



Industrial Pretreatment Standards Protecting WWTPs

Who We Are

Medina County Sanitary Engineers:

1. Provides, maintains, and manages wastewater discharge for 39,000+ homes and businesses
2. Goal to provide safe, reliable, and efficient services that follow local, state, and federal regulations



Our Mission

To provide effective and sustainable water reclamation services while preserving and protecting the natural resources of Medina County.

MCSE Service Areas

540

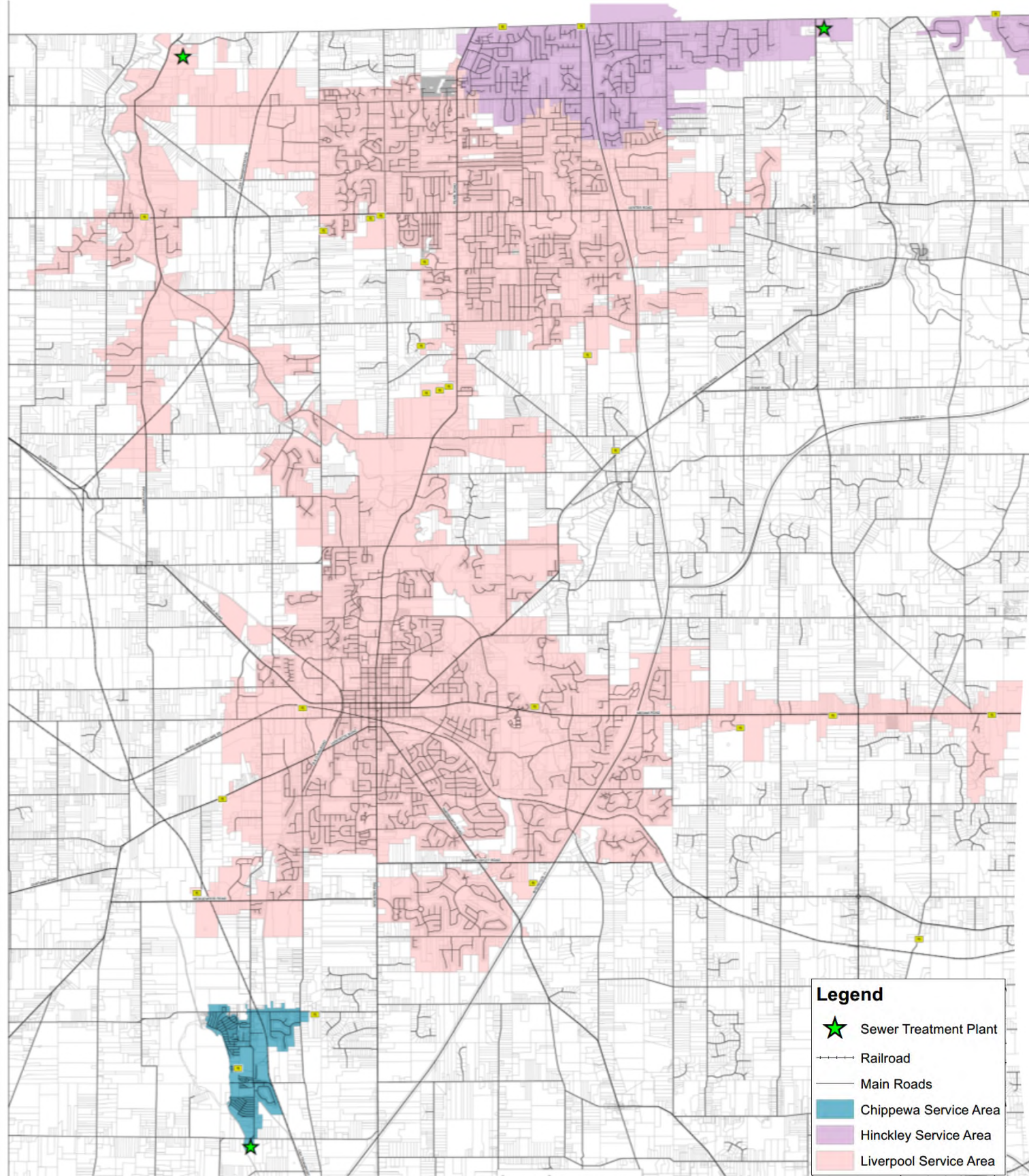
