidents or to contain and mitigate discharged chemicals. Such a communication system could include telephone or radio contact between transfer operations, and alarm systems that would signal the location of an incident. Provisions to maintain communications in the event of a power failure should be addressed.

Written reports on all BMP incidents should be submitted to the plant's BMP Committee and plant management for review. Written reports should include the date and time of the discharge, weather conditions, nature of the materials involved, duration, volume, cause, environmental problems, countermeasures taken, people and agencies notified, and recommended revisions, as appropriate, to the BMP plan, operating procedures, and/or equipment to prevent recurrence.

Procedures and key data should be outlined for necessary reporting of BMP incidents to federal, state, and local regulatory authorities. In some circumstances, voluntary reporting to authorities such as municipal sewage treatment works, drinking water treatment plants, and fish and wildlife commissions may be desirable. The plant individuals responsible for notification should be listed. Pertinent telephone numbers should be listed for those individuals in the plant and those in the agencies to be notified. The phone numbers should be reviewed periodically for accuracy and might actually be used in the course of a "spill drill."

Elements of "Reporting of BMP Incidents," listed below, should be considered in developing a BMP plan:

- Maintenance of records of incidents through formal reports for internal review
- Notification as required by law to governmental and environmental agencies should an incident occur
- Procedures for notifying the appropriate plant personnel and taking preventive or mitigating actions
- Identification of responsible company and government officials

- A list of names, office telephone extensions, and residence telephone numbers of key personnel
- A communications system for reporting incidents in-plant (i.e., telephone, alarms, radio, etc.).

#### **4. *Materials Compatibility***

Incompatibility of materials can cause equipment failure resulting from corrosion, fire, or explosion. Equipment failure can be prevented by ensuring that the materials of construction for containers handling hazardous substances or toxic pollutants are compatible with the containers' contents and surrounding environment.

Materials compatibility encompasses three aspects: compatibility of the chemicals being handled with the materials of construction of the container; compatibility of different chemicals upon mixing in a container; and compatibility of the container with its environment. The specific requirement of materials compatibility in the BMP plan should provide procedures to address these three aspects in the design and operation of the equipment on site handling toxic and hazardous materials.

The BMP documentation on materials compatibility should recognize the engineering practices already used in the plant, and should summarize these existing practices with regard to corrosion and other aspects of material compatibility. Specific consideration should be given to procedures and practices delineating the mixing of chemicals and the prohibition of mixing of incompatible chemicals which might result in fire, explosion, or unusual corrosion. Thorough cleaning of storage vessels and equipment before being used for another chemical should be standard practice to ensure that there is no residual of a chemical that is incompatible with the second, or later, chemical to be used. Coatings or cathodic protection should be considered for protecting a buried pipeline or storage tank from corrosion.

Where applicable, material testing procedures should be described. Proposed substitutions for currently used toxic or hazardous chemicals should be studied to determine whether the construction materials of the existing containers are compatible with the proposed new conditions. The procedures utilized by the plant or an outside contractor to perform the materials compatibility study should be documented. Materials compatibility aspects of waste disposal which are covered by the RCRA hazardous waste regulations should be referenced in the BMP plan.

Elements of "Materials Compatibility," listed below, should be considered in developing a BMP plan:

- Evaluation of process changes or revisions for materials compatibility
- Incorporation of existing engineering practices for materials of construction, corrosion, and other aspects of materials compatibility
- Evaluation of procedures for mixing of chemicals and of possible incompatibility with other chemicals present
- Cleansing of vessels and transfer lines before they are used for another chemical
- Use of proper coatings and cathodic protection on buried pipelines if required to prevent failure due to external corrosion.

### ***5. Good Housekeeping***

Good housekeeping is essentially the maintenance of a clean, orderly work environment and contributes to the overall facility pollution control effort. Periodic training of employees on housekeeping techniques for those plant areas where the potential exists for BMP incidents reduces the possibility of incidents caused by mishandling of chemicals or equipment.

Examples of good housekeeping include neat and orderly storage of bags, drums, and piles of chemicals; prompt cleanup of spilled liquids to prevent significant runoff to navigable waters, sweeping, vacuuming, or other cleanup of accumulations of dry chemicals as necessary to prevent them from reaching receiving waters; and provisions for storage of containers or drums to keep them from protruding into open walkways or pathways.

Maintaining employee interest in good housekeeping is a vital part of the BMP plan. Methods for maintaining good housekeeping goals could include housekeeping inspections by supervisors and higher management; discussions of housekeeping at meetings; and publicity through posters, suggestion boxes, bulletin boards, slogans, incentive programs, and employee publications.

Elements of "Good Housekeeping," listed below, should be considered in developing a BMP plan:

- Neat and orderly storage of chemicals
- Prompt removal of spillage
- Maintenance of dry and clean floors by use of brooms, vacuum cleaners, etc.

- Proper pathways and walkways and no containers and drums that protrude onto walkways
- Minimum accumulation of liquid and solid chemicals on the ground or floor
- Stimulation of employee interest in good housekeeping.

## **6. Preventive Maintenance**

An effective preventive maintenance (PM) program is important to prevent BMP incidents. A PM program involves inspection and testing of plant equipment and systems to uncover conditions which could cause breakdowns or failures with resultant significant discharges of chemicals to receiving waters. The program should prevent breakdowns and failures by adjustment, repair, or replacement of items. A PM program should include a suitable records system for scheduling tests and inspections, recording test results, and facilitating corrective action. Most plants have existing PM programs which provide a degree of environmental protection. It is not the intent of the BMP plan to require development of a redundant PM program. Instead, the objective is to have qualified plant personnel (e.g., BMP Committee, maintenance foreman, environmental engineer) evaluate the existing plant PM program and recommend to management those changes, if any, needed to address BMP requirements.

A good PM program should include the following: (1) identification of equipment or systems to which the PM program should apply (2) periodic inspections or tests of identified equipment and systems; (3) appropriate adjustment, repair, or replacement of items; and (4) maintenance of complete PM records on the applicable equipment and systems.

The BMP plan documentation on PM may include a list of procedures, examples of recordkeeping, a list of the principal systems to which the PM program is applicable, and directions for obtaining the records for any particular system included or referenced in the BMP plan. In general, it will be adequate to reference in the BMP plan the scope and location of existing PM procedures and records applicable to the PM specific requirements.

Elements of "Preventive Maintenance," listed below, should be considered in developing a BMP plan:

- Identification of equipment and systems to which the PM program should apply
- Periodic inspections of identified equipment and systems
- Periodic testing of such equipment and systems

- Appropriate adjustment, repair, or replacement of parts
- Maintenance of complete PM records on the applicable equipment and systems.

## ***7. Inspections and Records***

The purpose of the inspection and records system is to detect actual or potential BMP incidents. The BMP plan should include written inspection procedures and optimum time intervals between inspections. Records to show the completion date and results of each inspection should be signed by the appropriate supervisor and maintained for a period of three years. A tracking (follow-up) procedure should be instituted to assure that adequate response and corrective action have been taken. The recordkeeping portion of this system can be combined with the existing spill reporting system in the plant.

While plant security and other personnel may frequently and routinely inspect the plant for BMP incidents, these people are not necessarily capable of assessing the potential for such incidents. Thus certain inspections should be assigned to designated qualified individuals, such as maintenance personnel or engineering staff.

The inspection and records system should include those equipment and plant areas identified in the "Risk Identification and Assessment" portion of the BMP plan as having the potential for significant discharges. To determine the inspection frequency and inspection procedures, competent environmental personnel should evaluate the causes of previous incidents, and assess the probable risks for incident occurrence. Furthermore, the nature of chemicals handled, materials of construction, and site-specific factors including age, inspection techniques, and cost effectiveness, should be considered.

Qualified plant personnel should be identified to inspect designated equipment and plant areas. Typical inspections should include examination of pipes, pumps, tanks, supports, foundations, dikes, and drainage ditches. Records should be kept to determine if changes in preventive maintenance or good housekeeping procedures are necessary. Each of the ancillary sources should have "Inspection and Records" programs designed to meet the needs of the particular facility.

Material storage areas for dry chemicals should be inspected for evidence of, or the potential for, windblowing which might result in significant discharges. Liquid storage areas should be inspected for leaks in tanks, for corrosion of tanks, for deterioration of foundations

or supports, and for closure of drain valves in containment facilities. Inspections could include the examination of seams, rivets, nozzle connections, valves, and connecting pipelines. Storage tanks should be inspected for evidence of corrosion, pitting, cracks, abnormalities, and deformation and such evidence should then be evaluated.

For in-plant transfer and materials handling of liquids, inspections should include visual examination for evidence of deterioration of pipelines, pumps, valves, seals, and fittings. The general condition of items such as flange and expansion joints, pipeline supports, locking valves, catch or drip pans, and metal surfaces, also should be assessed.

For loading and unloading operations, inspections during transfer of materials would permit immediate response if an incident occurred. The conditions of pipelines, pumps, valves, and fittings for liquid transfer systems and pneumatic conveying systems used for transferring dry chemicals should be inspected. Inspections (together with monitoring) should be used to ensure that the transfer of material is complete before flexible or fixed transfer lines are disconnected prior to vehicular departure. Before any tank car or tank truck is filled, the lower-most drain valve and all outlets of such vehicles should be closely examined for evidence of leakage and, if necessary, tightened, adjusted, or replaced. Before departure, all tank cars or tank trucks should be closely examined to ensure that all transfer lines are disconnected and that there is no evidence of leakage from any outlet.

For plant runoff, inspections should be used for examining the integrity of the stormwater collection system and the diversion or overflow structures, and for ensuring the drain valves and pumps for diked areas are properly closed. The plant sewer and storm sewer system should be periodically surveyed to ensure that toxic and hazardous pollutants are not discharged in significant amounts. Inspections also should include diked areas to ensure that hazardous and toxic chemicals are not discharged from inside diked areas to waterways. Any liquid, including rainwater, should be examined, and where necessary, analyzed, before being released from the diked areas to a receiving water.

For sludge and hazardous waste disposal sites, visual inspections should include examinations for leaks, seepage, and overflows from land disposal sites such as pits, ponds, lagoons, and landfills. Other procedures and inspection techniques should be considered on a site-specific basis. Any inspections made or records kept to comply with RCRA may be included in the BMP plan by reference.

Elements of "Inspections and Records," listed below, should be considered in developing BMP plan:

- Inspection of:
  - Storage facilities
  - Transfer pipelines
  - Loading and unloading areas
  - Pipes, pumps, valves, and fittings, tank corrosion (internal and external)
  - Windblowing of dry chemicals
  - Tank support or foundation deterioration
  - Seams along drainage ditches and old tanks
  - Deterioration of primary or secondary containment
  - Housekeeping
  - Drain valves on tanks
  - Damage to shipping containers
  - Conveying systems for dry chemicals
  - Integrity of stormwater collection system
  - Leaks, seepage, and overflows from sludge and waste disposal sites.
- Records of all inspections
- Tracking procedures to assure adequate response and corrective actions have been taken when inspections reveal deficiencies.

## **8. Security**

A security system is needed to prevent accidental or intentional entry to a plant which might result in vandalism, theft, sabotage, or other improper or illegal use of plant facilities that could possibly cause as BMP incident. Most plants have security systems to prevent unauthorized entry leading to theft, vandalism, sabotage, and the like. The BMP plan should describe those portions of the existing security system which ensure that the pertinent chemicals are not discharged to receiving waters in significant quantities. Documentation of the security system may require separate filing from the BMP plan documents to prevent unauthorized individuals from gaining access to confidential information.

The BMP Committee, plant security manager, plant engineer, or other qualified plant personnel should evaluate the coverage of the existing security system for those areas of the plant and the equipment identified by the "Risk Identification and Assessment" specific requirement as having the potential for significant discharges. They should recommend to plant management any changes necessary to improve the security system.

Examples of security measures include: routine patrol of the plant by security guards in vehicles or on foot; fencing to prevent intruders from entering the plant site; good lighting; vehicular traffic control; a guardhouse or main entrance gate, where all visitors are required to sign in and obtain a visitor's pass; secure or locked entrances to the plant; locks on certain valves or pump starters; and television surveillance of appropriate plant sites, such as plant entrance, and loading and unloading areas.

Whenever possible, security personnel should be instructed to observe leaks from tanks, valves, or pipelines while patrolling the plant and also be informed of the procedures to follow when a spill or other discharge is detected. Many plants use contractor or plant security personnel who may not be qualified or may not have time to carry out such surveillance. In such cases, the surveillance can be incorporated in the "Inspection and Records" specific requirement and should be conducted by production or environmental staff.

Elements of "Security," listed below, should be considered in developing a BMP plan:

- Routine patrols of plant by security personnel
- Fencing
- Good lighting
- Vehicular traffic control
- Controlled access at guardhouse or main entrance gate
- Visitor passes
- Locked entrances
- Locks on certain drain valves and pump starters
- Television monitoring.

## **9. *Employee Training***

Employee training programs should instill in personnel, at all levels of responsibility, a complete understanding of the BMP plan, the processes and materials with which they are working, the safety hazards, the practices for preventing discharges, and the procedures for responding properly and rapidly to toxic and hazardous materials incidents. Employee training meetings should be conducted at least annually to assure adequate understanding of the objectives of the BMP plan and the individual responsibilities of each employee. Typically, these meetings could be a part of routine employee meetings for safety or fire protection. Such meetings should highlight previous spill events or failures, malfunctioning

equipment components, and recently developed BMP precautionary measures. Training sessions should review the BMP plan and associated procedures. Just as fire drills are used to improve the employee's reaction to a fire emergency, spill or environmental incident drills may serve to improve the employee's reactions to BMP incidents. Plants are encouraged to conduct spill drills on a quarterly or semi-annual basis. Spill drills serve to evaluate the employees' knowledge of BMP-related procedures and are a fundamental part of employee training.

