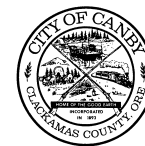




Industrial Wastewater in Oregon

An informational guide about
discharging Industrial process
wastewater to your local
municipality or sewer agency.



Pollution Prevention and
Compliance Information for
Publicly-Owned Treatment Plants

Acknowledgements

The authors gratefully acknowledge the input and review provided by the members of the Oregon Association of Clean Water Agencies Industrial Pretreatment Committee and the material contributed by Clean Water Services of Washington County, King County Washington, the City of Canby and Troutdale Oregon.

The information in this manual can also be found at the Oregon Association of Clean Water Agencies website at: <http://www.oracwa.org>

Reproduction with credits encouraged.

Table of Contents

Industrial Wastewater in Oregon:	3
How the Wastewater System Works	3
Guidelines for Businesses Discharging	
Industrial Wastewater	6
Industrial Wastewater Discharge Limits	8
Industrial Discharge Permits	12
A final word: The high price of polluting	18

Useful contacts:

Spill Reporting

Hazardous Spills:
Call 911

Spills to sanitary sewer or combined sewer:
**Local Pretreatment Program Staff
City of Canby
503-266-4021 ext. 248**

Spills to storm drains, rivers, lakes, or streams:
**Oregon Emergency Response Systems (OERS)
1-800-452-0311**

Hazardous Waste

DEQ: hw@deq.state.or.us

Solid Waste and Recycling

Metro: **503-234-3000**

Outside Clackamas, Multnomah, or Washington Counties:

1-800-RECYCLE

- Recovery of Costs Incurred

In addition to civil and criminal liability, the permittee violating any of the provisions of a permit or City Ordinance or causing damage to, or otherwise inhibiting the municipality's wastewater disposal system shall be liable to the municipality for any expense, loss, or damage caused by such violation or discharge. The municipality shall bill the permittee for the costs incurred by the municipality for any cleaning, repair, or replacement work caused by the violation or discharge. Refusal to pay the assessed costs shall constitute a separate violation of the City Ordinance.

Industrial User Fact Sheet

The basis for decisions made during the permitting process are generally summarized in a document commonly referred to as the "industrial fact sheet." The fact sheet briefly sets forth the significant factual, legal, methodological, and policy questions considered in preparing the permit. The fact sheet, if possible, should accompany the permit that is issued to the industrial user.

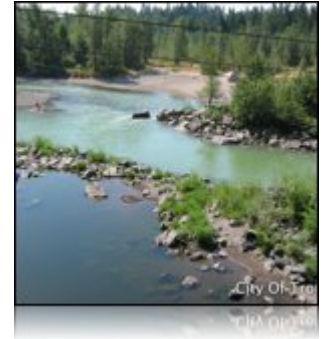
A final word: The high price of polluting

Managing wastewater properly is good for the water, the environment, and community health. It's also good for business. Businesses or individuals who illegally discharge substances to the sanitary sewer system must pay for any damages and may be fined up to \$10,000 per day per violation. Companies may also be charged for increased monitoring and may be required to install upgraded equipment. Any business entering Significant Non-compliance will have its company name published in any significant local newspaper with a display ad entitled: "Companies Violate Pretreatment Standards." You can prevent most violations and avoid the high cost of polluting. Contact your local Pretreatment Program staff for assistance and more information.

Industrial Wastewater in Oregon:

A Clean Water Connection

When your business properly disposes of wastewater, your state and local communities benefit from cleaner water and reduced wastewater treatment costs. This brochure will provide you with general guidelines for discharging industrial wastewater into the sanitary sewer system in the state of Oregon and your local sewer district or municipality. Our goal is to help you conduct your business while you comply with the regulations.



Oregon's Industrial Waste Program

Municipalities and other public agencies Industrial Pretreatment Programs administer the state's industrial wastewater regulations for local businesses that discharge industrial wastewater to sewage treatment plants through out the state of Oregon. Program activities include administration of wastewater discharge permits, inspections, enforcement, sample collection to determine compliance, and collection of surcharge and monitoring fees. Routine monitoring is conducted within the individual municipalities to trace discharges that could harm workers or disrupt treatment plant operations. Industrial Pretreatment staff also work with businesses to help them identify and employ pollution prevention practices.