Miles of sanitary sewer

14

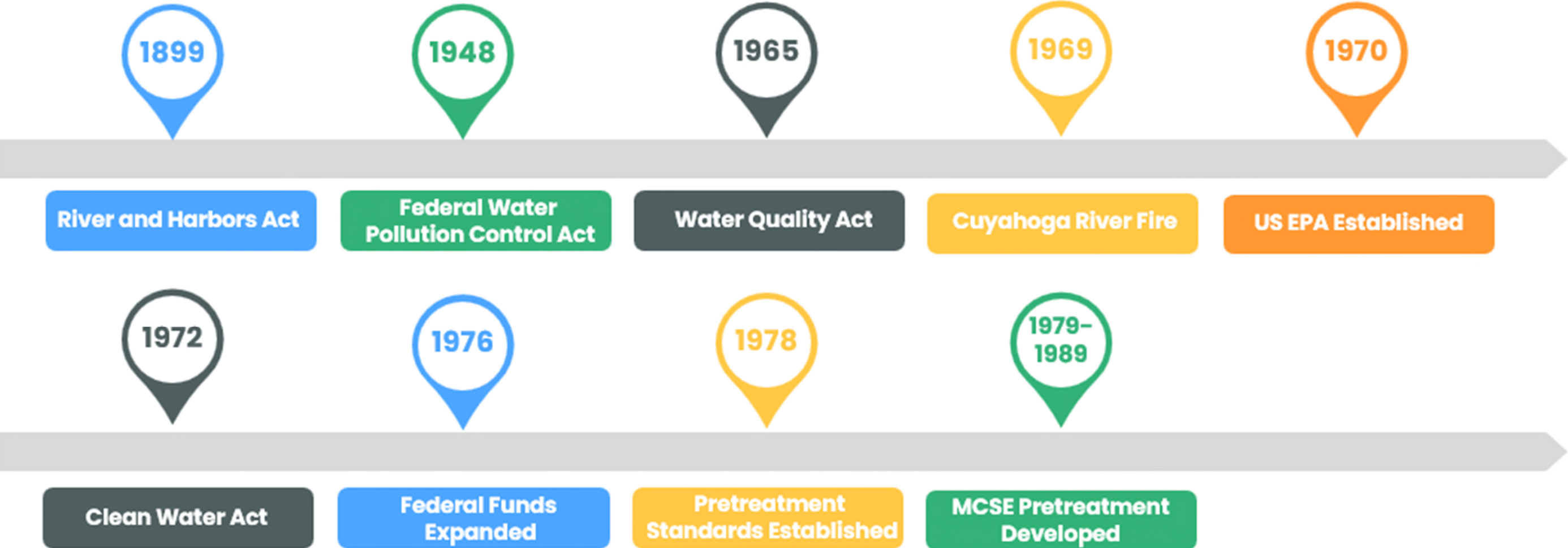
Pump Stations

3

Wastewater Treatment
Plants



Evolution of the Pretreatment Program



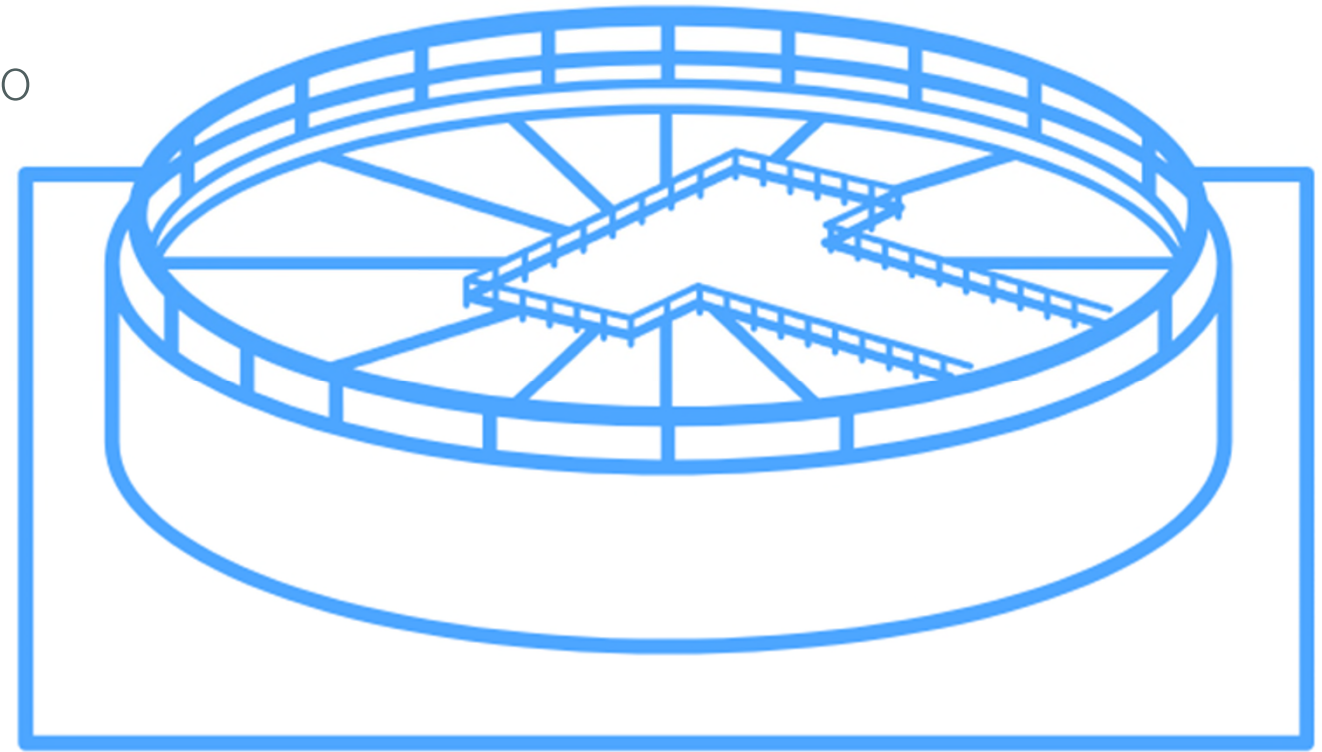
Clean Water Act (CWA) 1972

- Reorganized and expanded the Water Quality Act of 1965
- Regulated pollutants being discharged into the water ways
- Made it unlawful to discharge any pollutant into bodies of water, unless a permit was obtained
 - NPDES Permit requires POTW's to meet secondary treatment standards
