Coachella Valley Water District

Fats, Oils, and Grease (FOG) Program

Background

The discharge of fats, oils and grease (FOG) from animal and vegetable sources can create sewer line stoppages that result in sanitary sewer overflows (SSOs). Two main sources of FOG discharges are from the restaurant industry and similar (e.g. cafeterias, schools, colleges, and universities with food services, and commercial kitchens) and residential users. The FOG discharges may be a result of poor housekeeping practices at restaurants and from poorly informed decisions by residential users. The result is the same: SSOs.

The FOG discharges start in a liquid, semi-liquid or solid state due to temperature or hydrogenation state. Fats, oils, and greases all have fatty acid components. Palmitic acid is the most widely occurring saturated fatty acid and is found in beef tallow (32%), lard (30%) and cottonseed oil (21%). Oleic acid is the most widely occurring unsaturated fatty acid and is found in olive oil (83%) and peanut oil (60%).

Two conditions of common fats are saturated and unsaturated. The saturated fats are solids at room temperature, while the unsaturated fats are either liquid or semi solid at room temperature. Many unsaturated fats are hydrogenated to make the fat solid at room temperatures. The hydrogenation process breaks the double carbon bonds of an unsaturated fat and replaces hydrogen molecules in place of the double bond. This hydrogenation process creates a saturated fat. The more hydrogenated a vegetable oil the more solid the oil is at room temperature. Vegetable shortenings that are solid at room temperature are vegetable oils that have been completely hydrogenated.

Examples of animal saturated fats are beef, chicken, and pork. An example of a plant saturated fat is found in avocadoes. Many forms of these fats are liquefied by increasing the temperature of the fat as in the case of a deep fat fryer. Some are liquefied when exposed to bacteria, biological or chemical enzymes, chemical agents, or solvents.

The discharge of hot or warm FOG materials to the sewer causes the quickest stoppage problems due to the receiving environment. The sewer line temperatures typically range from 70-80 degrees Fahrenheit. At this temperature, the hot or warm FOGs that are discharged to the sewer cool off, adhere to the interior surfaces of a sewer line, and then harden in place once completely cooled. The adhesion sites become future sites for additional adhesions much like making a candle. A source discharge of FOG will create a blockage pattern in the sewer line characteristic of the material discharged and the frequency of discharge. The blockage tends to increase in size downstream of the user's lateral connection to the sewer.

Many FOGs accumulate on the upper surfaces of the sewer lines due to floating properties of FOGs and the non-miscibility of FOGs in water. The depositions of the FOGs on the upper surfaces of a sewer line are exacerbated by increases in the wastewater level caused by FOG obstructions that restrict the sewer flows.

Grease interceptors are gravity separation devices to separate FOGs and solids from the wastewater discharge. The use of biological or chemical agents in grease interceptors to liquefy FOGs prior to discharge is problematic. Bacteria and enzymes act by reducing the long chain fatty acids into smaller chain molecules. A bacteriological system would need 24-72 hours to completely aerobically metabolize the FOGs to carbon dioxide and water. A gravity separation interceptor has about 30-120 minutes of detention time. The result of bacterial or enzymatic product usage is a liquefaction or emulsification of the FOGs in the interceptor. This liquefied FOG is subsequently discharged to the sewer where any further degradation of the FOG by the bacteria or enzyme is prevented due to the dilution of the material and other interferences in the receiving sewage. The liquefied FOGs begin to adhere to sewer line interior walls, deplete the oxygen content of the wastewater due to natural degradation microbes present in wastewater, and create odor problems due to the depleted oxygen content.

The District's FOG program is focused on preventing the discharge of FOGs to the sewer system and educating the restaurant community and homeowners about FOG Best Management Practices.

FOG Program Elements

The District inspects over 600 restaurants and similar sites. These sites have grease interceptors ranging in size from 750 to 15,000 gallons. The District uses many activities, or elements, to control and prevent the discharge of FOG to the District's sewer collection system (collection system). These elements include:

1. Site Inspections
2. Public education and outreach
3. Collection system cleaning and assessments
4. Collection system and sewer lateral closed circuit television (CCTV) inspection
5. Enforcement actions by the Source Control Section (SCS)
6. Grease interceptor retro fits
7. Training

Site Inspections

Inspections of restaurants and similar sites enable the District to learn what sites may be problematic to the area's collection system. The District's SCS is responsible for inspecting all restaurants and similar facilities within the District boundaries minimally quarterly, with many being inspected two times per month. The increase in frequency is determined by the history of the site, the type of restaurant, complaint history, manpower availability, sewer line blockage or SSO history. The site inspections are maintained in a field data base system which provides the SCS with an inspection and enforcement history for the site.

The inspection will reveal if any bacterial, enzymatic, or chemical agents are used to dissolve, emulsify or suspend FOGs. The bacterial, enzymatic, or chemical agents may be found in products used for cleaning silverware, pots and pans, drain cleaning, and floor cleaning. Some products are specifically designed as a grease interceptor additive and are used to liquefy the FOGs in the grease interceptor with the promise that the interceptor will never need pumping. By District's standards, a grease interceptor's performance will be negatively impacted once the operational fluid capacity reaches 25%. The site inspection will also evaluate the grease interceptor for performance and integrity. Performance will also be affected by missing sanitary tees, missing or plugged baffle tubes, influent or baffle tube extensions that are too long (Appendix A). The integrity of the interceptor is often affected by anaerobic conditions that generate sulfide gas that causes corrosion of concrete surfaces.