How the Wastewater System Works:

What is industrial waste?

Industrial waste is a generic term for any waste material (solid, gas, or liquid) generated by a commercial, industrial, or nonresidential activity. The Industrial Pretreatment Program focuses on companies that discharge wastewater during manufacturing, remediation, cleaning, or rinsing processes. This wastewater differs from residential household wastewater which includes *domestic sewage* from toilets, showers, washing machines, and other household-related activities.

What is hazardous waste?

Hazardous waste is a federal and state designation for waste material that is toxic, flammable, corrosive, or reactive; this kind of waste requires special handling and treatment at a licensed treatment, storage, disposal facility (TSDF). Hazardous waste can be discharged to the sewer system only after proper treatment and with written authorization from the local Industrial Pretreatment Program. For information on how to manage and dispose of your hazardous waste, visit the DEQ website for the Oregon Hazardous Waste Program at <http://www.deq.state.or.us/wmc/hw/hw.htm>, or e-mail DEQ directly with questions at hw@deq.state.or.us.



How is wastewater treated?

Within the state of Oregon, municipal sewage treatment facilities are designed to treat domestic sewage and other waste through a process known as secondary treatment. The facilities send organic material through a series of skimmers, screens, and sedimentation tanks and then subject it to microbial breakdown. Microbial breakdown uses microscopic organisms, or “bugs” to convert organic material to harmless by-products which settle and are removed from the wastewater. Some municipal sewage treatment facilities also remove nutrients, such as ammonia nitrogen and phosphorous. Heavy metals and some chemicals cannot break down in the biological process, or may be toxic to the “bugs”, causing interference or passing through the treatment process into the river.

Enforcement Provisions

In all industrial discharge permits there are enforcement provisions that define what alternatives may be used by a municipality in order to bring an industry back into compliance with their permit. Continued violations by an industrial user could subject the user to enforcement proceedings, fines, penalties, civil and criminal liability and recovery of costs incurred by the municipality. The following is brief example of language that could be used in an industrial dischargers permit:

- Annual Publication

A list of all industrial users which were subject to enforcement proceedings during the twelve (12) previous months shall be annually published by the [municipality] in the largest daily newspaper within its service area. Accordingly, the permittee is apprised that noncompliance with the permit may lead to an enforcement action and may result in publication of its name in an appropriate newspaper in accordance with this section.

- Civil and Criminal Liability

Nothing in a permit shall be construed to relieve the permittee from civil and/or criminal penalties for noncompliance under City Ordinance _____ or State or Federal laws or regulations.

- Penalties for Violations of Permit Conditions

The [City Ordinance # ---] provides that any person who violates a permit condition is subject to a civil penalty of at least [--dollar amount] per day of such violation. Any person who willfully or negligently violates permit conditions is subject to criminal penalties of a fine of up to [--dollar amount] per day of violation, or by imprisonment for [number] of year(s), or both. The permittee may also be subject to sanctions under State and/or Federal law.

To prevent or minimize problems, the permit should clearly detail monitoring and reporting requirements. The permit's monitoring and reporting section should contain specific requirements for each of the following items:

Sampling location	Monitoring frequencies
Pollutants to be monitored	Sample collection method
Analytical methods	Reporting requirements

Reporting Requirements

Along with establishing the self-monitoring requirements, a permit needs to specify in a clear manner the reporting requirements of the permit. There are several different reporting requirements that could be included in a permit. The Federal reporting requirements contained in 40 CFR 403.12 consist of the following reports:

- Baseline Monitoring Report [40 CFR 403.12 (b)]
- Reports on progress and compliance [40 CFR 403.12 (c)]
- Final Compliance reports [40 CFR 403.12 (d)]
- Periodic reports on compliance [40 CFR 403.12 (e)]
- Notice of slug loading [40 CFR 403.12 (f)]
- Reports for noncategorical industries [40 CFR 403.12 (h)]
- Notice by the industrial user of any violations within 24 hours of becoming aware of such violation and submission of results for repeat sampling within 30 days of said notice of violation [40 CFR 403.12 (g)]
- Notice of anticipated substantial changes in the volume or character of pollutants discharged [40 CFR 403.12 (j)].