- Provided construction grants for Wastewater Treatment Plants
- EPA implemented National Pretreatment Standards



Why Have A Pretreatment Program?

- Publicly Owned Treatment Works (POTWs) are not built to treat industrial toxins
- Industrial discharges harm POTWs and waterways



Protects:

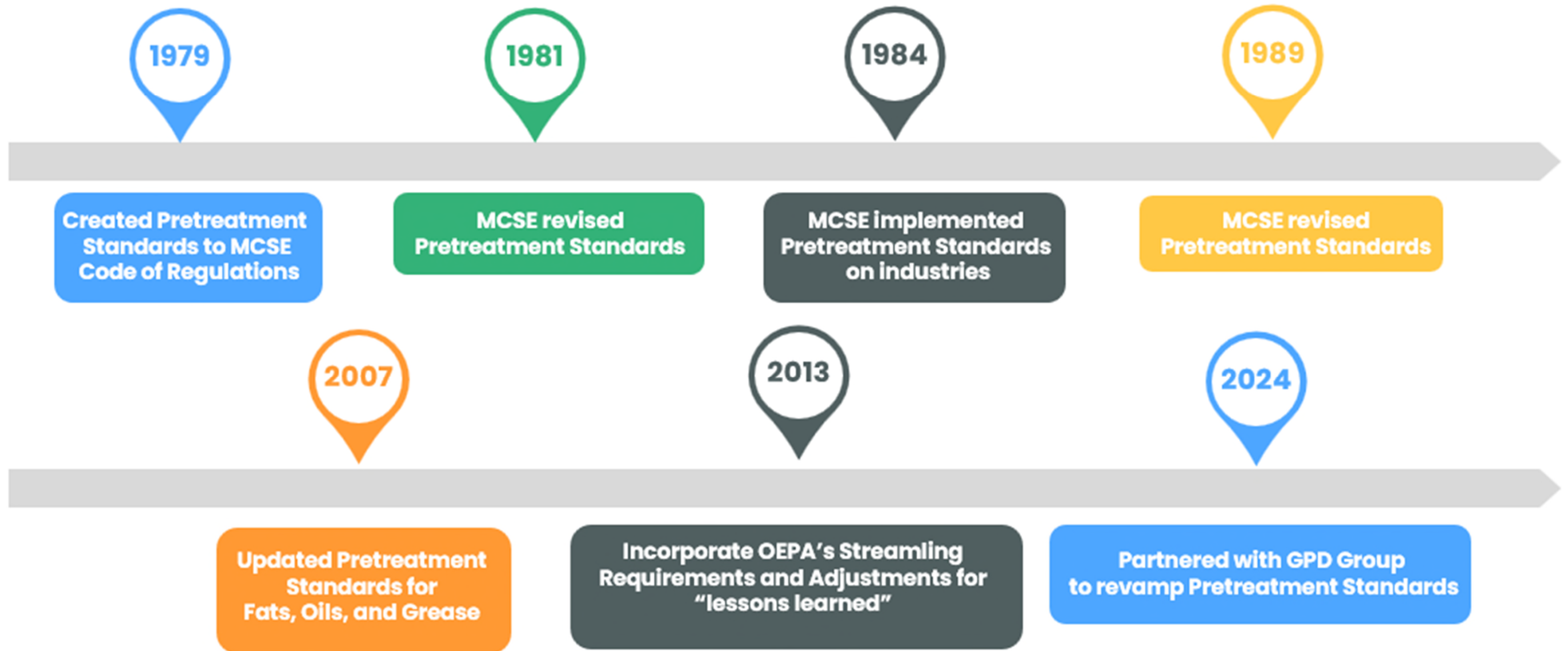
- ✓ Drinking water supplies
- ✓ Aquatic life, human recreation, and those consuming wildlife
- ✓ Prevent harmful elements entering wastewater that compromises safety