Of particular importance is the strong commitment and periodic input from top management to the employee training program to create the necessary climate of concern for a successful program. A plant manager might accomplish more in a brief, face-to-face, appearance than an elaborate, impersonal training program would accomplish.

Adequate training in a particular job and process operation is essential for understanding potential discharge problems. Knowledge of specific manufacturing operations and how discharges could occur, or have occurred in the past, is important in reducing human error that can lead to BMP incidents.

The training program also should be aimed at making employees aware of the protocol used to report discharges and notifying the people responsible for response so that immediate countermeasures can be initiated. In addition, personnel involved in BMP-incident response would be trained to use cleanup materials such as sorbents, gelling agents, foams, and neutralizing agents. As appropriate, they should be educated in safety precautions, in the side effects of the chemicals they are working with, and in possible chemical reactions. Operating manuals and standard procedures for process operations should include appropriate sections of the BMP plan and the spill control program and should be readily available for reference. Spill response drills, suggestion boxes, posters, and incentive programs, can be used to motivate employees to be alert to the potential for discharges and to their prevention.

The employee training program should include records of the frequency, and names and positions of the employees trained as well as the lesson plans, subject material covered, and instructors' names and positions. BMP-related training may be combined with other forms of training, such as safety and fire prevention at the discretion of the plant.

In addition to permanent personnel, contractors or temporary personnel should be trained in procedures for preventing BMP incidents since these individuals may be unfamiliar with the normal operating procedures or location of equipment (pipelines, tanks, etc.) at the facility. Adequate supervision of contractor maintenance personnel should be provided to minimize the possibility of BMP incidents resulting from damaging equipment such as buried pipelines.

Elements of "Employee Training," listed below, should be considered in developing the BMP plan:

- Meetings held at least annually to assure adequate understanding of program goals and objectives
- Environmental Incident (Spill) drills used at least semiannually
- Periodic input from management
- Adequate training in particular job and process operation and the effect on other operations
- Transmission of knowledge of past incidents and causes
- Making employees aware of BMP plans and incident reporting procedures
- Training in the use of sorbents, gelling agents, foams, and neutralizing agents for cleanup or mitigation of incidents
- Operating manuals and standard procedures
- Making employees aware of health risks of chemicals handled through both the plant's BMP plan and safety program
- Motivating employees concerning incident prevention and control
- Records of the personnel who were trained, and of the dates, instructors, subject matter, and lesson plans of the training sessions
- Training and supervision of contractors and temporary personnel.

**BIBLIOGRAPHY**  
**TECHNICAL GUIDANCE ON BMPs IN THE NPDES PROGRAM**

<b>Form of Guidance</b>	<b>Title</b>	<b>Date</b>
Technical Paper	Best Management Practices for Control of Toxic and Hazardous Materials; Thron, H.M. et al., presented at the 34th Purdue Industrial Waste Conference, Lafayette, Indiana	5/9/79
Report EPA No. 600/9-79-045	NPDES Best Management Practices Guidance Document; Hydrosience Inc., EPA Contract Number 68-03-2568	12/79
Report	NPDES Best Management Practice Guidance Document (Revised); NPDES Technical Support Branch	6/81
Technical Paper	Best Management Practices; Useful Tools for Cleaning Up, Thron, H.M. and Rogoshweski, P.J., presented at the 1982 Hazardous Material Spills Conference, Milwaukee, Wisconsin	4/20/82
Case Histories	NPDES Best Management Practices; Case Histories; JRS Associates, Inc., EPA Contract Number 68-01-5052	1/29/83
Technical Memorandum No. 1	Technical Guidance on Best Management Practices (BMPs) in NPDES Permits; Jordan, J.W. to Regional Permit Branch Chiefs	4/15/83
Technical Memorandum No. 2	Technical Guidance on Best Management Practices (BMPs) in NPDES Permits; Jordan, J.W. to Regional Permit Branch Chiefs	3/23/84
Information Memorandum	Best Management Practices (BMPs) in NPDES Permits; Grubs, Geoffrey to Regional Permit Branch Chiefs	6/3/85
Information Memorandum	Best Management Practices (BMPs) in NPDES Permits; Gallup, James to Regional Permit Branch Chiefs	8/29/86
Information Memorandum	Best Management Practices (BMPs) in NPDES Permits; Gallup, James to Regional Permit Branch Chiefs	8/11/87
Information Memorandum	Best Management Practices (BMPs) in NPDES Permits; Gallup, James to Regional Permit Branch Chiefs	8/19/88

BEST MANAGEMENT PRACTICES CONDITIONS

A. General Conditions

1. BMP Plan

For purposes of this part, the terms "pollutant" or "pollutants" refer to any substance listed as toxic under Section 307(a)(1) of the Clean Water Act, oil, as defined in Section 311(a)(1) of the Act, and any substance listed as hazardous under Section 311 of the Act. The permittee shall develop and implement a Best Management Practices (BMP) plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas, to the waters of the United States through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Implementation

The plan for General Conditions shall be developed within 12 months of the effective date of this permit. An approval plan for General Conditions shall be implemented within 24 months of the effective permit date. Specific Conditions of this plan shall be implemented within 24 months of the effective permit date.

3. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings or maps.
- b. Establish specific objectives for the control of pollutants.
  - (1) Each facility component or system shall be examined for its potential for causing a release of significant amount of pollutants to waters of the United States due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
  - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow and total quantity of pollutants which could be discharged from the facility as a result of each condition of circumstance.
- c. Establish specific best management practices to meet the objectives identified under paragraph b of this section,

addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the United States, and identifying specific preventative or remedial measures to be implemented.

d. Include any special conditions established in Section B of this Part.

e. Be reviewed by plant engineering staff and the plant manager.

4. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available to the permit issuing authority upon request.

5. BMP Plan Modification

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.

6. Modification for Ineffectiveness

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of significant amounts of pollutants to surface waters and the specific objectives and requirements under paragraphs b and c of Section 3, the permit and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements.

B. Specific Conditions

The following Specific Conditions shall be implemented within 12 months of the effective date of the permit.

1. Measures shall be taken to control potential discharges at the following sites:

- |                          |  |
|--------------------------|--|
| Building 1341            | - Provide containment for freon and hydrochloric acid tanks  |
| Incinerator              | - Direct quench recycle overflow to a treatment facility   |
| Building 1329            | - Control spills at the acid cleaning facility   |
| St. Juliens Building 332 | - Control spills from drummed liquids. Implement controls to ensure proper operation of the oil transfer valve (PIV) |



## PRACTICAL EXERCISE

### Best Management Practices (BMPs)

- (1) What are the two basic ways that BMPs appear in NPDES permits?  
(a) \_\_\_\_\_  
(b) \_\_\_\_\_
- (2) What is the legal authority for imposing BMPs in permits considering the fact that no BMPs have been promulgated for specific industries pursuant to Section 304(e) of the Clean Water Act? \_\_\_\_\_
- (3) GIVEN THE FOLLOWING SITUATION:

Luster Glass Inc. manufactures auto tempered and laminated glass in Morris, Illinois. A recent compliance inspection revealed storage tank number 42 containing 12,000 gallons of gasoline was leaking into the Illinois River. The State compliance inspector, I. M. Curious, also noticed generally poor housekeeping at Luster, including retired pumps and miscellaneous pipes and fittings scattered throughout the plant area, unidentified solid and liquid spills on roadways and a storage area near the stream bank consisting of about fifty, 55 gallon drums in various positions and states of deterioration. When questioned about the nature and contents of the drums by the State compliance inspector, the Luster plant manager, Wood U. Leave, replied, "They're some old supplies we discontinued... some contain...nitric acid or some other acid...(cough cough)... how about some lunch Mr. Curious?" As he was abruptly spun 180 degrees by Mr. Leave, Mr. Curious managed to scribble a note at the bottom of his inspection report "may be a candidate for BMPs in reissued permit."

#### DETERMINE:

You are the permit writer assigned to draft Luster Glass Inc.'s NPDES permit. After reading the compliance inspection report, you sketch your approach for using BMPs in the reissued permit:

BMP Plan - Conditions at the facility, especially poor housekeeping, warrant a BMP plan to be developed within six months and implemented within twelve months of permit reissuance. The BMP Plan should address each of the nine specific requirements described in the June 1981 NPDES BMP Guidance Document with emphasis on \_\_\_\_\_

#### Site-Specific BMPs

- (1) Tank Number 42: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- (2) Drum Storage Area: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# **POLLUTION PREVENTION**

## **LEARNING OBJECTIVES**

- **Orientation to Pollution Prevention**
- **Implementation**
- **Tools and Resources**

**NOTES:**

## **HIERARCHY OF ENVIRONMENTAL PROTECTION PRACTICES**

- **Source reduction**
- **Environmentally sound reuse and recycling**
- **Treatment**
- **Disposal**

**NOTES:**

## **POLLUTION PREVENTION ACT 1990**

**"Source reduction means any practice which reduces the amount of any hazardous substance, pollutant or contaminant entering any waste stream or released into the environment prior to recycling, treatment or disposal . . . "**

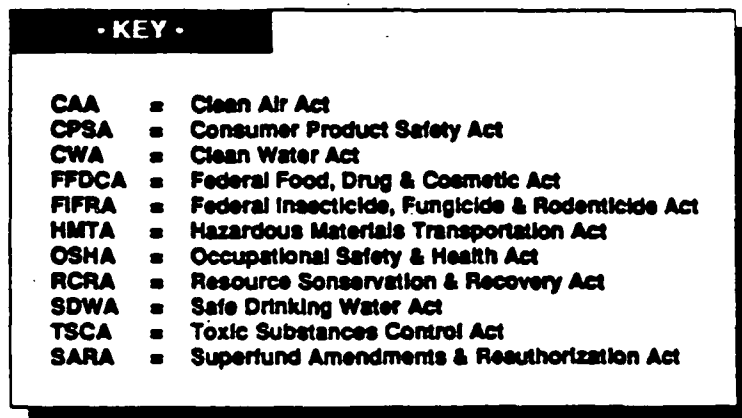
## **EPA POLICY STATEMENT**

**Pollution prevention is the**

**"Use of processes, practices, or products that reduce or eliminate the generation of pollutants and wastes, including those that protect natural resources through conservation or more efficient utilization."**

**NOTES:**

**← SARA → SARA →**



## **POLLUTION PREVENTION OPPORTUNITIES IN THE NPDES PERMITTING PROCESS**

- **Application review**
- **Site visit**
- **BMP plan requirement**
- **Monitoring conditions**

**NOTES:**

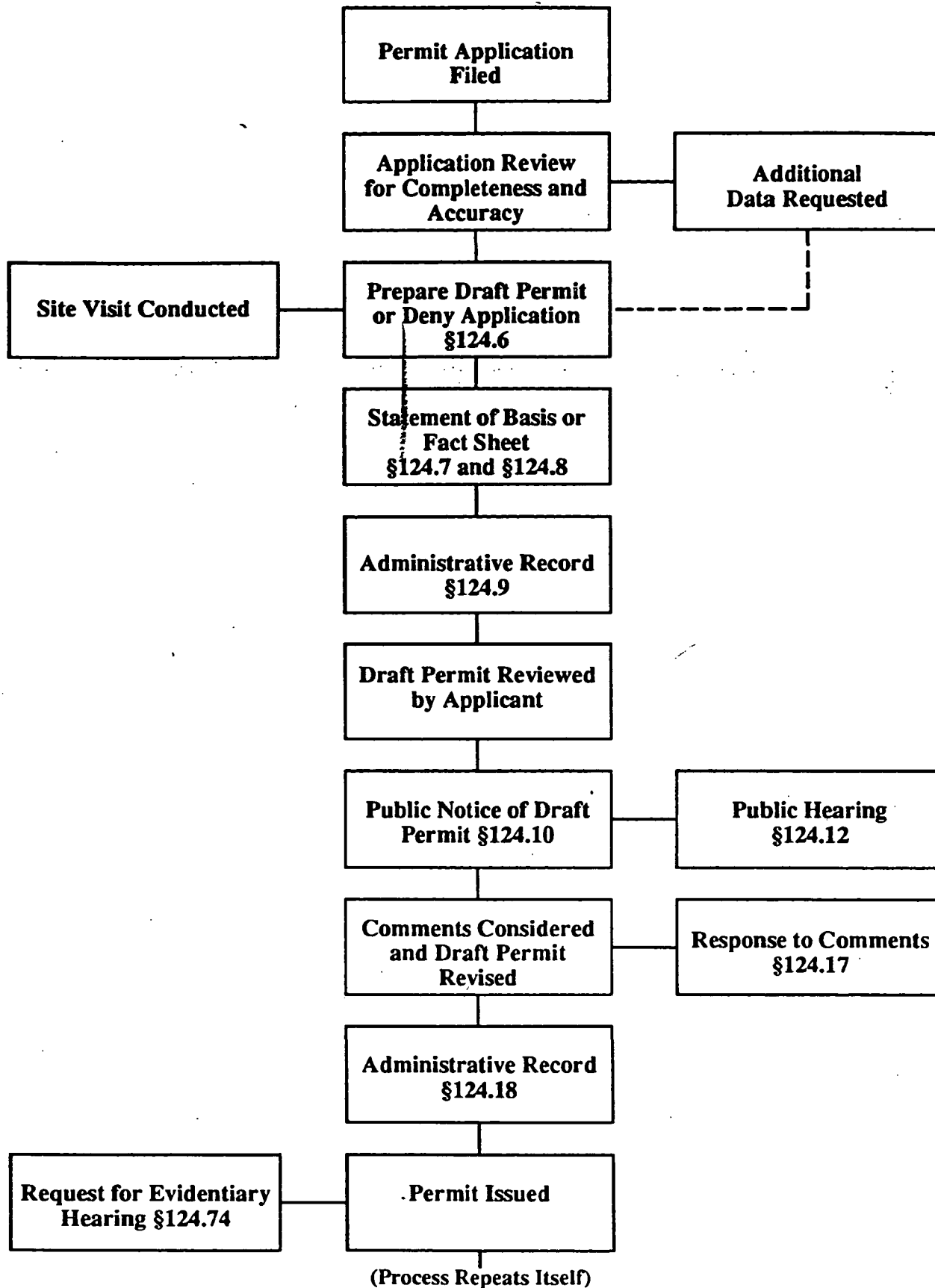
# **PERMIT ISSUANCE PROCEDURES**

## **LEARNING OBJECTIVES**

- **The permit issuance process**
- **Documenting development of the permit**
- **EPA/State coordination**
- **Public participation**
- **Permit appeals**
- **Modification/termination**

