



# **Chapter 10**

# **Pretreatment**

## Chapter 10 – Pretreatment

### 10.1 Program Overview and Components

The City's pretreatment program regulates the quality of wastewater discharged to the WWTP through the Richland Municipal Code (RMC) section 17.30, which lists general provisions, discharge requirements, industrial permit requirements, sampling requirements, and enforcement actions. The intent is to control the entry of pollutants into the waste stream where they could result in damage to the collection system and/or interfere with the biological treatment process. Pollutants also include trace contaminants, such as heavy metals and residual synthetic organic chemicals, which accumulate in the environment and concentrate in the food chain until reaching threshold levels which disrupt the ecological system.

The pretreatment program includes the industrial pretreatment program, the fats, oils, and grease (FOG) program, and the biosolids composting facility at the Horn Rapids Landfill. The pretreatment program is currently staffed with two FTE's, one Pretreatment Coordinator and one Pretreatment Inspector.

### 10.2 Industrial Pretreatment Program

The City was delegated directly by the EPA in 1984 which allows it to manage and issue industrial wastewater permits to businesses identified as a significant industrial users (SIU's). Since that time, the City has updated its industrial pretreatment program consistent with federal and state requirements and as listed in their NPDES permit. The following section describes this program.

#### 10.2.1 Source Identification

To maintain a current database of all industries that discharge non-domestic waste, the City sends an industrial waste survey (IWS) with a copy of the current pretreatment standards to all new businesses. The goal of the IWS is to identify the volume and character of the pollutants discharged by the user. Depending on the type of business and information obtained, the pretreatment staff then determines if more information is needed (e.g., sampling laboratory or dental office where the specific type of wastes will be discharged). Restaurants and businesses providing food services (food service establishments or FSE's) receive a specific survey requesting information regarding grease traps, grease trap maintenance, and rendering service contracts. Industries identified as SIU's are required to complete an industrial permit application. The completed application is then reviewed by the pretreatment coordinator to determine if an industrial wastewater permit is required. In some cases a pretreatment inspection can be made to inspect the facilities and verify survey information or obtain additional information.

Once the survey process is complete, the information is then uploaded to the City's intranet database that contains all current business licenses. This information is valuable when diagnosing treatment problems at the WWTP and tracing the source. It also can be used to develop local limits for problem dischargers, to determine the sampling requirements (for both industrial user and the City) and to estimate manpower and equipment requirements. When completed, the IWS helps to then categorize businesses by one of the following user types listed in **Table 10-1**.

**Table 10-1 – Industrial User Types**

Category	Description	User Count <sup>(a)</sup>
Significant Industrial User (SIU)	Discharge a non-domestic waste stream of $\geq 25,000$ gpd (0.025 mgd) or a non-domestic waste stream $\geq 5\%$ of the average dry weather flow or organic capacity of the WWTP	10
Categorical Industrial User (CIU)	Subject to categorical standards as defined in 40 CFR Part 403.3(t)	1
Minor Industrial User (MIU)	Small industries with discharge flows that do not significantly impact the treatment system or contaminate the biosolids	792
Food Service Establishment (FSE)	Restaurants and businesses providing food services	164
Insignificant Industrial User (ISU) (also known as Zero Discharger)	Do not discharge to the sewer collection system or do not discharge non-domestic waste	2,655

<sup>(a)</sup> Based on end of year 2014 records.

In 2013 the business license database included 4,695 licensees located in the City. Any new businesses under construction or under a remodel are inspected by pretreatment personnel to ensure compliance with pretreatment standards. For FSE's this includes the installation of appropriate grease removal devices and interceptors. For SIU's and CIU's this includes appropriate pretreatment facilities and sampling equipment.

