

# Local Sewer Use Ordinance for Mini-Pretreatment Program for Industrial Discharges

## Introduction

POTWs are not designed to treat toxics in industrial waste. As such, these discharges, from both industrial and commercial sources, can cause serious problems at the treatment plant. The undesirable outcome of these discharges can be prevented using treatment techniques or management practices to reduce or eliminate the discharge of these contaminants. The act of treating wastewater prior to discharge to a POTW is commonly referred to as "pretreatment". The National Pretreatment Program, published in Title 40 Code of Federal Regulations (CFR) Part 403, provides the regulatory basis to require non-domestic dischargers to comply with pretreatment standards (effluent limitations) to ensure that the goals of the Clean Water Act (CWA) are attained. As noted in 40 CFR §403.2, the objectives of the National Pretreatment Program are to:

- Prevent the introduction of pollutants into POTWs which will **interfere** with the operation of a POTW, including interference with its use or disposal of municipal sludge;
- Prevent the introduction of pollutants into POTWs which will **pass through** the treatment works or otherwise be incompatible with such works; and
- Improve opportunities to recycle and reclaim municipal and industrial wastewaters and sludges.

The two key terms used in EPA's objectives for the National Pretreatment Program, "interference" and "pass through," are defined below.

**Interference:** a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal, and
- Is a cause of a violation of any NPDES permit requirement or of the prevention of sewage sludge use or disposal in compliance with any applicable requirements.

**Pass Through:** a discharge which exits the POTW into waters of the U.S. in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any NPDES permit requirement.

In New York State there are 57 municipal sewerage authorities that have EPA approved local pretreatment programs as required by the General Pretreatment Regulation (40 CFR 403). There are numerous other POTWs that serve industrial dischargers that have been or will be required to implement a mini-pretreatment program. A mini-pretreatment program is something less than a full pretreatment program as described by Part 403.

The Pretreatment Regulations apply to municipalities operating POTW's with total flows in excess of 5 million gallons per day (MGD) and which receive industrial wastes from sources

subject to the national pretreatment standards. However, many small POTWs are interested in developing a scaled-back version of a pretreatment program.

### **Legal Authority**

The POTW must document procedures for obtaining and ensuring compliance with applicable standards. Such procedures shall include requirements and schedules for discharge permits, industrial self-monitoring, compliance monitoring and an enforcement program.

The local POTW is the most logical authority to operate the program, but it must have sufficient power to enforce its rules and regulations on industrial users and to obtain the data necessary to maintain the degree to which its rules are being complied.

WWTP and IU monitoring results are used by the POTW to draft a local sewer use law equivalent to the DEC Model Sewer Use Law. Local limits for those pollutants which could cause SPDES permit violations or which may limit sludge disposal must be included in the local law.

POTWs with existing pass-through or interference problems must develop and enforce local limits.

### **Headworks Analysis**

Refers to the initial sampling of the POTW influent to determine what pollutants are present.

- Large POTW's usually sample for all 126 priority pollutants
- Smaller POTW's can sample for a smaller list to save \$\$
- May be able to focus on specifics based on an industry
- Ten heavy metals (Cd, Cr, Cu, As, Ag, Hg, CN, Pb, Ni, Zn) plus any other pollutant reasonably expected to be discharged to POTW's in quantities which could pass through or interfere, contaminate sludge, or jeopardize POTW worker health or safety.

Once you know what to sample for, start with a whole plant analysis:

- Influent
- Primary effluent (if applicable)
- Secondary effluent/plant effluent
- Sludge

Information obtained will be used to determine:

- Individual process removals
- Overall POTW removal
- Sludge concentration
- Mass balance (fate of pollutants)

How to sample:

- Choose a good location
- Select proper sample type and deviation
- Stagger sampling of POTW based on the hydraulic detention time of processes

Headworks Analysis leads to headworks loadings.

- **Headworks Loadings** are the maximum pollutant levels that can be in the POTW influent and prevent inhibition, pass-through and sludge contamination.
- **Headworks Loadings** are used to develop **Local Limits**.