**NOTES:**

## COMMON ELEMENTS OF THE ISSUANCE PROCESS



## **REASONS FOR GOOD DOCUMENTATION**

- **Streamlines reissuance/compliance-monitoring process**
- **Permanent record of the basis for the permit**
- **Explanation of basis of permit for public, management, permittee, and attorneys, if appealed**
- **Provide sound basis for modifications and future permits**
- **Requires permit writer to be organized and logical, resulting in better permits**

## **CHARACTERISTICS OF A GOOD FACT SHEET**

- **Identify party being permitted**
- **Bring forward background and history of permit**
- **Develop rationale for all pertinent permit decisions**
- **Display all calculations and document sources of data**
- **Keep accessible to permitting authority personnel and the public**

**NOTES:**

## **MINIMUM ELEMENTS OF A FACT SHEET**

### **§124.8(b)**

- **Description of facility or activity**
- **Type and quantity of wastes/pollutants**
- **Basis of the draft permit**
  - **Statutory/regulatory citations**
  - **References to administrative record**
- **Basis of effluent limitations and conditions**
- **Specific explanation of**
  - **Toxic pollutant limits**
  - **Limits on internal wastestreams**
  - **Case-by-case requirements**
  - **Limits on indicator pollutants**
  - **Regulation of users**
- **Sketch or description of location**
- **State certification**
- **Sewage sludge land application plan**
- **Inappropriateness of requested variances**
- **Permit procedures**
  - **Comment period begin and end dates**
  - **Procedures for requesting a hearing**
  - **Public involvement in final decision**
- **Contact name and telephone**

## **CONTENTS OF ADMINISTRATIVE RECORD §124.9**

- **Application and supporting data**
- **Draft permit**
- **Statement of basis or fact sheet**
- **Documents/items cited in statement of basis or fact sheet**
- **Other items supporting permit development**
- **EIS for new source draft permits**

**NOTES:**

EXAMPLE

CONTENTS OF THE ADMINISTRATIVE RECORD

A brief explanation follows of the express statutory or regulatory provision on which permit requirements are based, including appropriate supporting references to the Administrative Record required by 40 CFR S124.9:

The following items are used to establish the basis of the draft permit:

- (1) NPDES Permit No. LA0002933, effective date 2/17/80, expiration date 3/31/81.
- (2) Consolidated Permit Application Forms No. 1 and 20 received 4/3/82.
- (3) Louisiana Water Quality Criteria, LSCC, 1977.
- (4) Louisiana Water Quality Management Plan, Department of Natural Resources, including Appendix D (Ponchartrain Basin) and Appendix F (Mississippi River), Phase II, Vols. I.
- (5) 40 CFR Part 415 Subpart F, [47 FR 28260, 6/29/83].
- (6) 40 CFR Part 415.65(b) [39 FR 9616, 3/12/74].
- (7) Letter White (EPA) to Vlacos (Vulcan) dated 3/29/76.
- (8) Letter White (EPA) to Campbell (Vulcan) Dated 6/9/76.
- (9) ROC Hale (EPA) to Leonard (Vulcan) dated 11/10/76.
- (10) 40 CFR Part 122.29 (d)(1) [48 FR 14146, 4/1/83].
- (11) Letters Gordon (Vulcan) to McHam (EPA) dated 5/17/82 and 7/19/82.
- (12) 40 CFR Part 401.17, 6/4/82.
- (13) Letters Gordon (Vulcan) to Hale (EPA) dated 1/30/81.
- (14) Discharge Monitoring Reports 1980-1982.
- (15) 40 CFR Part 122.62(a)(3) [48 FR 14146, 4/1/83].
- (16) 40 CFR Part 122.44(1)(2)(1) [48 FR 14146, 4/1/83].
- (17) 40 CFR Part 415.65(b) [47 FR 28260, 6/29/82].
- (18) 40 CFR Part 415.62(b) [47 FR 28260, 6/29/82].
- (19) Final Development Document for Inorganic Chemicals, EPA 440/1-82/007, June 1982.
- (20) Letter Gordon (Vulcan) to Ferguson (EPA) dated 10/30/79.
- (21) 40 CFR Part 125.3(a)(2)(v) [44 FR 32948, 6/7/89, as amended at 45 FR 33512, 5/19/80].
- (22) 40 CFR part 415.63(b) [47 FR 28260, 6/29/82].
- (23) 40 CFR Part 122.29(d)(2) [48 FR 14146, 4/1/83].
- (24) 40 CFR Part 141.12 [40 FR 59570, 12/24/75, as amended at 44 FR 68641, 11/29/79.
- (25) Preamble to Inorganic Chemical Effluent Limitations Guidelines 47 FR 28263, 6/29/82, Column 3].
- (26) ROC McHam (EPA) to Gordon (Vulcan) dated 5/25/83.
- (27) EPA Treatability Manual, EPA 600/2-82/001, September 1982 (Revised).
- (28) Work Book for Determining Economic Achievability for NPDES Permits: prepared for Hap Thron, Permits Division; prepared by Putnam, Hayes & Bartlett, Inc.. August 1982.
- (29) Moody's Industrial Manual 1982, pp. 4602-4605
- (30) C E Plant Cost Index, Chemical Engineering Magazine, 6/13/83, page 7.

## **PUBLIC NOTICE**

### **§124.10**

- **Purpose of public notice**
- **Types of actions requiring public notice**
  - **Tentative denial of application**
  - **Draft NPDES permit**
  - **Public hearing**
  - **Formal appeal of permit**
  - **Major program modifications**
  - **Granting of evidentiary hearing**
- **Methods applicable to public notice process**
  - **Publication in newspaper**
  - **Direct mailing**
- **Contents of public notice**
  - **Name and address of regulatory authority**
  - **Name and address of permittee**
  - **Brief description of facility**
  - **Name, address, and telephone number of contact**
  - **Additional information (EPA-issued permits)**
- **Timing of public notice**
  - **After EPA/State review**
  - **EPA/State MOA should address**
- **Significant comments must be responded to in writing**
- **Public hearing is always optional**

**NOTES:**

## **EPA REVIEW OF STATE PERMITS**

### **§123.24(d)**

**EPA may not waive review of:**

- **Major municipal and industrials**
- **General permits**
- **Class I sludge facilities**
- **Other (minor) permits which:**
  - **Discharge to territorial seas**
  - **Affect another State's waters**
  - **Cooling water discharges > 500 MGD**
  - **Process discharges >0.5 MGD**
  - **Primary industry categories**

## **CONTENTS OF ADMINISTRATIVE RECORD -**

### **FINAL PERMIT**

### **§124.18**

- **All comments received**
- **Public hearing tape or transcript**
- **Response to comments**
- **Final EIS for new sources**
- **Final permit**

**NOTES:**

# **EXAMPLE FACT SHEET**

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT  
FACT SHEET

Permittee Name: Luster Glass, Inc.

NPDES Permit  
Number: IL0654321

Mailing Address: P.O. Box 319  
Morris, IL 60123

Location: 1 River Ridge Drive  
Morris, IL 60123

Contact Person: Mr. John Baker, Vice President

Telephone: (312) 834-4536

**I. Status of Permit**

NPDES Permit No. IL0654321 was issued on August 5, 1984, became effective on August 31, 1984, and expired on August 31, 1989. The permittee submitted an NPDES permit application for the renewal of the permit on March 1, 1989.

**II. Facility Description**

Luster Glass Inc. operates a manufacturing facility in Morris, IL. The facility specializes in manufacturing auto glass. On average, 40,000 sq. ft./day of auto tempered glass, and 275,000 sq. ft./day of auto laminated glass is produced at the facility.

**III. Description of Discharge**

All wastewater generated at this facility is discharged through Outfall 001 to the Illinois River. The primary waste streams discharged through Outfall 001 are process and rinse waters from the glass manufacturing processes and cooling tower blowdown. The glass manufacturing process wastewaters from auto glass tempering (cutting, grinding, polishing edges, bending, and tempering) and auto glass lamination (cutting, bending, washing, and laminating) are routed through a wastewater treatment system consisting of oil and water separators and settling basins. The cooling tower blowdown is not treated prior to discharge.

**IV. Receiving Water**

The receiving water for Outfall 001 is the Illinois River, Segment 16 of the Northern Illinois River Basin. Downstream of the facility, the Illinois River flows approximately 3 miles to Segment 15 of the Northern Illinois River Basin. Following is a summary of flow data for Segment 16 of the Illinois River:

Average Flow - 446.7 cfs  
Harmonic Mean Flow - 245.5 cfs  
7Q10 - 70.9 cfs  
1Q10 - 58.8 cfs

The use designations for the Illinois River are given below:

Indigenous Aquatic Life

The applicable water quality standards to protect these uses are specified the State Water Pollution Control Rules in Part 302 (State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, Chapter 1; adopted March 17, 1989). The effluent standards are found in Part 304.

V. Description of Discharge

a. Permit Application Summary

The following table summarizes the discharge characteristics of Outfall 001 as reported in the NPDES permit application dated March 1, 1989:

<u>Parameter</u>	<u>Long-Term Average</u>	<u>Daily Maximum</u>
Flow (MGD)	4.563	4.591
TSS (mg/l)	18.8	50.0
COD (mg/l)	ND	50.0
pH (S.U.)	6.6 min.	9.0 max.
Oil & Grease (mg/l)	12	22
Phosphorus (lbs/day)	19	29
Zinc (mg/l)	0.036	0.07
Lead (mg/l)	0.025	0.047

Note: Only data for parameters reported above detection limits are shown above.

b. Discharge Monitoring Report (DMR) Data

A summary of DMR data is given in Table 1. This data was taken from March 1988 through February 1989.

Whole Effluent Toxicity (WET) testing performed during the last year of the permit term (March 1988 to February 1989) demonstrated acute toxicity at Outfall 001. Test results indicated a fathead minnow LC50 of 8 percent and a Ceriodaphnia LC50 of 15.8 percent. Chronic Toxicity tests also demonstrated toxicity at Outfall 001. Chronic toxicity test results indicated a fathead minnow NOEC of 1.3 percent and a Ceriodaphnia NOEC of 2.7 percent. A summary of WET data for Luster is also presented in Table 1.

## VI. Proposed Technology-Based Effluent Limitations

Regulations promulgated at 40 CFR §122.44(a) require technology-based effluent limitations to be placed in NPDES permits based on National effluent limitations guidelines and standards, best professional judgement (BPJ), or a combination of the two. Discharges from Outfall 001 are subject to effluent limitations given in 40 CFR Part 426 for the Glass Manufacturing Point Source Category, and State effluent and water quality standards.

Limits were developed for Luster Glass Inc. based on an evaluation of the permit application and DMRs. Lead and zinc were detected in significant concentrations in the discharge as reported in DMRs. While the previous permit did not contain limits for lead and zinc, monitoring was required. Thus, technology-based effluent limits were set for zinc found in the cooling tower blowdown. Technology-based limits were also established for lead which is found in the process wastewater, however water quality-based limits were found to be more limiting (see Section VII of this Fact Sheet).

Effluent mass limits for total suspended solids (TSS), phosphorus, and oil and grease are based on the best practicable control technology currently available (BPT) limitations specified for the Automotive Glass Tempering Subcategory in 40 CFR §426.62 and for the Automotive Glass Laminating Subcategory in 40 CFR §426.72. These limitations are shown below:

### Automotive Glass Tempering Subcategory

<u>Pollutant</u>	<u>Effluent Limits</u>	
	<u>Monthly Avg.</u> <u>(lb/1000ft<sup>2</sup>)</u>	<u>Daily Max.</u> <u>(lb/1000ft<sup>2</sup>)</u>
TSS	0.25	0.40
Oil and Grease	0.13	0.13

pH shall be within the range of 6.0 to 9.0 standard units.

### Automotive Glass Laminating Subcategory

<u>Pollutant</u>	<u>Effluent Limits</u>	
	<u>Monthly Avg.</u> <u>(lb/1000ft<sup>2</sup>)</u>	<u>Daily Max.</u> <u>(lb/1000ft<sup>2</sup>)</u>
TSS	0.90	0.90
Oil and Grease	0.36	0.36
Phosphorus	0.22	0.22

pH shall be within the range of 6.0 to 9.0 standard units.

Effluent limitations for oil and grease, TSS, phosphorus, and pH from the process wastewater contribution to Outfall 001 are calculated using the above effluent limits and the production rates of 40,000 square feet per day of tempered glass and 275,000 square feet per day of laminated glass. The TSS effluent limitations for cooling tower blowdown are based on State Effluent Standards for TSS in non-process wastewaters, including cooling tower blowdown. Calculations of the effluent limitations are shown below. It should be noted that both mass and concentration limits will be applied to Outfall 001 for oil and grease, TSS, and phosphorus.

