

NPDES Permitting

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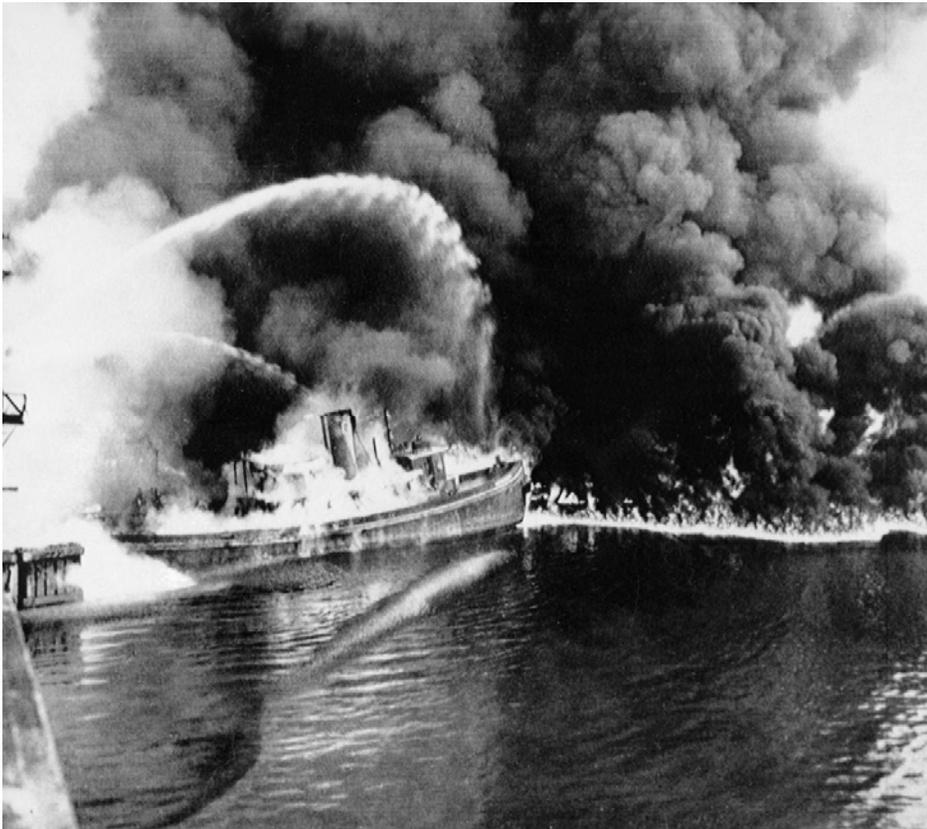
Outline

- NPDES Program overview
- How to obtain an NPDES permit
- NPDES permit development

NPDES Overview

Authorized by the Clean Water Act.

National Pollutant Discharge Elimination System (NPDES)



How to obtain an NPDES permit

Word Fillable NPDES Permit Application Forms

Please help us test out these new forms. If you encounter any issues or have any comments on the new forms, please email dsw.webmail@epa.ohio.gov.

NPDES Form 1	Instructions
NPDES Form 2A	Instructions
NPDES Form 2B	Instructions
NPDES Form 2C	Instructions
NPDES Form 2D	Instructions
NPDES Form 2E	Instructions
NPDES Form 2F	Instructions
NPDES Form 2S	Instructions
Antidegradation Addendum	
NPDES Modification Form	
NPDES Transfer Form	

<http://www.epa.ohio.gov/dsw/permits/npdesform.aspx>

Application Form 2C

- Part V-A: All applicants at all outfalls.
- Part V-B: All applicants at all outfalls.
- Part V-C: Primary industries at any outfall with process wastewater.
- Part V-D: If present in discharge.

Please print or type in the unshaded areas only.

EPA I.D. Number (copy from Item 1 of Form 1) Form Approved.
OMB No. 2040-0086.
Approval expires 3-31-98.