It is important that the industrial users permit, at a minimum, contains the following information in sufficient detail:

What types of information are to be contained in each report (e.g., analytical data, flow data, or production data)

When each report is to be submitted to the municipality (specifying the dates and frequency for submission)

Who is responsible for signing the reports (e.g., an authorized corporate official)

Where the reports are to be sent, including the municipality's address and, if appropriate, the name of the person responsible for receipt of each report.

What is wastewater pretreatment?

Municipal sewage treatment plants are designed to break down and treat biological wastes. Wastewater pollutants such as heavy metals and oils will not break down in the treatment plants; therefore, certain businesses need to treat their wastewater *before* discharging to the sewer. The pretreatment system, such as oil/water separation, chemical precipitation, or filtration, will depend on the type and concentration of pollutants in the wastewater. If your wastewater requires pretreatment, you are required to get an approval from the local Industrial Pretreatment Program before discharging or connecting to the sewer.



What are biosolids?

Biosolids is the name for the solids produced by the municipal wastewater treatment process. Biosolids, like treatment plant effluent, must meet federal quality standards in order to be recycled in a beneficial manner. Most municipalities in Oregon reuse the biosolids as a soil conditioner on farm and forest lands throughout the state. Some City's like Newberg compost the biosolids with sawdust and make the product available for landscape contractors and homeowners.

Guidelines for Businesses Discharging Industrial Wastewater



How does my business obtain approval to discharge?

Prior to discharging industrial wastewater to the sewer, all dischargers who generate and dispose of industrial wastewater (not including toilets) should contact the local Industrial Pretreatment Program. Potential dischargers will be sent a permit application package if a written discharge approval is necessary. You may also request that a permit application package be mailed to you by calling your local municipality's Industrial Pretreatment Program.

How much advance notice must be given to discharge industrial wastewater?

The time it takes to obtain a permit depends upon the type and amount of wastewater a company discharges to the sewer. There are two types or standards and limitations (Federal Pretreatment Limit and Municipal Local Limits) that apply to a company's discharge. See page 9 for a list of federally regulated industries. Some approvals for very low-volume or one-time discharges can be made verbally or by letter.

For federally regulated discharges (significant industrial users) you must apply for a permit 90 days prior to discharge. Typically, significant industries meet one or more of the following conditions:

- The facility discharges more than 25,000 gallons a day of process wastewater.
- The facility includes a federally identified categorical process (see page 9).
- The facility discharges 5% or more hydraulic or organic load to the municipal sewage treatment system.
- The facility has the potential to cause upset or pass through the municipal sewage treatment process.

- Local Limits [40CFR 403.5 (c) and (d)]

Section 403.5 (c) of the General Pretreatment Regulations requires Control Authorities to develop and enforce specific limits to implement the general prohibition against pass through and interference [40 CFR 403.5 (a)] and the specific prohibitions [40CFR 403.5 (b)]. The Control Authority may have established local limits for any number of pollutants. There are several considerations which may affect the Control Authority's decision on how to incorporate these local limits into industrial user permits. Please refer to page (9) for further information regarding local limits.

Industrial Wastewater Sample Collection

Prior to discharging industrial wastewater to the sewer system your business may need to have a representative sample of the wastewater analyzed. The results shall be presented to the local municipality's Industrial Pretreatment Program before obtaining discharge approval. Contact the Industrial Pretreatment Program for guidance on approved sampling and analysis methods.

In some municipalities, the local industry is responsible for installing and maintaining a flow meter and sampling site. Check with your local municipality for design criteria and construction standards for sampling sites.

Monitoring Requirements

Once an industrial user's discharge limits are developed, the permit writer may require the industrial user to routinely self-monitor and report the results of such monitoring. Monitoring the discharge of an industrial user enables the municipality or Control Authority to keep informed about the characteristics of the user's discharge and compliance status so that any necessary permit modifications or enforcement actions can be initiated.