#### Oil and Grease

Mass Limitations (Monthly Average and Daily Maximum)

$$\text{Oil \& Grease} = (40,000 \text{ ft}^2/\text{day (tempered)} \times 0.13 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.36 \text{ lb}/1000 \text{ ft}^2) = 5.2 + 99 = 104.2 \text{ lbs/day}$$

Concentration Limitations - Outfall 001 (Monthly Average and Daily Maximum)

$$\text{Oil \& Grease} = (104.2 \text{ lbs/day}) (454 \text{ g}/1 \text{ lb}) (1000 \text{ mg}/1 \text{ g}) (1 \text{ gal}/3.785 \text{ l}) (1 \text{ day}/4.563 \times 10^6 \text{ gal}) = 2.74 \text{ mg/l}$$

#### TSS

Mass Limitations - Process Wastewater (Monthly Average)

$$\text{TSS} = [(40,000 \text{ ft}^2/\text{day (tempered)} \times 0.25 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.9 \text{ lb}/1000 \text{ ft}^2)]/1000 = 257.5 \text{ lbs/day}$$

Mass Limitations - Process Wastewater (Daily Maximum)

$$\text{TSS} = [(40,000 \text{ ft}^2/\text{day (tempered)} \times 0.4 \text{ lb}/1000 \text{ ft}^2) + (275,000 \text{ ft}^2/\text{day (laminated)} \times 0.9 \text{ lb}/1000 \text{ ft}^2)]/1000 = 263.5 \text{ lbs/day}$$

Mass Limitations - Cooling Tower Blowdown (Monthly Average)

$$\text{TSS} = (25 \text{ mg/l}) (0.45 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) = 93.8 \text{ lbs/day}$$

Mass Limitations - Cooling Tower Blowdown (Daily Maximum)

$$\text{TSS} = (50 \text{ mg/l}) (0.45 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) = 187.6 \text{ lbs/day}$$

Mass Limitations - Outfall 001 (Monthly Average)

$$\text{TSS} = 257.5 \text{ lbs/day} + 93.8 \text{ lbs/day} = 351.3 \text{ lbs/day}$$

Mass Limitations - Outfall 001 (Daily Maximum)

$$\text{TSS} = 263.5 \text{ lbs/day} + 187.6 \text{ lbs/day} = 451.1 \text{ lbs/day}$$

Concentration Limitations - Outfall 001 (Monthly Average)

$$\text{TSS} = (351.3 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \cdot 10^6 \text{ gal}) = 9.23 \text{ mg/l}$$

Concentration Limitations - Outfall 001 (Daily Maximum)

$$\text{TSS} = (451.1 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \cdot 10^6 \text{ gal}) = 11.86 \text{ mg/l}$$

Phosphorus

Mass Limitations - Outfall 001 (Monthly Average and Daily Maximum)

$$\text{Phosphorus} = 275,000 \text{ ft}^2/\text{day} (\text{laminated}) \times 0.06 \text{ lb}/1000 \text{ ft}^2 = 16.5 \text{ lbs/day}$$

Concentration Limitations - Outfall 001 (Monthly Average and Daily Maximum)

$$\text{Phosphorus} = (16.5 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \cdot 10^6 \text{ gal}) = 0.43 \text{ mg/l}$$

pH

pH limits are based on State effluent standards, as follows:

State Effluent Standards

<u>Pollutant/Parameter</u>	<u>Range</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
pH	6.0 - 9.0	N/A	N/A

### Toxic Pollutants

Zinc and lead were detected in the effluent discharge when the previous permit was issued. At that time no limits were set, but a requirement was made to monitor for zinc and lead. Significant concentrations of zinc (used as a corrosion inhibitor in cooling water) and lead (from lead soldering of products) have been found, as reported in DMRS. Therefore, technology-based effluent limitations are being established and will be included in the draft permit.

Technology-based effluent limitations for the toxic pollutant zinc present in the cooling tower blowdown are based on the transfer of the best available technology economically achievable (BAT) limitations specified in the Steam Electric Effluent Guidelines and Standards at 40 CFR §423.13(d)(1). These limitations are shown below:

#### BAT Effluent Limitations

<u>Pollutant</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
Zinc (total)	1.0	1.0

Using the average blowdown flow from the cooling towers (0.45 mgd), monthly average and daily maximum mass limitations are calculated as follows:

$$\text{Zinc} = (1.0 \text{ mg/l}) (0.45 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ = 3.75 \text{ lbs/day}$$

Equivalent end-of-pipe concentration effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), monthly average and daily maximum concentration limitations are calculated as follows:

$$\text{Zinc} = (3.75 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.10 \text{ mg/l}$$

Technology-based effluent limitations for lead found in the process wastewaters are based on transfer of BAT limitations specified in the Metal Finishing Effluent Guidelines and Standards at 40 CFR §433.14(a). These limitations, which are based on the performance of lime precipitation and sedimentation, are shown below.

#### BAT Effluent Limitations

<u>Pollutant</u>	<u>Monthly Avg.</u> <u>(mg/l)</u>	<u>Daily Max.</u> <u>(mg/l)</u>
Lead (total)	0.43	0.69

Due to the potential for dilution of the treated process wastewaters by the cooling tower blowdown wastewaters, both mass and concentration limitations are established. Using the average process flow (4.113 mgd), mass limitations are calculated as follows:

Monthly Average

$$\text{Lead} = (0.43 \text{ mg/l}) (4.113 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ = 14.74 \text{ lbs/day}$$

Daily Maximum

$$\text{Lead} = (0.69 \text{ mg/l}) (4.113 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ = 23.66 \text{ lbs/day}$$

Equivalent end-of-pipe concentration effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), concentration limitations are calculated as follows:

Monthly Average

$$\text{Lead} = (14.74 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.38 \text{ mg/l}$$

Daily Maximum

$$\text{Lead} = (23.66 \text{ lbs/day}) (454,000 \text{ mg/lb}) (1 \text{ gal}/3.785 \text{ l}) (\text{day} / 4.563 \times 10^6 \text{ gal}) \\ = 0.62 \text{ mg/l}$$

VII. Proposed Water Quality-Based Effluent Limitations

The State water quality standards require that point source discharges shall not cause a violation of any applicable water quality standards nor interfere with the attainment or maintenance of that water quality which assures the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife and allows recreational activities in and on the water. In addition, a requirement of the State water quality standards is that no effluent shall, alone or in combination with other sources, cause a violation of any applicable water quality standard.

Temperature

Temperature limits are based on State water quality standards as follows:

State Water Quality Limits

<u>Pollutant/Parameter</u>	<u>Range</u>
Temperature	Not greater than 2.8°C above ambient, or 1.7°C above the following maximum limits: in December through March, 16°C (60°F) and in April through November, 32°C (90°F)

Toxic Pollutants

Based on evaluation of the NPDES permit application and DMR data submitted by Luster Glass Inc., the following pollutants and parameters for which applicable State water quality standards are available are present in Outfall 001: lead and zinc. Based on the fact that no other toxic pollutants are expected to be present in Outfall 001 at significant concentrations, evaluation for compliance with water quality standards will only be performed for lead and zinc.

The State water quality regulations require that water quality standards be achieved under the following critical receiving water flow conditions:

Chronic water quality standards:  
7 day, 10 year return frequency flow (7Q10)

Acute water quality standards:  
One-third (1/3) of the 7Q10 flow

The 7Q10 for the Illinois River is 70.9 cubic feet per second (cfs)

The facility provided a study of the outfall which showed that the outfall quickly achieved complete mixing across the width of the river. Dilution at the edge of the mixing zone can therefore be characterized by the complete mixing equation:

$$C_r = \frac{(C_d)(Q_d) + (C_s)(Q_s)}{(Q_d + Q_s)}$$

where  
 $C_r$  = the receiving water concentration,  
 $C_d$  = the effluent concentration,  
 $Q_d$  = the effluent flow,  
 $C_s$  = the receiving water background concentration, and  
 $Q_s$  = the appropriate receiving water flow.

The receiving water concentrations ( $C_r$ ) expected in the Illinois River are calculated using the equation described above, and the following data:

<u>Pollutant</u>	<u>Effluent Concentration (Cd)* (mg/l)</u>	<u>Receiving Water Concentration (Cs)** (mg/l)</u>
Lead	0.38	0
Zinc	0.21	0.07

\* - Maximum daily concentration reported in the application Form 2C  
\*\* - Source U.S.G.S. STORET

For comparison with acute water quality standards, receiving water concentrations are calculated as follows:

$$\begin{aligned} \text{Cr (lead)} &= [(0.38 \text{ mg/l})(7.06 \text{ cfs}) + (0 \text{ mg/l})(23.6 \text{ cfs})]/(7.06 \text{ cfs} \\ &\quad + 23.6 \text{ cfs}) \\ &= 0.088 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Cr (zinc)} &= [(0.21 \text{ mg/l})(7.06 \text{ cfs}) + (0.07 \text{ mg/l})(23.6 \text{ cfs})]/(7.06 \\ &\quad \text{cfs} + 23.6 \text{ cfs}) \\ &= 0.102 \text{ mg/l} \end{aligned}$$

For comparison with chronic water quality standards, receiving water concentrations are calculated as follows:

$$\begin{aligned} \text{Cr (lead)} &= [(0.38 \text{ mg/l})(7.06 \text{ cfs}) + (0 \text{ mg/l})(70.9 \text{ cfs})]/(7.06 \text{ cfs} \\ &\quad + 70.9 \text{ cfs}) \\ &= 0.034 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Cr (zinc)} &= [(0.21 \text{ mg/l})(7.06 \text{ cfs}) + (0.07 \text{ mg/l})(70.9 \text{ cfs})]/(7.06 \\ &\quad \text{cfs} + 70.9 \text{ cfs}) \\ &= 0.083 \text{ mg/l} \end{aligned}$$

The following table compares each receiving water concentration calculated above with the State Water Quality Standard for aquatic life protection:

<u>Pollutant</u>	<u>State Standard (µg/l)</u>	<u>Receiving Water Concentration (µg/l)</u>
<u>Zinc</u>		
Chronic	110	83
Acute	120	102
<u>Lead</u>		
Chronic	3.2	34
Acute	82	88

Since the calculated receiving water concentrations are less than the criterion for zinc and greater than the criterion for lead, water quality limits will be necessary for lead, but not for zinc. It should be noted that the procedure used above does not account for the variability of the pollutant concentrations in the effluent. The EPA Technical Support Document for Water Quality-based Toxics Control recommends accounting for this variability by calculating the reasonable potential for pollutants to cause exceedances of water quality standards. Specifically, the reasonable potential is calculated using the maximum expected effluent concentration, which is estimated by using a multiplication factor (F) that incorporates both the coefficient of variation (CV) and the number of effluent samples collected. If this methodology were used with the existing data for Luster Glass, Inc., there would be a reasonable potential for the concentration of zinc in the discharge to exceed both the acute and chronic water quality standards, and thus water quality permit limits will also be calculated for zinc.

The following equation is used to calculate the effluent concentrations [which is commonly referred to as the waste load allocation (WLA)] for lead and zinc that will ensure protection of the State water quality standard.

$$Cd = WLA = \frac{Cr (Qd + Qs) - (Cs)(Qs)}{Qd}$$

where

- Cd = WLA = waste load allocation
- Cr = the applicable water quality standard
- Qd = the effluent flow = 7.06 cfs
- Qs = the appropriate receiving water flow
- Cs = the receiving water background concentration

Based on the following information, the waste load allocations for lead and zinc are calculated.

<u>Pollutant</u>	<u>Cr = Acute State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.082 mg/l	0 mg/l
Zinc	0.12 mg/l	0.07 mg/l

<u>Pollutant</u>	<u>Cr = Chronic State Water Quality Standard</u>	<u>Cs = Upstream Concentration</u>
Lead	0.0032 mg/l	0 mg/l
Zinc	0.11 mg/l	0.07 mg/l

$$\begin{aligned} \text{Lead (acute) Cd} &= [(0.082 \text{ mg/l})(7.06 \text{ cfs} + 23.6 \text{ cfs}) - (0 \\ &\quad \text{mg/l})(23.6 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.36 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Lead (chronic) Cd} &= [(0.0032 \text{ mg/l})(7.06 \text{ cfs} + 70.9 \text{ cfs}) - (0 \\ &\quad \text{mg/l})(70.9 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.04 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Zinc (acute) Cd} &= [(0.12 \text{ mg/l})(7.06 \text{ cfs} + 23.6 \text{ cfs}) - (0.07 \\ &\quad \text{mg/l})(23.6 \text{ cfs})] / 7.06 \text{ cfs} \\ &= 0.29 \text{ mg/l} \end{aligned}$$

$$\begin{aligned} \text{Zinc (chronic) Cd} &= [(0.11 \text{ mg/l})(7.06 \text{ cfs} + 70.9 \text{ cfs}) - (0.07 \\ &\quad \text{mg/l})(70.9 \text{ cfs})] / 7.06 \text{ cfs} = 0.51 \text{ mg/l} \end{aligned}$$

Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), a maximum daily limitation (MDL) and a average monthly limitation (AML) for lead and zinc are calculated using the waste load allocations calculated above. It should be noted that the ratio of daily maximum to monthly average for the technology-based effluent limitations for lead and zinc are used to derive the MDL and AML. Specifically, these ratios are 1.6 for lead and 1.0 for zinc.