Once the concrete begins to corrode, plumbing connections are compromised and, in some cases, the structural integrity of the interceptor is in question.

The SCS also works closely with the Riverside County Department of Environmental Health to share information gained during restaurant inspections. The SCS inspectors have some knowledge of what constitutes Health and Safety Code restaurant violations. When these violations are observed, a phone call is placed to the Health Department to have the area inspector respond and take appropriate enforcement actions.

Public Education and Outreach

The District uses the SCS inspectors as the principle education and outreach method to contact the restaurant community and residents. During an inspection of a restaurant, the inspector will use the opportunity to inform and educate the owner or manager about the various laws and regulations that affect their business. Subject areas would include: storm drain, product usage and substitution, good housekeeping practices, grease interceptor evaluation, District regulation applicability, and any SCS permit requirements.

The District also informs residents about proper disposal methods for FOG. The residents are instructed to, "Never pour kitchen grease down the drain. Put it in a container and dispose of it in the trash." Through bill stuffers and handouts the residents are educated about the need to keep FOG out of the sewer. The residents are encouraged to contact the District for more information and clarification in regards to the FOG program.

Sewer Line Cleaning and Assessments

The District has approximately 1,107 miles of gravity draining sewer lines and 81 miles of force main lines. The majority of the gravity flow sewer lines are 8 inches in diameter. The District's Collections Staff is scheduled to clean a certain amount of sewer line each day to insure that the system's operational capacity is realized. The collection system also has 34 sewer lift stations that are inspected on a daily basis to insure peak performance.

All the attention to line cleaning and pump station performance is focused on system integrity. A 2 inch thick deposit of FOG on the sidewalls of an 8 inch sewer line can lead to an SSO in a very short period of time. The District's collection system's scheduled cleaning can prevent SSOs from occurring. In addition to routine cleaning, known problem areas throughout the District are given extra attention. These additional cleanings are for sewer lines with a history of excessive roots, grease, solids or all three.

The Collections Staff prepares written reports for all sewer cleaning activities, including SSOs. These reports provide the details of the condition of the sewer line and any problems that were encountered. When heavy or excessive FOG is found, a report is generated and given to the SCS to investigate.

Sewer and Lateral CCTV Inspections

The most useful tool used by the Collection Staff to evaluate the condition of the sewer system is closed circuit television (CCTV) inspection. The District uses internal CCTV inspection and contracts with outside contractors to evaluate the Dictrict's sewer system. The goal is to maintain a video library of every sewer line within the District. The CCTV inspections are also used to provide information about sewer line blockages. Since these CCTV inspections are recording actual events and conditions, the CCTV records can be used as evidence in an enforcement action. Sewer and lateral CCTV inspections are a necessary component for the SCS to bring an enforcement action against a business or company that has caused or has the potential to cause a sewer line blockage and/or SSO.

Enforcement

The discharge of wastewater by a user that causes a sewer line obstruction or blockage is prohibited by the federal Clean Water Act, 40 CFR 403.5(b)(3) and the District's Rules and Regulations Governing Sanitation Service. The SCS is empowered by the District's Rules and Regulations Governing Sanitation Service Ordinance to take enforcement actions against any user that causes a sewer line obstruction and/or SSO. In order for the enforcement action(s) to be successful, a firm foundation of court admissible evidence must be obtained. This evidence must be objective and devoid of personal opinions. The use of CCTV evidence is a critical component of an enforcement action taken against a user for causing a sewer line blockage and/or SSO. In addition to the CCTV evidence, inspections are performed by the SCS at the suspected business to evaluate and investigate the cause(s) of the sewer line blockages and/or SSO. Once all evidence is collected, the information is reviewed and an enforcement strategy is planned. The enforcement will always be commensurate with the degree of the violation found and will follow the procedures and requirements of the District's Enforcement Response Plan. If the sewer line debris accumulation has just begun and no SSO or sewer obstruction has occurred, then a correction notice may be issued to improve housekeeping practices and evaluate the business practices that may lead to the discharge of materials that caused the sewer line debris accumulations. If the sewer line accumulations are significant and/or an SSO has occurred, then more severe enforcement actions may be taken. A notice of violation (NOV) will be issued with a compliance schedule to mitigate the conditions that caused the sewer line blockage and/or SSO to occur.

In addition, the Riverside County Environmental Health Department may issue a Cease and Desist Order (CDO). The NOV or CDO will require that the discharges causing the sewer line blockage and/or SSO must stop immediately and the user shall take all actions necessary to prevent any future discharges that could cause a sewer line blockage or SSO. These actions are required to be submitted in writing and the user held accountable for the correction actions submitted. If the user fails to achieve compliance or is unresponsive to the requirements of the correction orders, then additional civil and/or criminal actions may be taken.

The District's Regulations Governing Sanitation Service is being revised to include; "The use of chemicals to dissolve grease is specifically prohibited." After revision the SCS inspection staff will be looking for these products during every restaurant inspection. When a prohibited product is discovered being used, the user will be ordered to immediately stop the use of the product and have the product removed from the premises. Failure to comply may result in additional enforcement actions, including civil and/or criminal actions.