The Code of Federal Regulations (CFR)

- 40 CFR Part 403, provides industrial users to comply with pretreatment standards to ensure that the Clean Water Act (CWA) is achieved
- 40 CFR 403.2:
 - Prevents pollutants into a POTW that will cause Interference or Pass Through that could lead to a violation of the NPDES Permit

Primary Pollutants of Concern	
Cadmium	Mercury
Chromium	Total Toxins Organics
Copper	Arsenic
Lead	Hexavalent Chromium
Nickel	Cyanide
Zinc	Molybdenum
pH	Selenium
BOD	Silver
TSS	Phosphorus
Oil & Grease	Ammonia

History of the MCSE Pretreatment Program



Industrial Pretreatment Permits

- Implement Industrial Permits based on:
 - Categorical and local limits
 - Compliance monitoring and self-monitoring
 - Best Management Practice (BMP) Plan – Mercury and Oil & Grease
 - Slug Discharge Plan
 - Spill Prevention Plan
 - Reporting requirements
 - Annual inspections

Current Local Limits

Medina County Sanitary Engineers Effluent Limits

Units	Parameter	Categorical Limits		Local Limits
		Daily Max	Monthly Max	
GPD	Flow	----	----	----
S.U.	pH	----	----	6.0 to 11.0**
mg/L	BOD	----	----	220
mg/L	TSS	----	----	220
mg/L	Oil & Grease	----	----	50
ug/L	Cyanide (T)	1200	650	----
ug/L	*Cadmium (T)	110	70	394
ug/L	*Chromium (T)	2770	1710	2334
ug/L	*Copper (T)	3380	2070	675
ug/L	*Lead (T)	690	430	1778
ug/L	*Nickel (T)	3980	2380	3285
ug/L	*Zinc (T)	2610	1480	4730
ug/L	Silver	430	240	----
ng/L	Mercury (T)	----	----	BMP Plan
ug/L	TTO	2130	----	----

(T) Represents Total

* In instances where local categorical units apply, the more stringent of the two must be maintained.

** pH is considered an instantaneous limit and not a monthly average, Ph is to be taken with 15 minutes of obtaining sample.