Lead - Since the chronic WLA is more limiting than the acute WLA (i.e., 0.04 mg/l < 0.36 mg/l), it will be used as the basis for limitations. Since the chronic WLA can never be exceeded, 0.04 mg/l is used as the MDL. The AML is calculated as follows:

$$\begin{aligned} &0.04 \text{ mg/l} \\ &\underline{\quad 1.6 \quad} = 0.03 \text{ mg/l} \end{aligned}$$

Zinc - Since the acute WLA is more limiting than the chronic WLA (i.e., 0.29 mg/l < 0.51 mg/l), it will be used as the basis for limitations. Since the acute WLA can never be exceeded, 0.029 mg/l is used as the MDL. The AML is calculated as follows:

$$\begin{aligned} &0.29 \text{ mg/l} \\ &\underline{\quad 1.0 \quad} = 0.29 \text{ mg/l} \end{aligned}$$

Comparing the chemical specific water quality-based limits calculated above with the technology-based effluent limitations calculated for Outfall 001 (see Section VI above), the water quality-based limits for lead are more stringent than the technology-based limits, so they will be used as the basis for effluent limits in the permit. Since the technology-based effluent limits for zinc are more stringent than the water quality-based

limits, the technology-based effluent limits will be used.

Equivalent end-of-pipe mass effluent limitations are also being established in the draft permit. Using the total Outfall 001 flow (4.563 mgd), mass limitations for lead are calculated as follows:

$$\begin{aligned}\text{MDL} &= (0.04 \text{ mg/l}) (4.563 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ &= 1.52 \text{ lbs/day}\end{aligned}$$

$$\begin{aligned}\text{AML} &= (0.03 \text{ mg/l}) (4.563 \times 10^6 \text{ gal/day}) (1 \text{ lb}/454,000 \text{ mg}) (3.785 \text{ l/gal}) \\ &= 1.14 \text{ lbs/day}\end{aligned}$$

#### Whole Effluent Toxicity

The previous NPDES permit issued to the Luster Glass facility contained a requirement for conducting monthly acute and chronic toxicity tests during the fourth and fifth year of the permit (March 1988 through February 1989). The test species selected by the facility was the fathead minnow, based on an initial comparison of species sensitivity performed in February 1988. The results of these toxicity tests were reviewed to determine whether an effluent limit on toxicity should be developed for the permit.

The concentration of acute and chronic toxicity in the receiving water is calculated and is then compared to the State water quality standards. The receiving water concentrations for acute and chronic toxicity were calculated using the following formula:

$$Cr = \frac{(Cd)(Qd) + (Cs)(Qs)}{(Qd + Qs)}$$

Where

- Cr = receiving water concentration
- Cd = effluent concentration
- Qd = effluent flow
- Cs = receiving water background concentration
- Qs = appropriate receiving water flow

The following summarizes the toxicity data submitted by Luster Glass for the period from March 1988 to February 1989:

Toxicity Data (Fathead minnows)

LC <sub>50</sub> (% effluent)	NOEC (% effluent)
58.0	50
25.2	3
55.0	10
46.3	30
44.8	25
5.9	1
67.8	10
3.9	1
50.1	30
52.0	10
32.1	3
41.7	30

All toxicity testing by Luster Glass involved the use of upstream ambient water for the control and diluent, so that in all calculations, the upstream toxicity is assumed to be zero. The highest result of chronic toxicity measured was an NOEC equal to 1% effluent. By dividing 1 into 100, the NOEC is converted to chronic Toxic Units (TU<sub>c</sub>). Similarly for acute toxicity, the highest acute toxicity was measured at an LC<sub>50</sub> equal to 3.9 % which converts to 25.6 TU<sub>a</sub>.

The resultant receiving water concentration (Cr) in toxic units for both acute and chronic toxicity are calculated using the following data:

Cs = 0  
Qs = 23.6 cfs (one third the 7Q10 for acute protection)  
Qs = 70.9 cfs (the 7Q10 for chronic protection)  
Qd = 7.06 cfs

Acute

$$\begin{aligned} Cr &= (25.6 \text{ TU}_a) (7.06 \text{ cfs}) / (7.06 \text{ cfs} + 23.6 \text{ cfs}) \\ &= 5.9 \text{ TU}_a \end{aligned}$$

Chronic

$$\begin{aligned} Cr &= (100 \text{ TU}_c) (7.06 \text{ cfs}) / (7.06 \text{ cfs} + 70.9 \text{ cfs}) \\ &= 9.1 \text{ TU}_c \end{aligned}$$

The State water quality standards for acute and chronic protection are summarized below:

State Water Quality Standard for Acute Protection = 0.3 TU<sub>c</sub>  
State Water Quality Standard for Chronic Protection = 1.0 TU<sub>c</sub>

WET limits would be necessary since the calculated receiving water concentrations exceed the state water quality standards for both acute and chronic protection:

For acute protection 5.9 TU<sub>c</sub> > 0.3 TU<sub>c</sub>  
For chronic protection 9.1 TU<sub>c</sub> > 1.0 TU<sub>c</sub>

Using steady state assumptions, the WLAs were calculated using the following formula:

$$Cd = [Cr(Qd + Qs) - (Cs)(Qs)] / Qd$$

where:

Cd = Concentration of the pollutant in the discharge, or waste load allocation  
Cr = State Water Quality Standard  
for chronic protection = 1.0 TU<sub>c</sub>  
for acute protection = 0.3 TU<sub>c</sub>  
Qd = Discharge flow = 7.06 cfs  
Qs = Appropriate receiving water flow  
chronic flow (7Q10) = 70.9 cfs  
acute flow = 23.6 cfs  
Cs = Receiving water or upstream concentration = 0

Assuming zero background toxicity, the limits are calculated as follows:

$$\begin{aligned} \text{WLA (acute)} &= [(0.3 \text{ TU}_c)(7.06 \text{ cfs} + 23.6 \text{ cfs})] - [(0)(23.6 \text{ cfs})] \\ &\quad \underline{\hspace{10em}} \\ &\quad \quad \quad 7.06 \text{ cfs} \\ &= 1.3 \text{ TU}_c \end{aligned}$$

$$\begin{aligned} \text{WLA (chronic)} &= [(1.0 \text{ TU}_c)(7.06 \text{ cfs} + 70.9 \text{ cfs})] - [(0)(70.9 \text{ cfs})] \\ &\quad \underline{\hspace{10em}} \\ &\quad \quad \quad 7.06 \text{ cfs} \\ &= 11.0 \text{ TU}_c \end{aligned}$$

An acute to chronic ratio (ACR) was calculated from the toxicity data by taking the average ACR from each data set as follows:

<u>LC<sub>50</sub></u> <u>(% effluent)</u>	<u>NOEC</u> <u>(% effluent)</u>	<u>ACR</u>
58.0	50	1.16
25.2	3	8.40
55.0	10	5.50
46.3	30	1.54
44.8	25	1.79
5.9	1	5.9
67.8	10	6.78
3.9	1	3.9
50.1	30	1.67
52.0	10	5.20
32.1	3	10.7
41.7	30	<u>1.39</u>
	Average	4.5

The acute WLA (in TU<sub>a</sub>) are converted to TU<sub>c</sub> using the acute to chronic ratio (ACR) as follows:

$$\begin{aligned}
 \text{WLA (in TU}_{a,c}\text{)} &= 1.3 \text{ TU}_a * \text{ACR} \\
 &= 1.3 \text{ TU}_a * 4.5 \\
 &= 5.9 \text{ TU}_{a,c}
 \end{aligned}$$

Given that all State water quality standards are expressed as never to be exceeded (i.e., water quality-based limits must be protective of the most stringent waste load allocation), a maximum daily limitation (MDL) and a average monthly limitation (AML) for WET were calculated using the waste load allocations calculated above. A ratio of daily maximum to monthly average of 1.6 is assumed for WET based upon technology-based effluent limits for lead.

Since the acute WLA is more limiting than the chronic WLA (i.e.,  $5.9 \text{ TU}_{a,c} < 11.0 \text{ TU}_c$ ), it will be used as the basis for limitations. Since the acute WLA can never be exceeded,  $5.9 \text{ TU}_{a,c}$  is used as the MDL. The AML is calculated as follows:

$$\frac{5.9 \text{ TU}_{a,c}}{1.6} = 3.7 \text{ TU}_c$$

The permittee shall conduct chronic toxicity tests according to methods outlined in "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms" (EPA 600/4-89 001).

#### VIII. Proposed Effluent Limitations

Table 2 summarizes the proposed effluent limitations for Outfall 001. Proposed effluent limitations for zinc are based on BPJ. The limitation for temperature is based on State water quality standards. The proposed limitations for lead were calculated above as chemical specific water quality-based limitations. The remainder of the effluent limitations are based on BPT/BAT effluent guidelines at 40 CFR Part 426 and State effluent standards.

#### IX. Monitoring Requirements

Monitoring for those pollutants expected to be present in Outfall 001 (i.e., TSS, oil and grease, phosphorus, lead, and zinc) will be required once per week. Except for oil and grease, for which a grab sample is required, 24-hour composite samples are required. Temperature is to be monitored continuously during discharge.

Whole effluent toxicity testing for chronic toxicity shall be conducted 2/month on a 24-hour composite sample of the final effluent.

#### X. Special Conditions

Luster Glass Inc. will be required to update their existing Best Management Practices (BMP) plan to address the potential for leakage of gasoline from Tank Number 42 and nitric acid from the drum storage area. Specifically, Luster Glass Inc. should undertake the following two site-specific BMPs and incorporate them into their plan. First, remedial action must be taken on Tank Number 42 to repair the damaged tank. The gasoline must be transferred to another vessel (e.g., tank truck) while the tank is cleaned, repaired, welded or holes plugged. To prevent environmental damage at this site in the future, the following BMPs should be incorporated into the plan: visual inspection, secondary containment, preventative maintenance, or some combination thereof. Secondly, the drum storage area must be cleaned up by following procedures such as the following: inventory the drums to identify the contents and amounts of chemicals therein; inspect the drums for deterioration or leaks, and segregate and adequately dispose of the leaking or deteriorating drums; remove and adequately dispose of any contaminated soil; neatly stack the remaining drums in a manner to eliminate hazards to humans or the environment by isolating the drums from walkways or roadways, placing them on an impervious pad, covering the storage area, diking the area, moving the storage area away from the stream or some combination thereof.

XI. Information Sources

While developing effluent limitations, monitoring requirements, and special conditions for the draft permit, the following information sources were used:

- (1) EPA NPDES Application Forms 1 and 2C dated October 1980 and February 1985, respectively.
- (2) State Effluent Standards, Part 304 of the State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, adopted March 17, 1980.
- (3) Division files related to the Luster Glass Inc. NPDES Permit No. IL0654321.
- (4) State Water Quality Standards, Part 302 of the State Administrative Code, Title 35 - Environmental Protection; Subtitle C - Water Pollution, adopted March 17, 1980.
- (5) EPA Technical Support Document for Water Quality-Based Toxics Control.
- (6) 40 CFR Parts 423, 433, and 426.

TABLE 1  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

<u>Date</u>	<u>Flow (mgd)</u>		<u>TSS (lb/d)</u>	<u>Oil &amp; Grease (lb/d)</u>	<u>Phosphorus (lb/d)</u>
	<u>Mon. Avg.</u>	<u>Daily Max.</u>			
03-88	4.575	4.583	180.4	19	14
04-88	4.554	4.567			
05-88	4.552	4.569			
06-88	4.568	4.573	245.2	27	18
07-88	4.585	4.589			
08-88	4.588	4.591			
09-88	4.571	4.581	429.3	88	29
10-88	4.568	4.572			
11-88	4.553	4.573			
12-88	4.551	4.541	308.7	22	15
01-89	4.550	4.561			
02-89	4.560	4.570			

TABLE 1 (Continued)  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

<u>Date</u>	<u>pH</u> <u>(S.U.)</u>	<u>Temperature</u> <u>(degrees F)</u>	<u>Zinc</u> <u>(mg/l)</u>	<u>Lead</u> <u>(mg/l)</u>	<u>COD</u> <u>(mg/l)</u>
03-88	6.6	80	0.21	0.10	50
04-88					
05-88					
06-88	7.1	83	0.08	0.17	
07-88					
08-88					
09-88	9.0	78	0.09	0.12	
10-88					
11-88					
12-88	8.1	61	0.06	0.38	
01-89					
02-89					

TABLE 1 (Continued)  
DISCHARGE MONITORING REPORT  
LUSTER GLASS INC.

March 1988 through February 1989

Toxicity Test Data: Unless otherwise indicated, acute toxicity tests were conducted using fathead minnow and reported as 48 hr. LC<sub>50</sub>; chronic toxicity tests were conducted using fathead minnows and reported as 7 day NOEC.

DATE	LC <sub>50</sub> (% effluent)	NOEC (% effluent)
3/88	58.0	50
4/88	25.2	3
5/88	55.0	10
6/88	46.3	30
7/88	44.8	25
8/88	5.9	1
9/88	67.8	10
10/88	3.9	1
11/88	50.1	30
12/88	52.0	10
1/89	32.1	3
2/89	41.7	30

\* Toxicity tests using *Ceriodaphnia dubia* 48 hour survival (acute) and 7 day reproduction (chronic)

TABLE 2  
PROPOSED EFFLUENT LIMITATIONS  
NPDES PERMIT NO. IL0654321

PARAMETER	DAILY MAXIMUM		MONTHLY AVERAGE	
	<u>LBS/DAY</u>	<u>MG/L</u>	<u>LBS/DAY</u>	<u>MG/L</u>
Flow (mgd)	Report	--	Report	--
TSS	451.1	11.86	351.3	9.23
Oil & Grease	104.2	2.74	104.2	2.74
Phosphorous	16.5	0.43	16.5	0.43
pH	<u>a/</u>	--	--	--
Temperature	<u>b/</u>	--	--	--
Total Lead	1.52	0.04	1.14	0.03
Total Zinc	3.75	0.10	3.75	0.10
Whole Effluent Toxicity (WET)	<u>c/</u>	--	<u>c/</u>	--

a/ pH shall be within the range of 6.0 - 9.0 standard units

b/ Not greater than 2.8 degrees Centigrade above ambient, or 1.7 degrees Centigrade above the following maximum limits:

December 1 through March 31 16 deg C (60 deg F)  
April 1 through November 30 32 deg C (90 deg F)

c/ Discharges of effluent with toxicity greater than the following amounts are prohibited: Maximum Daily Chronic Toxicity of 5.9 TU<sub>c</sub> and Average Monthly Chronic Toxicity of 3.7 TU<sub>c</sub>.