## 10.2.2 Industrial Permitting

The industrial wastewater permit has the following purpose: to prevent pass through or interference, protect the quality of the surface water receiving the WWTP's effluent, protect worker health and safety, facilitate sludge management and disposal, and protect against damage to the collection system and WWTP. The City's permitting process for industrial users follows the guidelines outlined in EPA's Industrial User Permitting Guidance Manual. The manual provides a framework for drafting and issuing industrial user permits. A brief description of the City's industrial permitting process is outlined in this section.

As previously described, a permit application is required to be completed by any new or existing SIU. The permit application contents include the following:

- Identifying information
- List of any existing permits
- Description of operations, including SIC code, raw chemicals and materials used, and a process diagram
- Flow measurement (average and maximum daily flow)
- Pollutant Measurements of representative samples of daily operations, including identifying applicable pretreatment standards for the wastewater discharge

- Compliance Schedule, where necessary to identify how an industry's operations and maintenance will be implemented to meet the City's pretreatment program
- Certification statement signed by an authorized representative that the pretreatment standards are being met

Once a completed permit application is submitted to the City it is reviewed for completeness and a pretreatment inspection of the facility is conducted. During this inspection, the permit application information can be evaluated for completeness and accuracy. The inspector can also verify the production processes, the presence of any toxic or hazardous waste, the identification of all waste streams, and the potential for spills and leaks. Following the inspection, the Public Works Director reviews all data furnished by the user and determines if a wastewater discharge permit shall be issued. During this time, a public announcement regarding the permit application is published in the local newspaper for a two week period. The announcement period is followed by a 30-day public comment period. The Public Works Director reviews all public comments and the pretreatment staff will respond generally or to specific comments as necessary. The Public Works Director then prepares a justification for the decisions made during the permit review process which are summarized in an industrial user Fact Sheet. The Fact Sheet describes the principal facts and policy decisions considered in preparing the industrial wastewater permit. The draft Fact Sheet is then sent to the applicant for review and to submit review comments as necessary. The WDOE will also receive a copy of the draft permit during the public review period.

Each permit is valid for a maximum of five years and is non-transferable without approval by the City. The permit also lists the required sampling and monitoring requirements, including submittal of technical reports and compliance schedules.

### 10.2.3 Enforcement

As part of the City's current NPDES permit, an enforcement response plan (ERP) was developed to provide consistent enforcement responses for similar violations and circumstances for all entities discharging non-domestic waste to the collection system and the WWTP. The ERP includes detailed procedures indicating how to respond to instances of industrial user noncompliance, a description of an escalating enforcement response, and time frames for enforcement responses. **Table 10-2** lists the descriptions of enforcement actions listed in the ERP.

**Table 10-2 – Violation Enforcement Actions**

Notice Type Category	Subcategory	Action
Informal Notice		
	Verbal Notification	By phone or in person to provide an immediate notification of violation. Typically used for minor instances
	Warning Letter	Typically as a follow-up to a verbal notification or in lieu of
	Informal Meeting	Used to gather information and discuss steps to alleviate noncompliance. Also used to determine the level of commitment by the industrial user <sup>(a)</sup>

Notice of Violation (NOV)		Written notice to the industrial user that a pretreatment violation has occurred. The NOV documents the legal authority, violation description, and date of the violation. Requires a response from the industrial user detailing the violation and corrective actions taken.
Administrative Order (AO)		Direct the industrial user to undertake and/or cease specified activities by specified deadlines. Terms of an AO may or may not be negotiated with the industrial user.
Show Cause Hearing		Formal meeting with the industrial user for explanation of noncompliance and to determine if more severe enforcement is required.
Termination of Service		Applied when the discharge from an industrial user presents imminent endangerment to the health or welfare of persons, or the environment, or as an escalating enforcement action due to failure to respond adequately to previous enforcement actions.
Administrative Fines		Punitive monetary fine assessed by the City to recover the economic benefit of noncompliance and deter future violations.
Civil Litigation		Formal process where the City files a lawsuit against the industrial user to secure court ordered action to correct violations and secure penalties for actions.