Recent Pretreatment Issues



Rag Bin - Slug Discharge



Bar Screen - Slug Discharge



Fats, Oil, and Grease - Discharge

MCSE Pretreatment Program 2025

- ✓ Update Pretreatment Standards
- ✓ Previous Pretreatment Standards for Liverpool only
- ✓ Be proactive and not reactive
- ✓ Continue to comply with NPDES permits



MCSE Pretreatment Program Upgrade

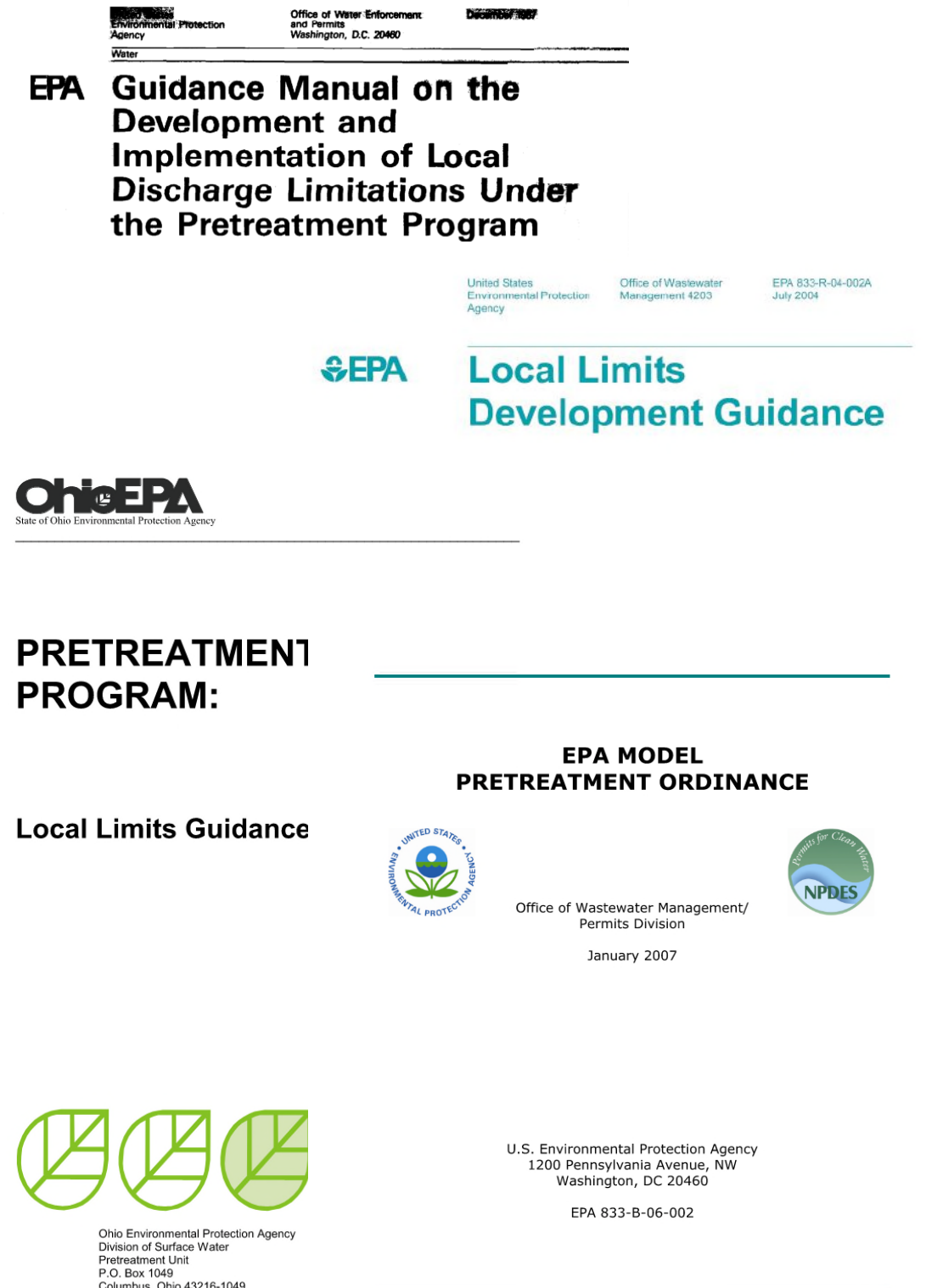
- ✓ Update Pretreatment Ordinance (Chapter 12)
- ✓ Site Visits to Existing Significant IUs
- ✓ Industrial Waste Surveys
- ✓ Review Existing IUs and Identify New IUs
- ✓ Sampling Domestic and WWTP Flows
- ✓ Headworks Loading Analysis
- ✓ Local Limits Modifications
- ✓ Significant IU Permits
- ✓ Implementation of Pretreatment Updates