## **EXAMPLE RESPONSE TO COMMENTS**

**RESPONSE TO COMMENTS  
FINAL PERMIT DECISION**

This is our response to comments received on the subject draft permit in accordance with regulations promulgated at 40 CFR Part 124.17.

Permit No. LA0006181

Applicant: Allied Chemical Corporation  
P.O. Box 226  
Geismar, Louisiana 70734

Issuing Office: U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

Prepared By: Edward C. McHam, Engineer  
Industrial Permits Section (6W-PI)  
Permits Branch  
Water Management Division  
(214) 655-7180

Permit Action: Final permit decision and response to comments  
received on the draft permit publicly noticed on  
7/7/84.

Date Prepared: 9/5/84

Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of 7/1/83.

The following comments have been received on the draft permit:

Letter Dessert (Allied) to Caldwell (EPA) dated 7/30/84

**ISSUE NO. 1**

The draft permit establishes biomonitoring requirements at Outfall 004. The company requests deletion of these requirements.

**RESPONSE NO. 1**

The request is denied.

The permittee states that biomonitoring will be duplicative and unnecessary because:

- (1) EPA has identified the toxic pollutants of concern.
- (2) The proposed permit places BAT limits and monitoring requirements on these pollutants.

- (3) The BAT limits are more restrictive than water quality-based limitations.
- (4) Biomonitoring results could be distorted and masked by the osmotic stress on test organisms exerted by the salts present in an HF plant effluent.

The biomonitoring method is a standardized method used throughout EPA Region 6 to measure the toxicity of various effluents which contain toxic components. The test is not based on water quality impacts of a specific receiving stream. Under Section 308 of the Clean Water Act, EPA Region 6 has the authority to require permittees to support development of data bases such as those associated with toxics. Therefore, biomonitoring requirements as established in the draft permit are retained in the final permit.



**Chevron Chemical Company**

P.O. Box 78, St. James, LA 70086 • Phone (504) 473-7946

P 12-1-89  
Mckinn 1-18-90

January 12, 1990

D. P. Teichman  
Plant Manager  
St. James Plant

CERTIFIED MAIL - RETURN RECEIPT # P 965 729 397

Ms. Ellen Caldwell  
Permits Branch (6W-PS)  
U.S. EPA Region VI  
1445 Ross Avenue  
Dallas, TX 75202-2733

SUBJECT: CHEVRON CHEMICAL COMMENTS  
NPDES PERMIT NO. LA0029963

Dear Ms. Caldwell:

We have reviewed draft NPDES Permit No. LA0029963 for Chevron Chemical's St. James Plant issued for public comment by the EPA on December 16, 1989. We have the following comments:

1. As represented in the Fact Sheet (Part VIII. Section C 1), we understand an administrative order will be issued concurrent with the final permit decision. We understand the administrative order will establish interim limits which will be in effect until 2/1/91, when our upgraded effluent treatment plant will be operational. As a result, we have not reviewed, and are not providing comments on the draft permit relative to it being in effect during the interim period (i.e. from final permit issuance to 2/1/91).
2. We want to clarify that the discharge description included in Part V of the Fact Sheet is representative of our current facility discharge. Following completion of our ongoing facility expansion, the concentration of pollutants in our discharge will significantly decrease and the discharge flowrate will increase from current levels. These changes to our discharge were detailed in our submittals to the EPA and have been properly recognized in development of the proposed permit limits.
3. We request that you change the pH of the Outfall 002 from 9.0 to 10.0. The plant's clarified water and firewater is purchased and is lime softened with a pH of 10. This water has a high pH but a low alkalinity and is not hazardous to personnel nor to the environment.

In the last 6 months we have had 2 permit exceptions due to these water systems. In the first instance, by simply washing the paved areas of the plant with firewater, we exceeded the 9.0 pH limit. In the second instance, a number of clarified water

JAN 18 1990

6W-PS

and firewater lines failed due to the hard December freeze. This water overflowed the retention pond and again we had a permit exceedence.

We have developed and have begun implementing a plan to eliminate continuous sources of high pH water currently discharged to our retention pond. This work will be completed by the 1/1/91. We therefore feel that a change of the pH limit on Outfall 002 from 9.0 to 10.0 would not endanger people nor the environment and would eliminate nuisance excursions.

We appreciated receiving the well-organized and readable fact sheet which clearly established the basis for the permit requirements. Although the proposed permit limits are substantially lower than those in our previous permit, we expect to be able to achieve and maintain compliance once our upgraded effluent treatment plant is fully operational.

If you have any questions or wish to discuss our comments further, please do not hesitate to contact me or my staff.

Very truly yours,



D. P. Teichman

LLR/vho

## PRACTICAL EXERCISE

### The Administrative Process

#### DIRECTIONS:

You are a permit writer and have issued an NPDES permit for Luster Glass Inc., a glass manufacturer located on the Illinois River. Luster Glass Inc., unhappy with your work, seeks an administrative appeal of the permit and in so doing, raises the following issues:

- The permit is improperly based on the provisions of 40 CFR Part 426 (Glass Manufacturing Point Source Category);
- The effluent limitations for zinc and lead are calculated incorrectly;
- Luster Glass Inc.'s request to delete the duty to mitigate condition was improperly ignored;
- The weekly monitoring requirements for lead and zinc are excessive; and
- The Agency violated its regulations and established policy by refusing to hold a hearing as requested by Luster Glass Inc.

#### QUESTIONS:

- (1) Assuming Luster Glass Inc.'s appeal is granted, what effect will this have on the effectiveness of the NPDES permit?
- (2) What standard of review should the Hearing Officer use to evaluate the permit?
- (3) You have been called upon to testify on behalf of the Permit Authority. How do you respond to each of the issues raised by Luster Glass Inc.?
  - (a) The improper use of regulations:
  - (b) The calculation of limitations:
  - (c) The inclusion of the duty to mitigate condition:
  - (d) The excessive monitoring requirements:
  - (e) The failure to hold a hearing:
- (4) In addition to this logically organized and undeniably scientific testimony concerning your actions in developing this permit, what other assistance might you be asked to lend to your attorney?
- (5) Once the Hearing Officer has made a decision, what is the next step in the process of getting the Luster Glass permit final and effective?



## **PERMIT WRITERS ON APPEAL**

- **Witness for permit authority**
- **Source of technical knowledge for attorney**
- **Assist in developing cross-examination questions**

**NOTES:**

## **MAJOR MODIFICATIONS**

- 1. Reopener condition**
- 2. Correct technical and legal mistakes**
- 3. Failure to notify interested State**
- 4. New information**
- 5. Alterations justifying new/different conditions**
- 6. New regulations**
- 7. Modification of a compliance schedule (> 120 days)**
- 8. Require POTW to develop pretreatment programs**
- 9. Unsuccessful BPJ treatment installed**
- 10. Address non-limited pollutants**
- 11. Variance request**
- 12. Adjust limits to reflect net pollutant treatment**
- 13. Insert 307(a) toxic or Part 503 sludge use/disposal**
- 14. Establish notification levels**

**NOTES:**

## **MINOR MODIFICATIONS**

- 1. Typographical errors**
- 2. More frequent monitoring**
- 3. Change in interim compliance date (<120 days)**
- 4. Change in ownership**
- 5. Change in construction schedule for new source**
- 6. Deletion of point source outfall**
- 7. Incorporate approved local pretreatment program**

## **PERMIT TERMINATIONS**

- Suspend effectiveness in emergency**
- Terminate for falsifications, recalcitrants or changed conditions**
- Post public notice intentions and offer permittee a hearing**

**NOTES:**

## **APPLICABLE EFFLUENT STANDARDS REVIEW EXERCISE**

- 1. Industrial facilities are subject to: \_\_\_\_\_**
- 2. POTWs are subject to: \_\_\_\_\_**
- 3. Federal facilities are subject to: \_\_\_\_\_**
- 4. Industrial storm water is subject to: \_\_\_\_\_**
- 5. Municipal storm water is subject to: \_\_\_\_\_**
- 6. Combined sewer overflows are subject to: \_\_\_\_\_**
- 7. New sources are subject to: \_\_\_\_\_**
- 8. New dischargers are subject to: \_\_\_\_\_**

**NOTES:**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. §1251 et seq; the "Act"),

LUSTER GLASS, INC.

is authorized to discharge from a facility located in Morris, Illinois

to receiving waters named the Illinois River

in accordance with discharge point(s), effluent limitations, monitoring requirements and other conditions set forth herein. Authorization for discharge is limited to those outfalls specifically listed in the permit.

This permit shall become effective

August 31, 1989

This permit and the authorization to discharge shall expire at midnight, August 31, 1994.

Signed this            day of

\_\_\_\_\_  
Authorized Permitting Official

Director  
Water Management Division  
\_\_\_\_\_  
Title

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## I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. The "30-day (and monthly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "7-day (and weekly) average," other than for fecal coliform bacteria and total coliform bacteria, is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for fecal coliform bacteria and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.
4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
  - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
  - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
  - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
  - d. Continuous collection of sample, with sample collection rate proportional to flow rate.
5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

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6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
7. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
10. "Director" means Director of the United States Environmental Protection Agency's Water Management Division.
11. "EPA" means the United States Environmental Protection Agency.
12. "Sewage Sludge" is any solid, semi-solid or liquid residue that contains materials removed from domestic sewage during treatment. Sewage sludge includes, but is not limited to, primary and secondary solids and sewage sludge products.
13. "Acute Toxicity" occurs when 50 percent or more mortality is observed for either test species (See Part I.C.) at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.
14. "Chronic Toxicity" occurs when the survival, growth, or reproduction, as applicable, for either test species, at the effluent dilution(s) designated in this permit (see Part I.C.), is significantly less (at the 95 percent confidence level) than that observed for the control specimens.

**B. Description of Discharge Points**

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under an NPDES permit is a violation of the Clean Water Act and could subject the person(s) responsible for such discharge to penalties under Section 309 of the Act. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge within a reasonable time from first learning of an unauthorized discharge could subject such person to criminal penalties as provided under the Clean Water Act.

**Outfall****Serial Number****Description of Discharge Point**

001

Discharge of effluent from the wastewater treatment oil/water separator and settling basins, and cooling tower blowdown to the Illinois River.

**C. Specific Limitations and Self-Monitoring Requirements****1. Effluent Limitations (Outfall 001)**

Effective immediately and lasting through the life of the permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited by the permittee as specified below:

<u>Effluent Parameter</u>	<u>30-Day a/ Average</u>	<u>Daily a/ Maximum</u>
Flow, MGD	N/A	N/A
Total Suspended Solids, lb/day	351.3	451.1
mg/l	9.23	11.86
Oil and Grease, lb/day	104.2	104.2
mg/l	2.74	2.74
Total Phosphorus, lb/day	16.5	16.5
mg/l	0.43	0.43
Total Zinc, lb/day	3.75	3.75
mg/l	0.1	0.1
Total Lead, lb/day	1.14	1.52
mg/l	0.03	0.04
Whole Effluent Toxicity (WET), TU. b/	3.7	5.9
pH, s.u.	c/	c/
Temperature	d/	d/

There shall be no discharge of floating solids or visible foam in other than trace amounts.

---

a/ See Definitions, Part I.A. for definition of terms.

b/ The permittee shall demonstrate compliance with WET requirements specified in Part I.C.3 of this permit.

c/ pH shall not be less than 6.0 s.u. nor greater than 9.0 s.u.

d/ Temperature shall not be greater than 2.8 degrees Centigrade above ambient, or 1.7 degrees Centigrade above the following maximum limits: from December 1 through March 31, 16 degrees Centigrade (60 degrees Fahrenheit) and from April 1 through November 30, 32 degrees Centigrade (90 degrees Fahrenheit).

C. Specific Limitations and Self-Monitoring Requirements (Cont.)

## 2. Self-Monitoring Requirements (Outfall 001)

As a minimum, upon the effective date of this permit, the following constituents shall be monitored at the frequency and with the type of measurement indicated; samples or measurements shall be representative of the volume and nature of the monitored discharge. If no discharge occurs during the entire monitoring period, it shall be stated on the Discharge Monitoring Report Form (EPA No. 3320-1) that no discharge or overflow occurred.