Grease Interceptor Retro Fits

One of the main enforcement tools used by the SCS for restaurant and similar facilities is the required installation of a grease interceptor. For new construction and tenant improvement projects, this action is accomplished through the Dictrict's plan check process. Building permits cannot be obtained if the user has not agreed to the SCS requirements for the project. If an existing restaurant or similar facility has been proven to be the cause of a sewer line blockage and/or SSO and does not have grease interceptor, then the user is required to install an appropriately sized grease interceptor within 90 days. This enforcement action may also include the installation of trench drains at the trash enclosure to prevent wastewater discharges from entering the storm drain. If the existing restaurant or similar facility has a grease interceptor but the device is poorly maintained or is inadequate to treat the type and volume of wastewater from the facility, then the user will be required to replace the existing grease interceptor with one that is adequate for the intended application.

If the restaurant or similar facility is found responsible for the sewer line blockage and/or SSO, then the costs of cleanup and/or repairs necessary to remove the blockage and/or SSO will be invoiced to the facility.

Training

The SCS inspector has knowledge, skills, and abilities that are constantly being challenged and improved. Training of the inspector for FOG issues is critical to insure that the inspector is adequately equipped to respond to restaurant inspection and SSO investigation findings. This training includes:

1. Laws and regulations
2. New technology and equipment
3. New pretreatment methodology
4. Inspection practices
5. Safety/traffic control
6. Enforcement actions

The District uses a variety of means to train the SCS inspector in these areas. These are:

1. SCS Phase Training
2. Pretreatment Inspection Courses, Cal State Sacramento
3. Specialty conferences and events
4. Special schools and training events
5. Meetings, discussions, and field training with more experienced SCS inspectors

Summary

The District's SCS and Collection System Section work closely together to find, investigate, and correct problems caused by the discharge of FOG to the collection system. Preventive rather than reactive sewer cleaning and inspections and SCS inspections are critical to insure the integrity of the District's collection system. Prompt responses to SSOs are necessary to quickly mitigate the effects to the SSO on the community. Enlisting the services and resources of the County and California Regional Water Quality Control Board enhance the performance of the District's FOG program.

Appendix A

Grease Interceptor Evaluation Form

Coachella Valley Water District
Post Office Box 1058, Coachella Ca. 92236
(760) 398-2651 or (800) 262-2651 toll-free within the Coachella Valley

SOURCE CONTROL PROGRAM

INTERCEPTOR/SEPARATOR INSPECTION

Name of discharger _____

Address of discharger _____

VIOLATION OF REGULATIONS GOVERNING SANITATION SERVICE PART 9

	(ACCEPTABLE RANGE)	(INSPECTION RESULTS)
☐ LOWER EXPLOSIVE LIMIT	10 percent or less	
☐ HYDROGEN SULFIDE	10 ppm or less	
☐ PH RANGE	5.0 to 9.5	
☐ GREASE AND OIL	150 mg/1	
☐ SUSPENDED SOLIDS	500 mg/1	
☐ BIOCHEMICAL OXYGEN DEMAND	400 mg/1	

☐ Grease interceptor/separator capacity has been exceeded. Interceptor/separator must be completely pumped to obtain compliance. Pumping receipt is to be provided at the time of the recheck inspection on _____.

☐ Excessive odor in violation of the Rules and Regulations Governing Sanitation Service Part 9, section 9, Subsection 9-1 (9) which states; "Any noxious or malodorous gas or substance in a quantity capable of creating a public nuisance."

☐ Oil and sand separator capacity has been exceeded. Oil and sand separator must be completely pumped to obtain compliance. Pumping receipt is to be provided at the time of the recheck inspection on _____.

☐ Excessive oil and/or grease in sample box.

☐ Interceptor/separator inaccessible for inspection, in violation of the Rules and Regulations Governing Sanitation Services Part 9, Section 9-5, which states in part, "All interceptors/separators shall be of a type and capacity approved by the General Manager, and shall be located as to be readily and easily accessible for cleaning and inspection.

MECHANICAL MALFUNCTION DUE TO:

☐ 1. Missing sanitary tee in the sample box.
☐ 2. Baffle tubes missing.
☐ 3. Baffle tubes plugged.
☐ 4. Discharge line restricted.
☐ 5. Baffles are submerged due to a restriction in the discharge line, interceptor needs to be pumped to obtain compliance.
☐ 6. Interceptor/separator inaccessible for inspection, in violation of the Rules and Regulations Governing Sanitation Services Part 9, section 5, which states in part, "All Interceptors/Separators shall be of a type and capacity approved by the General Manager, and shall be located as to be readily and easily accessible for cleaning and inspection."

These violations must be corrected within 7 days of receipt of this noncompliance order.

☐ **In compliance**

REMARKS _____

RECEIPT OF NOTICE ACKNOWLEDGED BY DISCHARGER

_____ Printed Name and Title

_____ Signature

_____ Inspector

_____ Date

to directly measure production each time you monitor. The equation is:

$$\frac{\text{standard} \times \text{average production rate}}{\text{average flow rate} \times \text{conversion factor}} = \text{equiv. conc. limit}$$

3. Use of PBS with a Permit System

The EPA strongly recommends that equivalent limits be applied using a permit, contract, order, or other official document that is transmitted to the IU. The document should clearly spell out 1) the equivalent limit 2) the flow andor production rates upon which the limit is based, and 3) the requirement to notify the CA of changes in flow andor production rates requiring limit revision.

E. Combined Wastestream Formula (CWF)

The CWF is a method for calculating alternative pollutant limits for IU's where regulated process effluent is mixed with other wastewaters (either regulated or unregulated) prior to treatment. The EPA recognizes that separate treatment of wastes at an integrated plant can be costly, wasteful of energy, inefficient, and environmentally counterproductive.