**In 2024, MCSE requested SOQs
and contracted with GPD**

Pretreatment Ordinance

- Documents:
 - Supplemental Manual on the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (US EPA, 1987)
 - Local Limits Development Guidance (US EPA, 2004)
 - EPA Model Pretreatment Ordinance (US EPA, 2007)
 - State of Ohio Water Quality Standards (Ohio EPA, 2024)
 - Code of Federal Regulations (40 CFR Part 403)



Inspection Form and Industrial Waste Surveys

- Inspection Forms

- General Information
- Chemical and Spill Potential
- Pretreatment and Sampling
- Compliance and Field Inspection Notes/Photos
- Field Inspection Notes & Photos

- Industrial Waste Surveys

- Short Form Survey
- Long Form Survey

AGRICULTURAL		INDUSTRIAL		
100 - Agricultural Vacant Land	113 - Dairy Farms - CAUV		300 - Industrial Vacant Land	
101 - Grain or General Farms	114 - Poultry Farms - CAUV		310 - Food and Drink Plants	
102 - Livestock Farms	115 - Fruit and Nut Farms - CAUV		320 - Foundries/Heavy Mfg	
	COMMERCIAL			
103 - Dairy Farm	400 - Commercial Vacant Land	424 - Full Department Stores	447 - Offices, 1-2 Stories	464 - Bowling Alleys
104 - Poultry Farm	401 - Apartments - 4 to 19 Units	425 - Neighborhood Shopping Center	448 - Offices, > 2 Stories Walk-Up	465 - Lodge Hall/Amusement Parks
105 - Fruit and Nut	402 - Apartments - 20 to 39 Units	426 - Community Shopping Center	449 - Offices, > 2 Stories Elevator	480 - Warehouses
106 - Vegetable	403 - Apartments - 39+ Units	427 - Regional Shopping Center	450 - Office Condominiums	482 - Truck Terminals
	410 - Motels	429 - Other Retail Structures	452 - Auto Service Station	490 - Marine Service
107 - Tobacco Farm	411 - Hotels	430 - Restaurant/Bar	453 - Car Washes	496 - Marina (Small Boat)
108 - Nurseries	412 - Nursing Homes	435 - Drive-In Restaurant	454 - Auto Sales and Service	499 - Other Commercial Structures
109 - Greenhouse	415 - Trailer or Mobile Home Park	439 - Other Food Service Structures	455 - Commercial Garages	
	416 - Camp Grounds	440 - Dry Cleaning	456 - Parking Garage, Structures, Lots	
110 - Ag Vacant	419 - Other Commercial Housing	441 - Funeral Homes	460 - Theaters	
111 - Grain or General	420 - Small Retail Stores	442 - Medical Offices	461 - Drive-In Theaters	
112 - Livestock Farm	421 - Supermarkets	444 - Full Service Banks	462 - Golf Ranges and Miniature Golf	
	422 - Small Department Stores	445 - Savings and Loans	463 - Golf Courses	

Sampling Domestic and WWTP Flows

- Domestic Sampling

- Three service areas for Liverpool WWTP, Chippewa WWTP, and Hinckley WWTP

- WWTP Sampling

- Headworks
 - Primary treatment
 - Secondary treatment
 - Tertiary treatment (if applicable)
 - Final effluent

Arsenic
Cadmium
Chromium (total)
Chromium (hex)
Copper*

Cyanide
Lead
Mercury
Molybdenum
Nickel

Selenium
Silver
Zinc
Phosphorus
CBOD

Total Suspended Solids
Oil & Grease
Ammonia



Headworks Loading Analysis

- Water Quality and NPDES Permit
- Activated Sludge Inhibition
- Nitrification Inhibition Level
- Sludge Quality
- Anerobic Digester Inhibition Level