<u>Effluent Parameter</u>	<u>Frequency</u>	<u>Sample Type a/</u>
Flow, MGD <u>b/</u>	Daily	Instantaneous or Continuous
Temperature	Daily	Continuous
Total Suspended Solids	Weekly	24-Hour Composite
Oil and Grease	Weekly	Grab
Total Phosphorus	Weekly	24-Hour Composite
Total Zinc	Weekly	24-Hour Composite
Total Lead	Weekly	24-Hour Composite
Whole Effluent Toxicity (WET), Chronic	2/Month	24-Hour Composite
pH	Daily	Continuous or Grab

---

Sampling by the permittee for compliance with the monitoring requirements specified above shall be performed at the following location(s): within 100 feet of Outfall 001 to the Illinois River.

a/ See definitions, Part I.A.

b/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

C. Specific Limitations and Self-Monitoring Requirements (Cont.)

## 3. Whole Effluent Toxicity Testing - Chronic Toxicity

Starting the effective date of this permit, the permittee shall conduct biweekly chronic toxicity tests on a 24 hour composite sample of the final effluent. If chronic toxicity is detected, the permittee shall conduct a Toxicity Reduction Evaluation, according to specifications in Part I.C.4 of this permit. Test species shall consist of *Pimephales promelas* (Fathead minnows). The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", EPA/600-4-89-001. If control mortality exceeds 20 percent, the test shall be considered invalid. Chronic toxicity occurs when the No Observed Effect Concentrations (NOECs) (calculated within a 95 percent confidence interval) exceed(s) the permit limit(s). Test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the calendar period during which the whole effluent test was run. The report shall include all the physical testing as specified and shall report test conditions, including temperature, pH, conductivity, mortality, total residual chlorine concentration, control mortality, and statistical methods used to calculate an NOEC.

If the results for one year (26 consecutive weeks) of whole effluent testing indicate no chronic toxicity, the permittee may request the permit issuing authority to allow the permittee to reduce testing frequency. The permit issuing authority may approve, partially approve, or deny the request based on results and other available information.

## 4. Toxicity Reduction Evaluation (TRE)

If the permittee fails to meet toxicity requirements specified in this permit, the permit issuing authority shall determine that a TRE is necessary. The permittee shall be so notified and shall initiate a TRE immediately thereafter. The TRE shall include a TRE Test Plan that must be submitted to the permitting authority within 60 days after notification of a TRE requirement. The permitting authority will then establish a deadline for compliance. The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity prior to the deadline.

If acceptable to the permit issuing authority, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the permit issuing authority, and/or a modified whole effluent protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the permit issuing authority, shall in no way relieve the permittee from the deadline for compliance contained in this permit.

## II. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under Part I shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.
- D. Reporting of Monitoring Results. Effluent monitoring results obtained during the previous month(s) shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Until further notice, sludge monitoring results may be reported in the testing laboratory's normal format (there is no EPA standard form at this time), but should be on letter size pages. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the Signatory Requirements (see Part IV), and submitted to the Director, Water Management Division and the State water pollution control agency at the following addresses:
- original to: United States Environmental Protection Agency  
Attention: Water Management Division  
Compliance Branch
- copy to: State Department of Health  
Attention: Permits and Enforcement
- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
  2. The initials or name(s) of the individual(s) who performed the sampling or measurements;
  3. The date(s) analyses were performed;
  4. The time(s) analyses were initiated;

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5. The initials or name(s) of individual(s) who performed the analyses;
  6. References and written procedures, when available, for the analytical techniques or methods used; and,
  7. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. Data collected on site, copies of Discharge Monitoring Reports, and a copy of this NPDES permit must be maintained on site during the duration of activity at the permitted location.
- I. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall report any noncompliance which may seriously endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstances. The report shall be made to the EPA Emergency Response Branch at (312) 293-1788 and the State at (312) 370-9395.
  2. The following occurrences of noncompliance shall be reported by telephone to the EPA Compliance Branch at (312) 293-1589 and the State at (312) 331-4590 by the first workday (8:00 a.m. - 4:30 p.m.) following the day the permittee became aware of the circumstances:
    - a. Any unanticipated bypass which exceeds any effluent limitation in the permit (See Part III.G., Bypass of Treatment Facilities.);
    - b. Any upset which exceeds any effluent limitation in the permit (See Part III.H., Upset Conditions.); or,
    - c. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit to be reported within 24 hours.
  3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
    - a. A description of the noncompliance and its cause;
    - b. The period of noncompliance, including exact dates and times;
    - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,
    - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

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4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Compliance Branch, Water Management Division by phone, (312) 293-1589.
5. Reports shall be submitted to the addresses in Part II.D., Reporting of Monitoring Results.
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for Part II.D. are submitted. The reports shall contain the information listed in Part II.I.2.
- K. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
  1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
  2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
  3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
  4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

## III. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Director advance notice of any planned changes at the permitted facility or of an activity which may result in permit noncompliance.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$25,000 per day of such violation. Any person who willfully or negligently violates permit conditions implementing Sections 301, 302, 306, 307, or 308 of the Act is subject to a fine of not less than \$5,000, nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both. Except as provided in permit conditions in Part III.G., Bypass of Treatment Facilities and Part III.H., Upset Conditions, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. However, the permittee shall operate, as a minimum, one complete set of each main line unit treatment process whether or not this process is needed to achieve permit effluent compliance.
- F. Removed Substances. Collected screenings, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Filter backwash shall not be directly blended with or enter either the final plant discharge and/or waters of the United States.
- G. Bypass of Treatment Facilities:
1. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. and 3. of this section.

2. Notice:

- a. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 60 days before the date of the bypass.
- b. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required under Part II.I., Twenty-four Hour Reporting.

3. Prohibition of bypass.

- a. Bypass is prohibited and the Director may take enforcement action against a permittee for a bypass, unless:
  - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
  - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and,
  - (3) The permittee submitted notices as required under paragraph 2. of this section.
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 3.a. of this section.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review (i.e., Permittees will have the opportunity for a judicial determination on any claim of upset only in an enforcement action brought for noncompliance with technology-based permit effluent limitations).
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
  - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
  - b. The permitted facility was at the time being properly operated;
  - c. The permittee submitted notice of the upset as required under Part II.I., Twenty-four Hour Notice of Noncompliance Reporting; and,
  - d. The permittee complied with any remedial measures required under Part III.D., Duty to Mitigate.

3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
- I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
- J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Director as soon as the permittee knows of, or has reason to believe:
  1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - a. One hundred micrograms per liter (100 ug/L);
    - b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
    - d. The level established by the Director in accordance with 40 CFR 122.44(f).
  2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - a. Five hundred micrograms per liter (500 ug/L);
    - b. One milligram per liter (1 mg/L) for antimony;
    - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or,
    - d. The level established by the Director in accordance with 40 CFR 122.44(f).

## IV. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as determined in 40 CFR 122.29(b); or
  2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Part IV.A.1.
- B. Anticipated Noncompliance. The permittee shall give advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit. The application should be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed as follows:
    - a. For a corporation: by a responsible corporate officer;
    - b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;
    - c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official.
  2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
    - a. The authorization is made in writing by a person described above and submitted to the Director, and,

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- b. The authorization specified either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to authorization. If an authorization under paragraph IV.G.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2. must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:
- "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
- H. Penalties for Falsification of Reports. The Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than two years per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the Act, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act.
- K. Coast Guard. If the Permittee operates its facility at certain times as a means of transportation over water, the Permittee shall comply with any applicable regulations promulgated by the Secretary of the department in which the Coast Guard is operating, that establish specifications for safe transportation, handling, carriage, and storage of pollutants.
- L. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

- M. Severability. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- N. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 30 days in advance of the proposed transfer date;
  2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
  3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2. above.
- O. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Act.
- P. Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations (and compliance schedule, if necessary), or other appropriate requirements if one or more of the following events occurs:
1. Water Quality Standards: The water quality standards of the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
  2. Wasteload Allocation: A wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
  3. Water Quality Management Plan: A revision to the current water quality management plan is approved and adopted which calls for different effluent limitations than contained in this permit.

- Q. Toxicity Limitation-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include a new compliance date, additional or modified numerical limitations, a new or different compliance schedule, a change in the whole effluent protocol, or any other conditions related to the control of toxicants if one or more of the following events occur:
1. Toxicity was detected late in the life of the permit near or past the deadline for compliance.
  2. The TRE results indicate that compliance with the toxic limits will require an implementation schedule past the date for compliance and the permit issuing authority agrees with the conclusion.
  3. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the permit issuing authority agrees that numerical controls are the most appropriate course of action.
  4. Following the implementation of numerical controls on toxicants, the permit issuing authority agrees that a modified whole effluent protocol is necessary to compensate for those toxicants that are controlled numerically.
  5. The TRE reveals other unique conditions or characteristics which, in the opinion of the permit issuing authority, justify the incorporation of unanticipated special conditions in the permit.

## V. SPECIAL REQUIREMENTS

A. Best Management Practices (BMP) Plan

A BMP plan shall be developed within six months of permit reissuance, addressing each of the nine specific requirements described in the June 1981 EPA document, NPDES BMP Guidance Document. Emphasis shall be placed on good housekeeping practices, visual inspection, and preventative maintenance.

The BMP plan shall be written up and delivered to the U.S. Environmental Protection Agency no later than February 5, 1990.

B. BMP Implementation

The BMP plan shall be fully implemented within twelve months of permit reissuance. An implementation report shall be delivered to the U.S. Environmental Protection Agency no later than August 5, 1990.

C. Site-Specific BMPs

The following site-specific BMPs shall be included:

1. Tank Number 42: Remedial action is required to repair the damaged tank. This shall include transfer of the contents to another vessel (e.g., tank truck), cleaning the tank, and repairing, welding, or plugging the hole. To prevent environmental damage in the future, secondary containment is required. Monthly visual inspections and/or preventative maintenance shall be conducted.
2. Drum Storage Area: The drums shall be inventoried to identify the contents and amounts of chemicals therein. The drums shall be inspected for deterioration or leaks. They shall be segregated and any leaking or deteriorating drums shall be disposed of or repaired. Any contaminated soil shall be removed and adequately disposed of. The remaining drums shall be neatly stacked in a manner to eliminate hazards to humans or the environment by isolating the drums from walkways or roadways, placing them on an impervious pad, covering the storage area, diking the area, moving the storage area away from the river, or some combination thereof.

# **COMPLIANCE AND ENFORCEMENT**

## **LEARNING OBJECTIVES**

- **Common errors in permits**
- **Data management considerations (PCS)**
- **Enforcement tools and considerations**
- **Citizens and enforcement**

## **COMMON ERRORS AND OMISSIONS**

**Not:**

- **Issuing permit to correct entity**
- **Ensuring limits are defensible and compatible with PCS**
- **Covering all outfalls**
- **Imposing adequate monitoring or specifying type, frequency and location**
- **Using special conditions**
- **Requiring routine DMRs and specifying signatory**
- **Including all standard conditions**
- **Incorporating Federal Regulations without further explanation**
- **Using precise language**

**NOTES:**

## **PCS LEARNING OBJECTIVES**

- **Basic understanding of PCS system**
  - **Development process**
  - **Data elements**
  - **Sources of assistance**
- **Permit writer's responsibilities**

## **PCS POLICY**

- **Adopted - October 1985**
- **Designates PCS as the official NPDES data system**
- **Requires EPA Regions to use**
- **Requires NPDES States to use or have interface capability**

**NOTES:**

## PERMIT FACILITY DATA



## **PCS ASSISTANCE**

- **Region/State experts**
- **EPA HQ/PCS hotline [(202) 260-8529]**
- **PCS publications**
- **Other methods**

## **PCS PUBLICATIONS**

- **General retrieval manual**
- **Inquiry user's guide**
- **Data element dictionary**
- **Data entry/edit manual**
- **Manager's guide to PCS**

**NOTES:**

## PERMIT QUALITY REVIEW CHECKLIST

### CHECKLIST A-1

#### Procedural Requirements: ADMINISTRATIVE RECORDS

##### Question

1. List any of the following items that have been omitted inappropriately from the file.
  - a. Permit application and any supporting data furnished by applicant;
  - b. Draft permit;
  - c. Statement of basis or fact sheet;
  - d. All documents cited in statement of basis or fact sheet;
  - e. If a new source, any environmental assessment, environmental impact statement, finding of no significant impact or environmental information document and any supplement to an EIS that was prepared;
  - f. All comments received during public comment;
  - g. Tape or transcript of any hearings held and any written materials submitted at hearing;
  - h. Response to significant comments raised during comment period and/or hearing;
  - i. Final permit;
  - j. Explanation of changes from draft to final permit;
  - k. Where appropriate, materials relating to
    - o Consistency determinations under the CZMA
    - o Consultation under the Endangered Species Act
    - o Determination under section 403(c) of the CWA

CHECKLIST A-2  
Procedural Requirements: PUBLIC NOTICE AND COMMENT

Question

1. Was a public notice issued of the preparation of draft permit and providing an opportunity for comment at least 30 days prior to final permit decision?
2. Was public hearing held?  
(If "no", skip to #4)
3. Was a notice of public hearing issued at least 30 days prior to hearing?
4. Was a summary response to significant comments raised during comment period and/or hearing prepared and issued at time of final permit decision?

CHECKLIST A-3  
Procedural Requirements: STATE CERTIFICATION

Question

1. Was a state certification or waiver of state certification received?
2. List any conditions in the state certification not included in the permit. Indicate any reasons provided for omissions.

CHECKLIST A-4  
Procedural Requirements: RECORDS OF MODIFICATION

Question

1. Does the permit documentation indicate that the permit was modified, revoked or reissued?  
(If "no", skip to Checklist A-5)
2. Was the permit modified pursuant to 40 CFR 122.62(a)? If "yes", specify the basis identified in the permit documentation: (alteration; new information; new regulations; compliance schedules; variance request; 307(a) toxic standard; net limits; reopener; nonlimited pollutants (level of discharge of any pollutant no limited in permit exceeds the level which can be achieved by technology-based treatment); use ore manufacture of toxics (permittee has begun or expects to begin to use or manufacture a toxic pollutant); notification levels (permit has been modified to establish a "notification level")
3. Did cause exist for modification or revocation and reissuance pursuant to 40 CFR 122.62(b)?  
Specify cause:
  - a. Cause exists for termination, as provided in 40 CFR 122.64 (noncompliance; misrepresentation of or failure to disclose facts; endangerment to human health or environment; change in condition);
  - b. Transfer of permit;
  - c. Other (specify)
4. Does the permit documentation indicate that the procedures of 40 CFR 124.5 for permit modification, revocation and reissuance or termination were followed?