- National Prohibited Discharges (general and specific) [40CFR 403.5 (a) and (b)]

Section 403.5 (a) and (b) of the General Pretreatment Regulations establishes general and specific prohibitions that apply to all nondomestic users that discharge to Publicly Owned Treatment Works (POTWs). Local ordinances for POTWs with approved pretreatment programs should already include authority for local enforcement of these provisions. Please refer to pages 11 and 12 for definitions of pollutants which create a fire or explosion hazard, pollutants which will cause corrosive or structural damage to the POTW, solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference, heat in amounts which will inhibit biological activity in the POTW resulting in interference, any pollutants, including oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or pollutant concentration which will cause interference with the POTW and at no time may a User introduce into a POTW any pollutants which will cause Pass Through or Interference.

- Categorical Pretreatment Standards [40CFR Parts 405-471]

Categorical pretreatment standards are technology-based standards for a selected group of industries established by EPA under authority of the Clean Water Act. These standards are developed based upon industry-wide studies of current treatment practices for pollution control and, therefore, establish national baseline pollution control requirements for the regulated industrial categories.

What are the types of approvals?

The Industrial Pretreatment Program issues several types of discharge approvals. These may include permits, discharge authorizations, discharge letters, and verbal approvals. The type of approval is established by the local municipality, and is determined by the volume discharged, the nature of the business, the characteristics of the wastewater, and the potential risk to the municipal treatment plant. A permit is required if you discharge more than 25,000 gallons per day or are a federally regulated industry.

What fees does the Industrial Pretreatment Program charge?

There is a fee associated with the issuance and renewal of Industrial Wastewater Discharge Permits, Discharge Authorizations, and Letters of Authorization. The fees cover the costs of drafting and issuing the approval. These fees are over and above the base sewer fees charged by the local sewer agency or monitoring charges by the municipality. For more information, contact your local municipality.



At least twice a year, Oregon's Industrial Pretreatment Programs conduct routine monitoring of companies that have waste discharge permits. Companies may be charged an additional fee depending on what pollutants are present in the wastewater and the volume of the discharge. This fee covers the costs associated with the management of the permit, sampling, and analysis of the wastewater. These charges are in addition to the base sewer rate charged by the local sewer agency and are billed monthly as part of your sewer bill.

What is the surcharge program?

The Surcharge Program charges industrial or commercial facilities that discharge wastewater having Total Suspended Solids (TSS) in excess of a base rate (typically 400 milligrams per liter (mg/L) (equivalent to parts per million or ppm)) or a Biological Oxygen Demand (BOD) (typically greater than 300 mg/L). These facilities are charged an additional fee to pay for the costs of treating this high-strength wastewater.

There are no limits for TSS or BOD unless you plan to discharge quantities that might adversely affect the sewage treatment facility, but these facilities are subject to all other discharge limits. The surcharge or high-strength fee is based on the volume of water discharged and the amount of TSS and BOD in the wastewater. The state and local jurisdictions monitor the waste strength on a regular basis. Industries that may be subject to local surcharge fees include:

Bakeries, Dairy Products, Breweries and Wineries, Chemical Toilet Waste, Commercial Laundries, Food Processing, Meat and Fish Processing, Soft Drink Bottlers, Tanker Truck Cleaning

The fee structure associated with the Industrial Pretreatment Program is specific to each local municipality/sewer district. For more information on fees, contact your local Pretreatment Program Staff.

Industrial Wastewater Discharge Limits

There are two types of limits that may apply to your business: local limits and federal categorical pretreatment limits. In Oregon, municipalities are required to establish local limits to ensure that industrial discharges do not damage the municipal treatment plants and the surrounding environment. In addition to local limits, some businesses are subject to federal pretreatment regulations which may be stricter than the local limits. If your business falls in the industrial categories listed on page 9, you are subject to federal pretreatment regulations in addition to local limits, and the stricter of the two limits will apply to your discharge.

An industrial user permit should describe, in a single document, all of the duties and obligations of the permittee including all applicable pretreatment standards and requirements. At a minimum, these should include the prohibited discharge standards and applicable categorical standards, local limits, and monitoring and reporting requirements. Permits should not simply reference the applicable laws, but should contain actual numeric limitations (expressed in terms of concentration or mass of pollutants which may be discharged over a given time period), schedules for monitoring and reporting, and requirements regarding sampling location, sampling analysis and methodology references. These conditions should reflect the most stringent of applicable Federal, State, and local pretreatment standards and requirements.