To understand the CWF the following definitions will need to be learned:

Regulated Wastestream — a wastestream from an industrial process that is regulated by a categorical standard for pollutant X.

Unregulated Wastestream — a wastestream not regulated but also not a dilute wastestream as defined below.

Dilute Wastestream — a wastestream that includes:

Sanitary Wastewater
Noncontact cooling water and boiler blowdown
Wastestreams listed in 40 CFR Part 403

Note that if a CA is concerned that an unregulated stream is actually acting as dilution, the CA can establish a limit more stringent than otherwise derived.

F. Miscellaneous Pretreatment Topics

1. Removal Credits

The EPA has provided a mechanism whereby a POTW could allow higher categorical limitations upon receiving such authority from the EPA and State. The approval is contingent upon demonstrating a consistent removal percentage for specific pollutants by a POTW. In effect the POTW passes along to the IU's a portion of its removal efficiency back to the IU's in the form of higher concentration limits.

Although this will result in fewer violations of limitations by the IU's because of the higher pollutant limits granted, the increased pollutants will mostly end up in the POTW's sludge. Increased concentrations of pollutants in the sludge may adversely effect the POTW's sludge disposal options.

2. Fundamentally Different Factors (FDF)

The EPA has a provision in the regulations that allows an IU or any interested party to request a variance for the establishment of limits either less stringent or more stringent than required by a Categorical Pretreatment Standard. The primary criterion for approval of an FDF variance is that the factors relating to the discharge from the IU controlled by the Categorical Pretreatment Standard are fundamentally different from the factors considered by the EPA in establishing the standards.

G. The Roles of the EPA, State and Local Agencies

Once the PSCP is delegated to the State, then the EPA's role changes to overview of the program. The EPA will overview in the following ways:

a) concurrence role in removal credits applications
b) program grants - such as contract assistance for State audits of POTW's and unregulated IU's
c) audits of State board

Regional Boards will be running the PSCP. The EPA will substantially retain FDF decisions.

The State Board will be responsible for the overall consistency and high quality of PSCP implementation. The SB will check enforcement efforts for timeliness and appropriateness. The SB will function as a resource for the RB's. The SB will be sensitive to the quality of work, number of audits, and number of inspections by the RB's. The SB may look directly at certain IU's.

There will be at least 30 audits per year. The audits are currently using private contractors to train RB personnel in conducting an audit.

Once California has authority delegated to it then all of the above will occur. Also the POTW's will submit their annual and other reports to the RB's. RB's will enforce if the POTW is unable to.

AFFECTED POTWs

Any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day and which receives from industrial users pollutants which pass through untreated or interfere with the operation of the POTW or are subject to pretreatment standards developed pursuant to Section 307(b) or 307(c) of the Clean Water Act.

PRETREATMENT STANDARDS — PROHIBITED DISCHARGES

1. Pollutants which create a fire or explosion hazard in the POTW.
2. Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the works is specifically designed to accomodate such discharges.
3. Solid or viscous pollutants in amounts which will cause obstruction to the flow in sewers, or other interference with the operation of the POTW.
4. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge of such volume or strength as to cause interference in the POTW.
5. Heat in amounts which will inhibit biological activity in the POTW resulting in interference, but in no case heat in such quantities that the temperature at the treatment works influent exceeds 40 C (104 F) unless the works is designed to accomodate such heat.

United States
Environmental Protection
Agency

Office of Wastewater
Management (4203)

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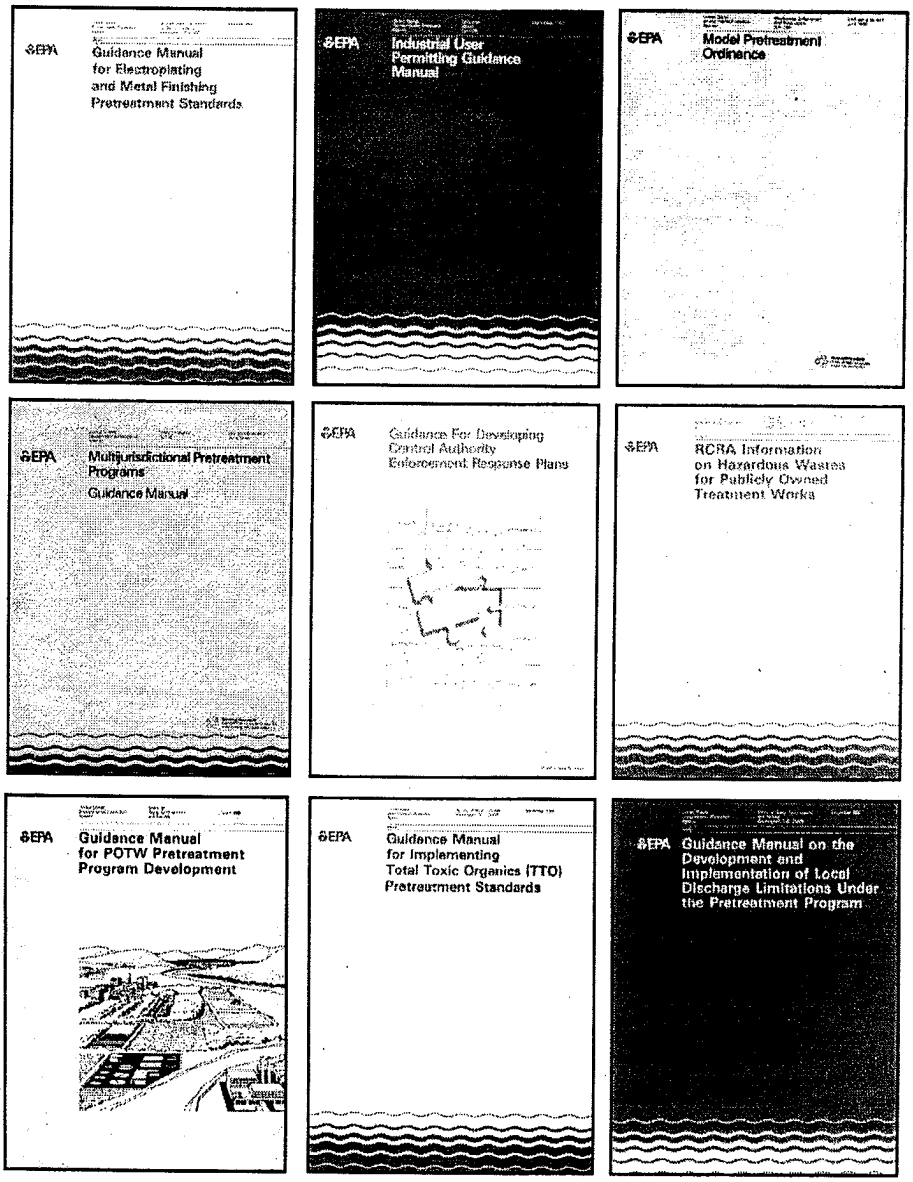
Introduction to the National Pretreatment Program