FORM 2C NPDES	U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURE OPERATIONS <small>Consolidated Permits Program</small>						
I. OUTFALL LOCATION							
For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.							
A. OUTFALL NUMBER (list)	B. LATITUDE			C. LONGITUDE			D. RECEIVING WATER (name)
	1. Deg	2. Min	3. Sec.	1. Deg	2. Min	3. Sec.	
II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES							
A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (e.g., for certain mining activities), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.							
B. For each outfall, provide a description of (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff, (2) The average flow contributed by each operation, and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.							
1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW			3. TREATMENT (Description or List codes from Table 2C-1)			
	a. OPERATION (list)	b. AVERAGE FLOW (include units)		a. DESCRIPTION		b. LIST CODES FROM TABLE 2C-1	



NPDES Individual Permit Development

1. Receive Application
2. Completeness Review
3. Develop TBELs
4. Develop WQBELs
5. Develop Monitoring and Reporting Requirements
6. Develop Special Conditions
7. Incorporate Standard Conditions
8. Prepare Fact Sheet
9. 14-day Preview Period
10. Public Notice
11. Respond to Public and EPA Comments
12. Issue Final Permit

Completeness Review



- Correct forms?
- Flow and 2C data complete?
- Correct SIC codes FEGs identified?
- Calculations and diagrams complete?
- Antidegradation?
- Pre-permit inspection.

Develop TBELs

- (Technology based effluent limits)
- EPA has developed effluent guidelines for 58 industrial sectors.
- Current list of sectors with effluent guidelines can be found at:
- <http://water.epa.gov/scitech/wastetech/guide/industry.cfm>
- 40 CFR 401-499.
- FEGs must be met without the benefit of dilution, and are often included at internal stations.

Which FEG category applies?

Which category would you expect canmaking to fall under?

- A. Aluminum forming
- B. Coil coating
- C. Metal finishing
- D. Nonferrous metals manufacturing

Answer: B. Coil Coating

40 CFR 465: Coil Coating

Subpart A: Steel Basis

Subpart B: Galvanized Basis

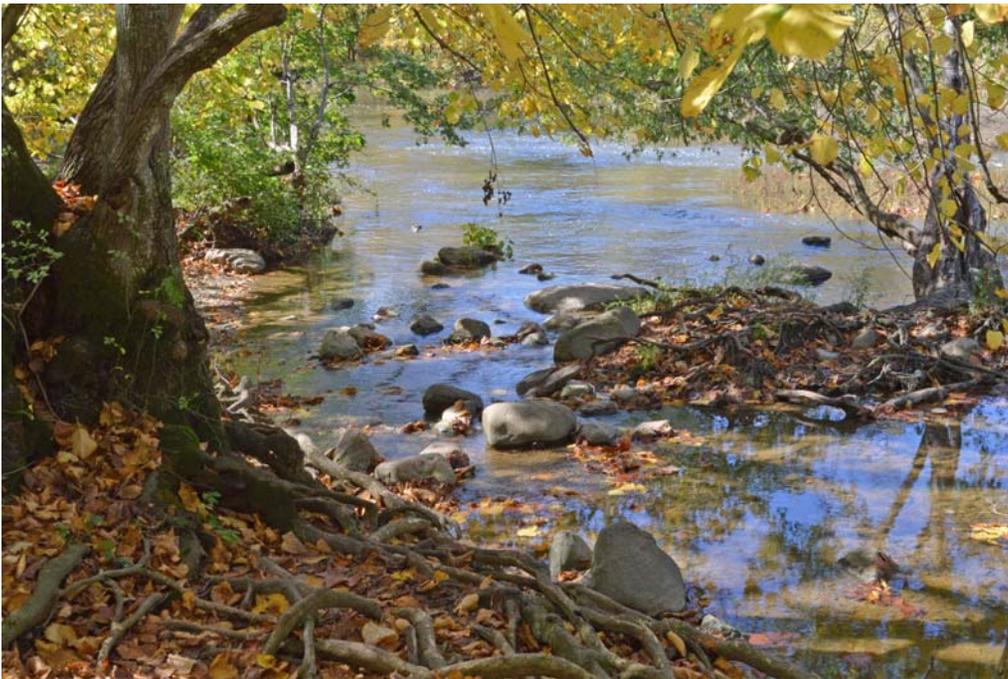
Subpart C: Aluminum Basis

Subpart D: Canmaking

Develop WQBELs

- Determine WQS
- Characterize effluent and receiving water
- Calculate parameters
- Apply Reasonable Potential