<sup>(a)</sup> Any source that introduces pollutants in the collection system and WWTP from any non-domestic source.

### 10.3 Grease Control Program

The disposal of grease into the City's wastewater collection system has caused problems in both the collection system and the WWTP. The regulatory community generally refers to the collection of fats, oils, and grease as "FOGs". "Grease" is the solid or semi-solid fraction of FOGs, and "oils" are the liquid fraction. Most of the FOGs that accumulate in the wastewater collection system are derived from food waste products. FOGs tends to coagulate and coat the walls of collection system pipes creating flow obstructions. Over time, clumps of grease slough off the pipe walls and can accumulate on the concrete shelf above manhole channels and in lift station wet wells. It also collects in both suction and discharge piping of lift stations, reducing pumping rates and increasing energy costs. Floating oils on the surface of wastewater can reduce oxygen transfer and lead to septic conditions which can produce odors and lead to corrosion of some pipe materials.

The City recently updated their RMC to strengthen the FOG removal requirements for FSE's. Restaurant management and owners must retain maintenance records for their grease removal devices and interceptors. The cause for any sewer back-up at a FSE must also be documented to identify a potential grease-related issue. Current RMC limit for the prohibited discharge of FOG is 100 parts per million (mg/L).

The pretreatment inspector conducts site visits for FSE's once every 5 years and as necessary. During these visits, the grease removal device or interceptor is checked to observe the current condition and remaining capacity and if

the contents need cleaning. The cleaning frequency may need adjustment to meet City ordinance. A post-inspection form is then completed by the pretreatment inspector to summarize the inspection findings and is signed by the FSE owner or representative.

If necessary, CCTV inspection can be used to check the condition of the sewer service lateral pipe on the outlet side of the grease removal device. This may be required for those FSE's needing more intensive monitoring or if any complaints were received from the City's wastewater maintenance crews.

Education through public awareness on proper oil and grease disposal is provided to all sewer system customers. The City's residential customers are informed as to the effect of grease and oil on the sewer system. The informational material emphasizes the potential for coalescing grease and oil plugging the side sewer for which the property owner is responsible. It includes information on the use of garbage grinders. Ongoing education of the FSE's regarding the City's purpose of the grease control plan is also a valuable tool. Educational information includes:

- Copy of the City's pretreatment ordinance
- Grease trap/interceptor maintenance
- Garbage disposal and sewer service cleaning checklist
- Large laminated posters on FOG control for posting in their kitchens
- List of rendering and plumbing contractors
- Diagrams of how grease traps function

## 10.4 Biosolids Program

The biosolids composting facility was first permitted in April 2011 by WDOE and the BFHD. The facility is located at the City's Horn Rapids Landfill. The composting facility utilizes Class B biosolids (digested sludge thickened to about approximately 18% solids by belt filter press) produced at the WWTP in addition to ground yard waste and wood chips to produce Class A Exceptional Quality (EQ) biosolids as per EPA Regulation Part 503.

The composting operation to produce the Class A EQ biosolids consists of two phases, the active phase and the cured phase. During the active phase, biosolids at the compost facility are managed in a windrow arrangement and mechanically turned at least 5 times in a 15 day period to mix the compost feedstock. Water is also added, as necessary to maintain the correct moisture level for active composting. The windrow arrangement of biosolids are monitored for the required temperature and depth. Incoming Class B biosolids are monitored for nutrient content and weight and also are tested quarterly for pathogens, metals, inorganic and organic content and other regulatory tests. Following the active phase, the biosolids are moved to the curing section of the composting facility to allow to cure and fully compost for several months. Fully composted biosolids are then tested quarterly for metals, inorganics, nutrient amounts, pathogens and other regulatory tests to ensure quality and safety. The final Class A EQ biosolid is produced once the fully composted and tested biosolids are rescreened to remove larger material. The larger material is returned to the start of the composting process.



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