2. OVERVIEW OF THE NATIONAL PRETREATMENT PROGRAM

THE CLEAN WATER ACT

Chapter 2. Applicable EPA Guidance

Control Authority Pretreatment Audit Checklist and Instructions
Guidance for Conducting a Pretreatment Compliance Inspection
Guidance for Reporting and Evaluating POTW Noncompliance with Pretreatment Implementation Requirements
Guidance Manual for POTW Pretreatment Program Development
Pretreatment Compliance Inspection and Audit Manual For Approval Authorities
Procedures Manual for Reviewing a POTW Pretreatment Program Submission

On October 18, 1972, the 92nd Congress of the United States passed the Federal Water Pollution Control Act Amendments of 1972, declaring the restoration and maintenance of the chemical, physical, and biological integrity of the Nation's water as a National objective (see Figure 5). While procedures for implementing this act (more commonly referred to as the Clean Water Act (CWA)) have been re-evaluated and modified over time, the 1972 objective has remained unchanged in its 25 year history.

The 1972 Amendments to the CWA established a water quality regulatory approach along with EPA-promulgated industry-specific technology-based effluent limitations. The National Pollutant Discharge Elimination System (NPDES) permit program was established under the CWA to control the discharge of pollutants from point sources and served as a vehicle to implement the industrial technology-based standards. To implement pretreatment requirements, EPA promulgated 40 CFR Part 128 in late 1973, establishing general prohibitions against treatment plant interference and pass through and pretreatment standards for the discharge of incompatible pollutants from specific industrial categories.

To restore and maintain the chemical, physical, and biological integrity of the Nation's waters:

(1) it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;

(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;

(3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;

(4) it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;

(5) it is the national policy that Area wide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State;

(6) it is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans; and

(7) it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Chapter to be met through the control of both point and nonpoint sources of pollution.

Figure 6. Section 101 of the Clean Water Act (CWA)

In 1975, several environmental groups filed suit against EPA challenging EPA's criteria for identifying toxic pollutants, EPA's failure to promulgate effluent standards, and EPA's failure to promulgate pretreatment standards for numerous industrial categories. As a result of this litigation, EPA promulgated the General Pretreatment Regulations at 40 CFR Part 403 on June 26, 1978, replacing the 40 CFR Part 128 requirements. Additionally, as a result of the suit, EPA agreed to regulate the discharge of 65 categories of pollutants (making up the 126 priority pollutants presented in Figure 4) from 21 industrial categories. The list of priority pollutants is still in effect today (the original list actually had 129 pollutants, three of which have since been

removed from that list) while the list of regulated industrial categories has grown to more than 51 distinct industries. A discussion of industry specific requirements are provided in Chapter 3.

THE GENERAL PRETREATMENT REGULATIONS

The General Pretreatment Regulations establish responsibilities of Federal, State, and local government, industry and the public to implement Pretreatment Standards to control pollutants which pass through or interfere with POTW treatment processes or which may contaminate sewage sludge. The regulations, which have been revised numerous times since originally published in 1978, consist of 18 sections and several appendices. A copy of the overall framework for the General Pretreatment Regulations is provided in Figure 6.

The General Pretreatment Regulations apply to all nondomestic sources which introduce pollutants into a POTW. These sources of "indirect discharge" are more commonly referred to as industrial users (IUs). Since IUs can be as simple as an unmanned coin operated car wash to as complex as an automobile manufacturing plant or a synthetic organic chemical producer, EPA developed four criteria that define a Significant Industrial User (SIU). Many of the General Pretreatment Regulations apply to SIUs as opposed to IUs, based on the fact that control of SIUs should provide adequate protection of the POTW.

These four criteria are as follows:

- an IU that discharges an average of 25,000 gallons per day or more of process wastewater to the POTW;
- an IU that contributes a process wastestream making up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant;
- an IU designated by the Control Authority as such because of its reasonable potential to adversely affect the POTW's operation or violate any pretreatment standard or requirement; or
- an IU subject to Federal categorical pretreatment standards.