CHECKLIST A-5  
Procedural Requirements: ENFORCEMENT CONSIDERATIONS

Question

1. Does the permit documentation indicate that any enforcement actions have been taken?  
Briefly describe (nature of action(s), date(s)): \_\_\_\_\_  
\_\_\_\_\_
2. Did the Regional Counsel review or sign off on the permit?

CHECKLIST B-1  
Permit Conditions: BOILERPLATE

Question

1. Identify whether the following general conditions have been incorporated into the permit, either directly or by reference to 40 CFR Part 122.41 (or, if permit was issued prior to April 1983, by reference to 40 CFR Parts 122.7 and 122.60). Identify any variation from the regulation language in 122.41.
  - a. Duty to comply;
  - b. Duty to reapply;
  - c. Duty to halt or reduce activity;
  - d. Duty to mitigate;
  - e. Program operation and maintenance;
  - f. Permit actions;
  - g. Property rights;
  - h. Duty to provide information;
  - i. Inspection and entry;
  - j. Monitoring and records;
  - k. Signatory requirement;
  - l. Reporting requirements;
  - m. Bypass; and
  - n. Upset.
2. If the general conditions are included by reference, is the CFR citation, date and copy of the regulations provided? If "no", specify missing item(s): \_\_\_\_\_ (Skip to #5)
3. Does the permit require notification to the Director as soon as the permittee knows or has reason to believe that any activity has occurred or will occur which would result in the discharge of any toxic pollutant, if that discharge will exceed the "notification levels" specified in 40 CFR Part 122.42(a)(1)?
4. Does the permit require notification to the Director as soon as the permittee knows or has reason to believe that it has begun or expects to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application?
5. Is the permit effective for a fixed term which does not exceed 5 years from date of issuance?

CHECKLIST B-2  
Permit Conditions: SPECIAL CONDITIONS

Question

1. Are any special conditions requiring best management practices (BMPs) included in the permit? Identify and specify reason for inclusion (part of guideline, substitute for numeric limitations, etc.).
2. Does the permit application indicate that permittee does or expects to use or manufacture any toxic substance as an intermediate or final product or byproduct? (See Form 2C, Item VI-A.) Have any conditions for the substances so indicated been included in the permit? If not, does permit documentation explain the omission?
3. Does the permit application indicate that there are intermittent discharges at the outfall? (See Form 2C, Item II-C) Are they addressed in the permit? Identify any unexplained omissions.
4. Does the permit include any biological toxicity testing requirements? Briefly describe the requirements and their basis.
5. Does the permit include any limitations or conditions for internal waste streams? Describe the limitations/conditions and the circumstances that make them necessary.

CHECKLIST C-1  
Effluent Limitations: TRANSLATING THE PERMIT APPLICATION  
TO PERMIT LIMITATIONS

Introduction: Question #1 applies to all outfalls. For the remaining questions, complete one checklist for each individual outfall selected by the review team for review.

Question

1. Have a set of effluent limitations or conditions been included in the permit for every outfall? (See Form 2C, Item III-B)
2. For which pollutants are limitations or conditions included in the permit for: (Identify in an attachment)
  - a. BPT;
  - b. BAT; and
  - c. BCT?
3. Are there pollutants for which limitations or conditions are not included but which might be appropriate to limit? Identify the pollutants and the reasons for including limitations.

CHECKLIST C-2  
Effluent Limitations: BASIS FOR LIMITATIONS

Introduction: Complete one checklist for each individual outfall selected by the review team for review.

Question

1. Are the pollutant limitations based on any of the following:
  - a. BPT;
  - b. BCT;
  - c. BAT;
  - d. NSPS;
  - e. Water quality standards?
  - f. Previous permit
  - g. Other  
(Specify) \_\_\_\_\_
2. Are limitations for all pollutants in continuous discharges expressed as both maximum daily values and average monthly values? (If "yes", skip to #4)
3. List those pollutants for which either limit is omitted, where the omission is inappropriate.
4. List any pollutants limited by mass or concentration that should have been limited in the other form and indicate the reason it should have been listed in the other form.

CHECKLIST C-3

Effluent Limitations: APPLICABLE EFFLUENT GUIDELINES

Introduction: Complete one checklist for each individual outfall selected by the review team for review, if effluent guidelines are applicable.

Question

1. Were promulgated effluent guidelines applicable to the source category at the time permit was under consideration? (See Form 1, Items III and XII) (If "no", skip to Checklist C-4) If not, does the permit contain a reopener clause?
2. Were effluent guideline limitations used as a basis for permit effluent limitations at the outfall.
3. Did the permittee receive a variance based on the presence of "fundamentally different factors" from those on which the guideline was based? (If "yes", skip to Checklist C-4)
4. Are applicable effluent guidelines limitations based on production?  
(If "no", skip to #9)
5. Was production basis in the permit a reasonable measure of average actual production, not design production capacity? (See Form 2C, Items III-B and C.)  
Specify production basis:
  - a. Maximum production during high month of previous year;
  - b. Monthly average for the highest of previous;
  - c. Other: \_\_\_\_\_.

CHECKLIST C-3 (continued)  
Effluent Limitations: APPLICABLE EFFLUENT GUIDELINES

Question

6. Does the permit documentation indicate the means used to determine actual production?  
Specify:  
a. In permit application;  
b. Other:\_\_\_\_\_.
7. Does the permit documentation indicate that the permit writer conducted any follow-up activities to confirm production estimates?
8. Have alternate permit limitations been included to address different production levels?  
Specify the number of tiers of limits:\_\_\_\_\_
9. Are all pollutant limitations in the applicable guidelines included in the permit? List any that are not.
10. Was the adjustment formula for disposal to wells, POTW's, or land application applicable (40 CFR 122.50)? (If "no", go to C-4) Was it used?

CHECKLIST C-4  
Effluent Limitations: BEST PROFESSIONAL JUDGMENT

Introduction: This checklist is intended to point review team inquiry toward those questions which can help in determining whether or not the BPJ analysis was "reasonable". Review team should provide a qualitative explanation of the limitation development process on the evaluation form. Complete one checklist for each individual outfall selected by the review team for review.

Question

1. Is a BPJ analysis (for BPT, BAT, or BCT) missing where it seems to be required? Identify the outfall, pollutant(s), and type of limitation.
2. Indicate which of the following sources were used in establishing any BPJ limitations:
  - a. Promulgated Guideline
  - b. Proposed Guideline
  - c. Development Document
  - d. Treatability Manual
  - e. Other (specify)
3. Identify any significant sources not used which should have been.
4. Indicate what method was used to establish BPJ/BCT for conventional pollutants.
5. Have effluent guidelines been promulgated since the time of permit issuance? If "yes", indicate the relative stringency of guideline limitations in permit: \_\_\_\_\_  
(Note if unable to determine this.)

CHECKLIST C-5  
Effluent Limitations: WATER QUALITY BASED LIMITATIONS

Introduction: This checklist is intended to point review team inquiry toward those questions which can help in determining whether or not the water quality analysis was "reasonable." Review team should provide a qualitative explanation of the limitation development process on the evaluation form. Complete one checklist for each individual outfall selected by the review team for review.

Question

1. Is a water quality analysis missing where it seems to be required? Identify outfalls(s) and pollutants.
2. Identify type of water quality limitation in permit (:free from", numerical, or both).
3. Is basis of the water quality based limitation identified in the permit file?  
Specify:
  - a. State certification
  - b. Water quality modeling
  - c. Other: \_\_\_\_\_
4. Were water quality standards included in the permit in lieu of effluent limitations?
5. Have all applicable water quality standards toward which water quality-analysis is directed been clearly identified?
6. Are current water quality conditions clearly identified?  
If possible, specify basis:
  - a. Actual water quality
  - b. Estimated water quality
7. Does the permit document that water quality-based limitations are at least as stringent as BPT, BCT, or BAT standard?
8. Were water quality modeling and a mixing zone used in establishing the limitation?  
(If "no", skip to #20)

b. Inputs to Quantitative Analysis:

9. Has the outfall discharge rate used in analysis been clearly identified? (See Form 2C, Item II)
  - a. Average discharge rate
  - b. Maximum discharge rate
  - c. Other: \_\_\_\_\_

CHECKLIST C-5 (Continued)  
Effluent Limitations: WATER QUALITY BASED LIMITATIONS

10. Has the stream flow rate used in the analysis been clearly identified? If possible, specify whether:
  - a. Low flow rate (years of record)
  - b. Average flow rate
  - c. Other: \_\_\_\_\_
11. Was the analysis directed toward water quality within a mixing zone? (If "yes", skip to #13)
12. Was the analysis directed toward water quality beyond the mixing zone (i.e., wasteload allocation modeling)  
(If "yes", skip to #17)

c. Quantitative Analysis: Mixing Zone

13. Are the size and configuration of the mixing zone clearly identified?
14. Has the water quality model used been clearly identified?  
Specify: \_\_\_\_\_
15. Were the impacts of other major dischargers taken into account in the analysis?
16. Does the permit documentation demonstrate that, based on modeling conclusions, applicable water quality standards were met in the mixing zone?  
(If "yes", skip to #20)

d. Quantitative Analysis: Wasteload Allocation

17. Has the water quality model used been clearly identified?  
Specify: \_\_\_\_\_
18. Were the impacts of other major dischargers taken into account in the analysis?
19. Does the permit documentation indicate the level of discharges and limitations assumed for other major sources?
20. Does the permit documentation demonstrate that, based on modeling conclusions, applicable water quality standards are met? If not, does the permit documentation explain why the limitation was used in spite of modeling results?  
Specify: \_\_\_\_\_

CHECKLIST D-1  
Monitoring Requirements: DISCHARGE SAMPLING

Introduction: Complete one checklist for each individual outfall selected by the review team for review.

Question

1. Does the permit require monitoring for every pollutant for which limitations are included in the permit? List any inappropriate omissions.
2. Does the permit stipulate, either in the general conditions or in the permit limitations, that monitoring for all pollutants with limitations be conducted according to test procedures approved under 40 CFR Part 136? Identify any exceptions.
3. Does the permit require monitoring the volume of effluent discharged from the outfall? If not, is an explanation provided?
4. Are effluent sampling frequencies specified for every pollutant for which monitoring is required? Specify for each pollutant (e.g., daily, weekly, quarterly, etc.): \_\_\_\_\_

CHECKLIST D-2  
Monitoring Requirements: DISCHARGE REPORTING

Question

1. Are there any pollutants for which discharge monitoring reports are not required at least once a year? List them.
2. Is reporting on discharge monitoring report (DMR) forms required?
3. Specify discharge reporting frequency or frequencies required in permit for the outfall under review (e.g., monthly, quarterly, etc.): \_\_\_\_\_

**CHECKLIST E-1**  
**Compliance Schedules: INCLUSION IN PERMIT**

**Introduction:** Complete one checklist for each individual outfall selected by the review team for review.

**Question**

1. Does the permit include a compliance schedule(s) for each outfall which is not in compliance with the limitations specified in the permit?
2. Does the permit documentation provide an explanation of why compliance schedules were not included where necessary? Identify if an explanation was not provided.

**CHECKLIST E-2**  
**Compliance Schedules: INTERIM AND FINAL REQUIREMENTS**

**Question**

1. Are distinct interim requirements -(milestones) with specific dates included in compliance schedule(s)?
2. Does the compliance schedule provide for compliance by ceasing the regulated activity? If so, is a date certain identified?
3. Does the compliance schedule include:
  - a. A date certain for the permittee to decide whether or not to cease the regulated activity;
  - b. A compliance schedule in the event that the decision is to continue the regulated activity, and
  - c. A schedule for cessation of the regulated activity in the event that the decision is to cease the activity?
4. Is the time between each interim date in the compliance schedule(s) less than one year? If not, does the permit specify interim dates for submission of reports?
5. Does the compliance schedule provide for final compliance by the appropriate time? (7-1-84 in most cases)
6. Has the source received a section 301(k) (innovative technology) waiver to extend the compliance date up to 7-1-87?
7. Was an ECSL or Section 309(a)(5)(A) order with a compliance schedule ever issued? If so:
  - a. Did the facility meet the criteria for issuance of the ECSL/order?
  - b. Was the facility in compliance with the ECSL/order?
  - c. Was a subsequent enforcement action brought?

## TOOLS TO DETER VIOLATORS



- **Informal contacts**
- **Notice of violation**
- **Administrative orders**
- **Civil suit**
- **Criminal suit**
- **Termination**

## CITIZENS AND ENFORCEMENT

- **Section 505 allows citizen suits (civil action) after 60-day notice to EPA/States and permittee**
- **Penalties to U.S. or State Treasury**
- **Citizens can recover court costs**
- **Supreme Court: Gwaltney decision**

**NOTES:**

## **EPA's PRINCIPLE ENFORCEMENT ACTIONS**

**(see §122.41(a))**

### **Administrative Order**

- **Schedule for compliance**
- **Interim limits**
- **APO Class I/II (\$25,000/\$125,000)**

### **Civil Action**

- **Brought in U. S. District Court**
- **Injunction**
- **Judicially enforceable schedule**
- **Civil penalties (up to \$25,00 per day per violation)**

### **Criminal Action**

- **Negligent violations\* (\$2,500 - \$25,000 and 1 yr. imprisonment)**
- **Knowing violations\* (\$5,000 - \$50,000 and 3 yrs. imprisonment)**
- **Imminent endangerment\* (\$250,000 and 15 yrs. imprisonment)**

**\*Doubles for second or subsequent violations**

### **NOTES:**