## **Local Limits**

### **Purpose of Local Limits:**

- Protect receiving stream
- Correct existing treatment problems
- Prevent potential problems
- Protect POTW/personnel
- Increase efficiency and cut O&M costs
- increase sludge disposal options

### **Types of Local Limits**

- Numeric limitations for specific pollutants
- Prohibited discharges
- BMPs

### **Three Basic Approaches to Apply Local Limits**

- Adoption in POTW legal authority (i.e., SUO)
- Include in individual control mechanism (i.e., in permits)
- Combination of both

### **Maximum Allowable Headworks Loading Method (MAHL)**

Pollutant by pollutant, treatment plant data are used to calculate removal efficiencies, before applying the most stringent criteria (i.e., water quality, sludge quality NPDES permit, or pollutant inhibition levels) to back calculate the MAHLs. Subtracting out contributions from domestic sources, the available industrial loading is then either evenly distributed among the IUs, or allocated on an as needed basis to those IUs discharging the pollutant above background levels.

## Who Develops Local Limits?

POTWs with existing pass through or interference problems must develop and enforce local limits.

## Overview of Methodology for Developing Local Limits

Step 1 - Collect data for local limits development

Step 2 - Develop maximum allowable headworks loadings

Step 3 - Determine maximum allowable industrial loading

Step 4 - Allocate allowable industrial loading

## Other Important Points About Local Limits

- Address the specific needs of a POTW and its receiving stream.
- Local limits are usually implemented at "end of pipe."
- Is a complex process. **It is recommended that a consultant be used to assist the POTW in this process.**
- May have both a categorized limit as well as a local limit for a pollutant. (The more stringent limit is always applied).
- The process consists of performing calculations for each of the following:
  - process inhibition for biological processes
  - pass-through to the receiving stream
  - sludge contamination
- When calculating for pass-through, assume **minimum** removal through the POTW.
- When calculating for process inhibition, assume **minimum** primary treatment removal.
- When calculating for sludge contamination, assume **maximum** POTW removal.
- Each calculation is performed for each pollutant. Therefore, each pollutant will require at least 3 calculations. The most stringent (or lowest value) of the series is used to develop the maximum allowable influent loading (MAIL) or Headworks Loading for that pollutant.
- Once the MAIL's are calculated, a system of distribution of that mass (pounds/day) needs to be selected.
- Local Limits need to change your industrial user (IU) community changes.
- Local Limits need to be recalculated periodically.
- Local Limits should include a safety factor for domestic or background levels of a pollutant.

Methods of allocation for local limits:

- uniform concentration
- concentration limits based on IU flows
- mass proportion limits
- selected industrial reduction method

**Maximum Allowable Industrial Load (MAIL)** The MAIL is the total daily mass that a POTW can accept from all permitted IUS and ensure the POTW is protecting against pass through and interference.

**Summary of Standards**

A summary of all the pretreatment standards, including general and specific prohibitions, categorical pretreatment standards, and local limits, is provided as below:

	<b>General &amp; Specific Prohibitions</b>	<b>Categorical Pretreatment Standards</b>	<b>Local Limits</b>
<b>Development</b>	Established at the Federal Level	Established at the Federal Level	Developed by Control Authorities
<b>Reference</b>	40 CFR 403.5(a) & (b)	40 CFR Parts 405-471	Requirements for development found in 40 CFR §§403.5(c) & 403.8(f)(4)
<b>Applicability</b>	All IUs	CIUs	Commonly all IUs or all SIUs, but depends on allocation method used when developing limits.
<b>Purpose</b>	Provide for general protection of the POTW. May be superseded by more stringent categorical pretreatment standards or local limits.	Minimum standards based on available treatment technology and pollution prevention measures for controlling nonconventional and toxic pollutants that may cause pass through, interference, etc. at the POTW. May be superseded by more stringent local limits.	Provide site specific protection for a POTW and its receiving waters. May be superseded by more stringent categorical standards.

**All standards are considered pretreatment standards for the purpose of Section 307(d) of the Clean Water Act. A POTW is responsible for identifying standard(s) applicable to each industrial user and applying the most stringent requirements where multiple provisions exist. Compliance with imposed standards can be achieved through implementation of best management practices, development of a pollution prevention program, and/or installation of pretreatment.**