§ 403.1	Purpose and applicability
§ 403.2	Objectives of general pretreatment regulations
§ 403.3	Definitions
§ 403.4	State or local law
§ 403.5	National pretreatment standards: Prohibited discharges
§ 403.6	National pretreatment standards: Categorical pretreatment standards
§ 403.7	Removal credits
§ 403.8	Pretreatment program requirements: Development and implementation by POTW
§ 403.9	POTW pretreatment programs and/or authorization to revise pretreatment standards: Submission for approval
§ 403.10	Development and submission of NPDES State pretreatment programs
§ 403.11	Approval procedures for POTW pretreatment programs and POTW granting of removal credits
§ 403.12	Reporting requirements for POTW's and industrial users
§ 403.13	Variances from categorical pretreatment standards for fundamentally different factors
§ 403.14	Confidentiality
§ 403.15	Net/Gross calculation
§ 403.16	Upset provision
§ 403.17	Bypass
§ 403.18	Modification of POTW pretreatment programs
Appendix A:	Program Guidance Memorandum
Appendix B:	[Reserved]
Appendix C:	[Reserved]
Appendix D:	Selected Industrial Subcategories Considered Dilute for Purposes of the Combined Wastestream Formula
Appendix E:	Sampling Procedures
Appendix F:	[Reserved]
Appendix G:	Pollutants Eligible for a Removal Credit

Figure 6. The General Pretreatment Regulations

Unlike other environmental programs that rely on Federal or State governments to implement and enforce specific requirements, the Pretreatment Program places the majority of the responsibility on local municipalities. Specifically, section 403.8(a) of the General Pretreatment Regulations states that any POTW (or combination of treatment plants operated by the same authority) with a total design flow greater than 5 million gallons per day (MGD) and smaller POTWs with SIUs must establish a local pretreatment program. As of early 1998, 1,578 POTWs are required to have local programs. While this represents only about 15 percent of the total treatment plants nationwide, these POTWs account for more than 80 percent (i.e., approximately 30 billion gallons a day) of the national wastewater flow.

The General Pretreatment Regulations define the term "Control Authority" as a POTW that administers an approved pretreatment program since it is the entity authorized to control discharges to its system. Section 403.10(e) provides States authority to implement POTW pretreatment programs in lieu of POTWs. Five States have elected to assume this responsibility (Vermont, Connecticut, Alabama, Mississippi, and Nebraska). In these instances, the State is defined as the Control Authority.

As described above, all Control Authorities must establish a local pretreatment program to control discharges from non-domestic sources. These programs must be approved by the "Approval Authority" who is also responsible for overseeing implementation and enforcement of these programs. As noted in Figure 7 , a total of 44 States/Territories are authorized to implement State NPDES Permit Programs, but only 27 are authorized to be the Pretreatment Program Approval Authority (i.e, those with approved State pretreatment programs excluding the five §403.10(e) States). In all other States and Territories (including the 403.10(e) States), EPA is considered to be the Approval Authority.

POTW Pretreatment Programs

The actual requirement for a POTW to develop and implement a local pretreatment program is a condition of its NPDES permit. Once the Approval Authority determines that a POTW needs a pretreatment program, the POTW's NPDES permit is modified to require development of a local program and submission of the program to the Approval Authority for review and approval. Consistent with §403.8(f), POTW pretreatment programs must contain the six minimum elements presented in Figure 8.

In addition to the six specific elements, pretreatment program submissions must include:

- a statement from the City Solicitor (or the like) declaring the POTW has adequate authority to carry out program requirements;
- copies of statutes, ordinances, regulations, agreements, or other authorities the POTW relies upon to administer the pretreatment program including a statement reflecting the endorsement or approval of the bodies responsible for supervising and/or funding the program;
- a brief description and organizational chart of the organization administering the program; and
- a description of funding levels and manpower available to implement the program.

Pretreatment program submissions found to be complete proceed to the public notice process, as described in Chapter 4, Public Participation and POTW Reporting. Upon program approval, the Approval Authority is responsible for modifying the POTW's NPDES permit to require implementation of the approved pretreatment program. Once approved, the Approval Authority oversees POTW pretreatment program implementation via receiving annual reports and conducting periodic audits and inspections. As of early 1998, of the 1,578 POTWs required to develop pretreatment programs, 97 percent (1,535) have been approved.

The National Pretreatment Program regulates IUs through three types of regulatory entities: EPA, Approval Authorities, and Control Authorities. As noted above, Approval Authorities oversee Control Authorities while Control Authorities regulate IUs. General responsibilities of each of these three regulatory entities are presented in Figure 9.