Parameter	Monthly Average (NPDES)	Daily Maximum (NPDES)	Water Quality Standard (WQS)
Arsenic	-	-	10 ug/L*
Ammonia	4.5 mg/L (Winter) 1.15 mg/L* (Summer)	-	7.6 mg/L (Winter) 2.3 mg/L (Summer)
Cadmium	-	-	5 ug/L*
Chromium (total)	-	-	100 ug/L*
Chromium (hex)	-	-	11 ug/L*
Copper*	-	-	500 ug/L*
Cyanide	5.2 ug/L	22 ug/L	4 ug/L*
Lead	-	-	100 ug/L*
Mercury	2.6 ng/L*	700 ng/L	3.1 ng/L
Molybdenum	-	-	-
Nickel	-	-	200 ug/L*
Selenium	-	-	50 ug/L*
Silver	-	-	50 ug/L*
Zinc	-	-	25000 ug/l mg/L*
Phosphorus	1 mg/L*	-	-
CBOD	13 mg/L (Winter) 8 mg/L* (Summer)	-	-
Total Suspended Solids	16 mg/L (Winter) 12 mg/L* (Summer)	-	-
Oil & Grease	10 mg/L*	-	-

*Utilized value for loading calculations
 **Molybdenum does not currently have a value in the Water Quality Standards or any recommendations in the Federal Code of Regulations Section 421.212. Was not included in the loading calculations.

Wastewater Effluent Requirements

Parameter	NPDES Permit (mg/kg)	Code of Federal Regulations Section 503.13 (mg/kg)	EPA Local Limits Development Guidance (mg/kg)
Arsenic	75*	75	41
Cadmium	85*	85	39
Copper	4300*	4300	1500
Lead	840*	840	300
Mercury	57*	57	17
Molybdenum	75*	75	75
Nickel	420*	420	420
Selenium	100*	100	100
Zinc	7500*	7500	2800

*Utilized value for loading calculations

Sludge Requirements – Land Application

Maximum Allowable Headworks Loading

- Determine a safety factor
- Selection of local limit loading
- Technical justification for local limits



Implementation of Pretreatment Updates



Update existing
significant IU permits



Site visit to potential
significant IUs



Onboard new
significant users



Discharge Permit
Enforcement

Key Inspection Elements



Implementation of Pretreatment Updates



Update existing
significant IU permits



Site visit to potential
significant IUs



Onboard new
significant users



Discharge Permit
Enforcement

How to Implement Pretreatment Ordinance



Phone Call & Email to Industrial User



Issue Notice of Violations Letters



Issue Significant Non-Compliance Letters

- Publish in local newspaper



Enforcement

- Administrative Penalties
 - Continuous Discharge
 - Batch Discharge
- Civil Penalties
- Show Case Hearing
- Judicial Action
- Termination of Service

MCSE Enforcement Response Guide

Non-Compliance	Nature of Violation	Response
Exceedance of discharge limits (local or categorical)	Isolated, nonsignificant	Phone Call to I.U. (a)
Exceedance of discharge limits	Frequent, non significant (repeated offense)	Notice of Violation requiring response within 10 days followed by Administrative Orders with schedule of compliance,
Exceedance of discharge limits	SNC	Notice of Violation requiring response within 10 days followed by Public Notice (b) Administrative Penalties (b)
Exceedance of discharge limits	Violation of instantaneous limits or narrative standards that cause pass-through or interference (SNC)	Notice of Violation requiring response within 10 days followed by Administrative Penalties, Administrative Orders with schedule of Compliance, and Public Notice (b)
Exceedance of discharge limits	Results in known environmental or POTW damage (endangerment to life)	Administrative Orders requiring immediate disconnect followed by show cause hearing and judicial action (d)
Slug load discharge	Isolated without known damage	Notice of Violation followed by check of I.U. spill & slug control plan (b)
Slug load discharge	Isolated with known interference, pass-through, or damage results – (SNC)	Phone call followed by Notice of Violation followed by check of spill & slug control plan followed by show cause hearing and Administrative penalties (a)(b)
Slug load discharge	Recurring – (SNC)	Administrative Orders requiring disconnect followed by judicial action with fines. Public Notice

Q&A

Sources

- Ohio Environmental protection agency, summary of the clean water act, 33 U.S.C. 1251 et seq. (1972), June 2024, <https://www.epa.gov/laws-regulations/summary-clean-water-act>
- Ohio Environmental protection agency, history of the clean water act, June 2024, <https://www.epa.gov/laws-regulations/history-clean-water-act>
- Collaborative for health & environment, “the river caught fire”: the Cuyahoga river fire of 1969, 2025, <https://www.healthandenvironment.org/resources/resource-library/eh-history/the-cuyahoga-river-fire-of-1969>
- Ohio Environmental protection agency, Section 10 of the Rivers and Harbors Appropriation Act of 1899, 33 U.S.C. 403. Construction of bridges, causeways, dams or dikes generally; exemptions, March 2025, <https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899>
- Ohio Environmental protection agency, Introduction to the national pretreatment program, U.S. ENVIRONMENTAL PROTECTION AGENCY OFFICE OF WASTEWATER MANAGEMENT (4203), June 2011 https://www.epa.gov/sites/default/files/2015-10/documents/pretreatment_program_intro_2011.pdf