Develop WQBELs - WQS



WQS: Designated Uses

- Aquatic Life
- Water Supply
- Recreation
- Numeric and Narrative Criteria
- Antidegradation

Effluent and Receiving Water Characterization

- Flow rates
- Downstream hardness
- Background water quality
- PEQs

PEQ Multipliers

n	F	n	F	n	F	n	F
1	6.2	6	2.1	11	1.7	28-34	1.2
2	3.8	7	2.0	12-13	1.6	34-43	1.1
3	3.0	8	1.9	14-16	1.5	44-56	1.0
4	2.6	9	1.8	17-22	1.4	>56	0.9
5	2.3	10	1.7	23-27	1.3		

PEQ Example - Barium

- Two data points 158 ug/l, 130 ug/l
- $PEQ_{max} = 158 \times 3.8 = 600 \text{ ug/l}$
- $PEQ_{avg} = 600 \text{ ug/l} \times 0.73 = 438 \text{ ug/l}$

- $WLA_{max} = 4000 \text{ ug/l}$
- $WLA_{avg} = 420 \text{ ug/l}$

PEQ Example - Barium

- Effluent data – 12 samples, 158 ug/l max
- $PEQ_{max} = 158 \times 1.6 = 253 \text{ ug/l}$
- $PEQ_{avg} = 253 \times 0.73 = 185 \text{ ug/l}$

- $WLA_{avg} = 420 \text{ ug/l}$
- $185/420 = 44\%$, No limits or monitoring

Develop Monitoring and Reporting Requirements

- Monitoring Conditions
 - Location, frequency, sample collection
- <http://epa.ohio.gov/portals/35/guidance/permit2.pdf>

Develop Special Conditions

- Special Studies
 - Mixing zone, TRE, metal translators
- Best management practices
- Compliance schedules

Standard Conditions

- Part III
- Part II Examples
 - Outfall signage
 - Operator requirements
 - Notification to public water supply operators

Fact Sheet

- General Facility Information
- Administrative Requirement
- Summary of Permit Rationale
- Detail of Permit Rationale
- 15 to >100 pages

14 Day Preview Period

- Historically, all parties reviewed a draft permit during the public notice period.
- Now, a 14-day permittee review period of the draft permit is being offered prior to public notice as a “preview”.
- All communications during this review are included in the public record.

Public Notice and Beyond

- 30 Day Public Notice Period
- Plus 15 days to publish
- Notice Given to:
- Applicant
- US EPA
- Interested Parties
- Newspaper of Largest Circulation
- Weekly Review
- Ohio EPA Web

Administrative Actions after Issuance

- Permit Appeals
- Modification
- Permit Transfer

TDS and Ionic Pollutants

Problems and Coping Mechanisms

Water Quality Standards

- Chronic – 1500 mg/l
- Acute
 - 2000-3000 mg/l as TDS
 - 1200-2000 mg/l as SO₄
 - 1.0 TUa

Potential Problems

- Metal Industries
- All Produce TDS
- Petroleum Refineries
- Drinking Water Plants
- Coal Mining/Preparation
- POTWs

Pollution Prevention

- Minimize Contact with TDS Materials
- Process Modification – Generate Less TDS
- Combine Acid/Alkaline Wastewaters
- Beneficial Re-use of TDS Wastewaters

Treatment Technologies

- Reverse Osmosis
- Sulfate Reduction/Sulfide Precipitation

Dilution – Move Discharge

- Marathon Refining TDS
 - Old Limit – 1688 mg/l
 - New Limit – 4000 mg/l
 - PEQavg – 3071 mg/l

Dilution - Diffuser

- Cristal USA
 - PEQavg = ~ 16,000 mg/l
 - AIM Dilution in Lake Erie = 21:1

Dilution – Flow Augmentation

- Ground Water Supplements Stream Flow



Dilution – Tiered Limits

- Delaware WTP
 - Discharge prohibited when upstream flow <2.5 cfs
 - Tiered limits – 3082-98,465 mg/l
 - 1.0 TUa limit at all times

Reduce Exposure Time

- Reduce Frequency/Duration – Eliminate Chronic Exposure
- 48-hours in 7-days

Last Resort

- Variances
 - Elyria: Indirect discharger
 - ArcelorMittal Shelby: Lack of treatment/dilution options

Questions?