State	Approved State NPDES Permit Program	Approved State Pretreatment Program
Alabama	10/19/79	10/19/79*
Arkansas	11/01/86	11/01/86
California	05/14/73	09/22/89
Colorado	03/27/75	--
Connecticut	09/26/73	06/03/81*
Delaware	04/01/74	--
Florida	05/01/95	05/01/95
Georgia	06/28/74	03/12/81
Hawaii	11/28/74	08/12/83
Illinois	10/23/77	--
Indiana	01/01/75	--
Iowa	08/10/78	06/03/81
Kansas	06/28/74	--
Kentucky	09/30/83	09/30/83
Louisiana	08/27/96	08/27/96
Maryland	09/05/74	09/30/85
Michigan	10/17/73	04/16/85
Minnesota	06/30/74	07/16/79
Mississippi	05/01/74	05/13/82*
Missouri	10/30/74	06/03/81
Montana	06/10/74	--
Nebraska	06/12/74	09/07/84*
Nevada	09/19/75	--
New Jersey	04/13/82	04/13/82
New York	10/28/75	--
North Carolina	10/19/75	06/14/82
North Dakota	06/13/75	--
Ohio	03/11/74	07/27/83
Oklahoma	11/19/96	11/19/96
Oregon	09/26/73	03/12/81
Pennsylvania	06/30/78	--
Rhode Island	09/17/84	09/17/84
South Carolina	06/10/75	04/09/82
South Dakota	12/30/93	12/30/93
Tennessee	12/28/77	08/10/83
Texas	09/14/98	09/14/98
Utah	07/07/87	07/07/87
Vermont	03/11/74	03/16/82*
Virgin Islands	06/30/76	--
Virginia	03/31/75	04/14/89
Washington	11/14/73	09/30/86
West Virginia	05/10/82	05/10/82
Wisconsin	02/04/74	12/24/80
Wyoming	01/30/75	--

*** - Denotes 403.10(e) State Approval**

Figure 8. State Program Approval Status

1. Legal Authority

The POTW must operate pursuant to legal authority enforceable in Federal, State or local courts, which authorizes or enables the POTW to apply and enforce any pretreatment regulations developed pursuant to the CWA. At a minimum, the legal authority must enable the POTW to:

I. deny or condition discharges to the POTW;
ii. require compliance with pretreatment standards and requirements;
iii. control IU discharges through permits, orders, or similar means;
iv. require IU compliance schedules when necessary to meet applicable pretreatment standards and/or requirements and the submission of reports to demonstrate compliance;
v. inspect and monitor IUs;
vi. Obtain remedies for IU noncompliance; and
vii. comply with confidentiality requirements.

2. Procedures

The POTW must develop and implement procedures to ensure compliance with pretreatment requirements, including:

I. identify and locate all IUs subject to the pretreatment program;
ii. identify the character and volume of pollutants contributed by such users;
iii. notify users of applicable pretreatment standards and requirements;
iv. receive and analyze reports from IUs;
v. sample and analyze IU discharges and evaluate the need for IU slug control plans;
vi. investigate instances of noncompliance; and
vii. comply with public participation requirements.

3. Funding

The POTW must have sufficient resources and qualified personnel to carry out the authorities and procedures specified in its approved pretreatment program.

4. Local limits

The POTW must develop local limits or demonstrate why these limits are not necessary.

5. Enforcement Response Plan (ERP)

The POTW must develop and implement an ERP that contains detailed procedures indicating how the POTW will investigate and respond to instances of IU noncompliance.

6. List of SIUs

The POTW must prepare, update, and submit to the Approval Authority a list of all Significant Industrial Users (SIUs).

Figure 9. Six Minimum Pretreatment Program Elements

EPA

Headquarters

- Oversees program implementation at all levels
- Develops and modifies regulations for the program
- Develops policies to clarify and further define the program
- Develops technical guidance for program implementation
- Initiates enforcement actions as appropriate

Regions

- Fulfill Approval Authority responsibilities for States without a State pretreatment program
- Oversee State program implementation
- Initiate enforcement actions as appropriate.

Approval Authorities (EPA Regions and delegated States)

- Notify POTWs of their responsibilities
- Review and approve requests for POTW pretreatment program approval or modification
- Review requests for site-specific modifications to categorical pretreatment standards
- Oversee POTW program implementation
- Provide technical guidance to POTWs
- Initiate enforcement actions, against noncompliant POTWs or industries.

Control Authorities (POTWs, States, or EPA Regions)

- Develop, implement, and maintain approved pretreatment program
- Evaluate compliance of regulated IUs
- Initiate enforcement action against industries as appropriate
- Submit reports to Approval Authorities
- Develop local limits (or demonstrate why they are not needed)
- Develop and implement enforcement response plan.

Industrial Users

- Comply with applicable pretreatment standards and reporting requirements.

Figure 10. Roles and Responsibilities

9-1 Prohibited Discharges: Except as hereinafter provided, no Person shall discharge or cause to be discharged any of the following described wastes or water into the Sewer System:

1) Any liquid or vapor having a temperature higher than 150°.

2) Any waters or wastes which contain more than 150 milligrams per liter (mg/L) of fat, oil, or grease.

3) Any gasoline, benzene, naptha, fuel oil, or other flammable or explosive liquid, solid or gas.

4) Any waste products resulting from the handling, storage and sale of fruits and vegetables in wholesale or retail produce establishments and wastes from plants engaged in the preparation, processing or preserving of foods not intended primarily for immediate consumption.

5) Any ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, coal, tar, asphalt, cement, plastics, wood, pauch manure, or any other solid or viscous substance capable of causing obstruction to the flow in Sewers or other interference with the proper operation of the Sanitation System.

6) Any waters or wastes having a pH lower than 5.0 or higher than 9.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel engaged in the operation and maintenance of the Sanitation System.

7) Any water or wastes having a corrosive property capable of causing damage or hazard to, or containing any toxic or poisonous substance in sufficient quantity to injure or interfere with the operation of a Water Reclamation Plant, or to constitute a hazard to humans or animals.

8) Any waters or wastes containing dissolved, suspended or settleable solids of such character and quantity that abnormal attention or expense is required to handle such materials in the Sanitation System.

9) Any noxious or malodorous gas or substance in a quantity capable of creating a public nuisance.

10) Any water or wastes having a BOD greater than 400 mg/L by weight.