Local Limits 2025

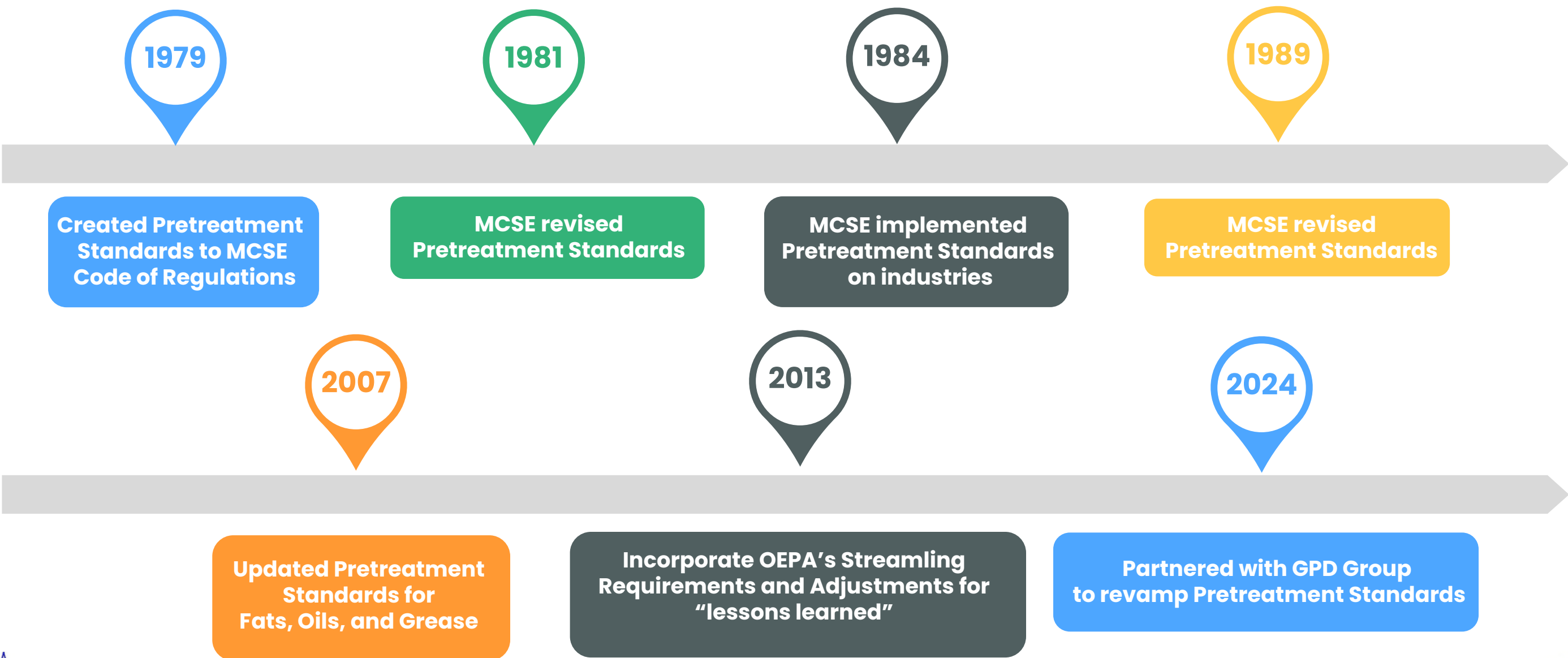
- Reviewed local limits at all three WWTPs
- Conducted domestic wastewater sampling
 - Selected 13 sanitary manholes countywide
- Sampled all WWTPs during domestic sampling





New Industrial User – Compliance and Pretreatment Development

History of the MCSE Pretreatment Program



How to Implement Non-Compliance Users



Phone Call & Email to Industrial User



Issue Notice of Violations Letters



Issue Significant Non-Compliance Letters

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Enforcement



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Evolution of the Pretreatment Program