11) Any water of wastes containing more than 500 mg/L by weight of suspended solids.

12) Any waters or wastes containing wax, whether emulsified or not, in excess of 100 mg/L or containing substances which may solidify or become viscous at temperatures between 32°F and 150°F.

13) Any garbage that has not been properly shredded.

14) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the General Manager in compliance with applicable state or federal regulations.

15) Unusual volume of flow or concentration of wastes constituting Slugs.

16) Waters or wastes containing substances which are not amenable to treatment or reduction by the treatment processes employed, or are amenable to treatment only to such degree that the Water Reclamation Plant effluent cannot meet the requirements of other agencies having jurisdiction.

17) Any stormwater, surface water, groundwater, roof runoff or subsurface drainage.

18) Industrial waste.

19) Any brines or dissolved salts in excess of 1,000 mg/L to the Sewer System, including discharge of salts from regeneration of water softening units in industrial, commercial establishments, and private residences and homes.

20) Water resulting from the operation of equipment that uses water in a single pass operation. Examples of this use include, but are not limited to, water cooled equipment (i.e., refrigerators, freezers, ice makers, chillers, air conditioners, heat exchangers, ice cream dispensers, yogurt dispensers and precoolers) and vehicle washers (i.e., car and/or truck washers).

9-2 Admission of Prohibited Discharges: If any waters or wastes are discharged, or are proposed to be discharged to the Sewer System, which waters or wastes contain the substances or possess the characteristics enumerated in Section 9-1, and which in the judgement of the General Manager, may have a deleterious effect upon the Sanitation System, or which otherwise create a hazard to life or constitute a public nuisance, the General Manager may:

1) Reject the wastes; or,

2) Require pretreatment to an acceptable condition for discharge to the Sewer System; or,

3) Require control over the quantities and rates of discharge to the Sewer System; or,

4) Require payment to cover the added cost of handling and treating the waters or wastes not covered by existing taxes or charges under the provisions of these Regulations.

9-3 Pretreatment:

9-3.1 General Provisions: Where required, in the opinion of the General Manager, the User shall provide at its own expense such pretreatment or handling as may be necessary to meet the District's requirements and any plans, specification and any other pertinent information relation to proposed preliminary treatment, Interceptors/Separators, or handling facilities shall be submitted for approval by the General Manager and no construction of such facilities shall be commenced until approval is obtained and standards set forth in this Part 9 are met.

9-3.2 Industrial Waste: Pretreatment of Industrial Waste shall be in accordance with the Environmental Protection Agency pretreatment standards which have been promulgated for specific industrial classes.

9-3.3 Maintenance of Pretreatment Facilities: When pretreatment facilities are provided for any water or wastes to meet the requirements of this Part 9, they shall be maintained in satisfactory and effective operation by the User at its expense.

9-4 Monitoring:

9-4.1 Control Manhole: When required by the General Manager, a User discharging Industrial Wastes shall install a suitable control manhole together with such necessary meters and other appurtenances in the Building Sewer to facilitate observation, sampling, and measurement of the wastes. The manhole shall be installed by the User in accordance with plans approved the General Manager. The manhole shall be maintained by the User and shall be safe and accessible at all times.

9-4.2 Sampling: All measurements, tests, and analyses of the characteristics of water and wastes to which reference is made in these Regulations shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater", published by the American Public Health Association, and shall be determined at the control manhole provided, or upon suitable samples taken at said control manhole. In the event that no control manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the Sewer System from the point where the building sewer is connected. Sampling shall be carried our by customarily accepted methods to reflect the effect of constituents upon the Water Reclamation Plant and to determine the existence of hazards to life, limb and property.

9-5 Interceptors/Separators: (i.e., grease, oil, sand, and lint) Interceptors/Separators shall be provided when, in the opinion of the General Manager, they are necessary for the proper handling of liquid wastes containing grease in excessive amounts, or any flammable wastes, sand, or other harmful ingredients; except that such Interceptors/Separators shall not be required for Dwelling Units. All Interceptors/Separators shall be of a type and capacity approved by the General Manager, and shall be located as to be readily and easily accessible for cleaning and inspection. Interceptors/Separators shall be maintained in continuously efficient operation at all times by the User and at User's expense.

9-5.1 Checking of Drawings: The District will review and check the drawings for Interceptors/Separators, prior to approval, at the Applicant's expense, as provided for in Section 5-9.

9-6 Effluent from Cesspools and Septic Tanks:

9-6.1 General Provisions: Septic tank or cesspool effluent which does not contain concentrations of Industrial Waste, oil, grease or any other substances prohibited in Section 9-1, except for the BOD and suspended solids limitation may be placed in a Water Reclamation Plant if a permit is first obtained from the District.

9-6.2 Permit: The permit for discharging septic tank or cesspool effluent into the Water Reclamation Plant may be granted only upon written application by a Person engaged in the business of disposing of said effluent. A liquid waste hauler load ticket book will be issued for the billing purposes. Each load ticket is numbered serially and shall be returned to the District at the time of discharge. If the load tickets are not returned in sequential order or accounted for, the Permittee will be charged for missing tickets based on the volume of the assigned vehicle at the then prevailing fee schedule.

An application charge will be deposited at the time the application is made. This charge shall be forfeited if any load contains any of the substances prohibited in Section 9-6.1 and a new application charge shall be paid prior to any future placement of effluent in the Water Reclamation Plant. This charge is in addition to other civil penalty authorized by law.

9-6.3 Charge: See Section 5-10.