When an industrial user is issued a wastewater discharge permit it is extremely advisable to know and understand the requirements that are laid out in the permit. The following are some key areas of an Industrial Wastewater Discharge Permit that will help users understand and comply with their permit:

The Effective Date of the permit and the Expiration Date of the permit

The permit effective date and expiration date must be clearly set out in a permit and is normally located on the cover page of an industrial users wastewater discharge permit. If the permit's effectiveness is to begin on a date other than the one on which it was signed or issued by the municipality, the effective date should appear clearly on the cover page. Although municipalities may establish shorter durations, the effective periods should extend no more than 5 years into the future for significant industrial users.

Wastewater Discharge Limitations

Once the municipality has reviewed the permit application and other supplemental materials requested from the industrial user, then the permit writer can determine what pollutants are present. After determining what pollutants are present, the permit writer must decide which of these pollutants require regulation. The permit should contain effluent limits based on the following:

Hydrogen Sulfide

Hydrogen Sulfide is dangerous to breathe and presents serious odor problems. It also reacts with water to form sulfuric acid which in turn destroys sewer lines. The local municipality may establish a hydrogen sulfide limit (such as atmospheric hydrogen sulfide limit = 10 ppm measured at a designated monitoring manhole within the individual municipality). Soluble sulfide limits may be established on a case-by-case basis.

Solids and food waste

Solids capable of settling can restrict or block flow in sewer lines. Restricting the capacity of a public sewer line is prohibited by federal law. The company discharging the solids is liable for any damages caused by sewage backups. Discharge of materials such as ashes, sand, grass, and gravel that can clog sewage flow is prohibited. All food waste, including food grinder waste, must be capable of passing through a ¼-inch sieve.

High temperature

High temperature can cause the release of gases in sewers or disrupts treatment plant operation. In no case a discharge of heat in such quantities that temperatures at the POTW exceed 104 degrees F (40 Degrees C).



Industrial Discharge Permits

Industrial user permits sanction the discharge of wastewater to the municipal sewer system upon condition that permit terms are adhered to. An industrial user permit is typically effective for only a limited time period and revocable by the municipality at any time for just cause. In addition, the municipality's sewer use ordinance will typically include a provision which forbids the discharge of industrial wastewater from a significant industrial user without a current industrial user permit.



Federal Categorical Pretreatment Limits

The federal government has established discharge limits for specific activities, or categories. The following is a **partial** list of industries considered "categorical dischargers." These companies require a full permit regardless of wastewater discharge volume.

Aluminum forming	Metal foundries
Battery manufacturing	Nonferrous metal manufacturing
Coil coating	Pesticide manufacturing
Copper forming	Petroleum refining
Electroplating	Circuit board manufacturing
Porcelain enameling	Iron/steel manufacturing
Pulp/paper mills	Leather tanning finishing
Wood preserving	Metal finishing
Inorganic chemical manufacturing	
Centralized waste treatment	
Electrical/electronic components	
Pharmaceutical manufacturing	

Local Limits

Local limits are established for specific municipal wastewater treatment plants, and are established to protect the municipal treatment process, quality of the biosolids, and worker health and safety. Typically, these local limits apply to significant industrial dischargers that discharge industrial process wastewater to local sewer systems. In some municipalities, local limits apply to all non-domestic discharges, and are not limited to significant industries. Check with your local municipality to determine if local limits may apply to your business. The following pollutants may be subject to local limits.

Metals and Cyanide

Heavy metals in excess of the permitted limits can upset or disable treatment plant operations. Heavy metals either pass through the plant into the final effluent discharge to the local rivers and lakes or accumulate in the biosolids. The local limits are decided individually by each municipality depending on the capacity of the treatment plant within their jurisdiction. The following is a list of the City of Canby Local Limits.

<i>Arsenic</i>	<i>2.04 Mg/L</i>	<i>Lead</i>	<i>2.35 Mg/L</i>
<i>Cadmium</i>	<i>0.56</i>	<i>Mercury</i>	<i>0.005</i>
<i>Chromium</i>	<i>11.64</i>	<i>Nickel</i>	<i>9.44</i>
<i>Copper</i>	<i>3.04</i>	<i>Zinc</i>	<i>3.92</i>
<i>Cyanide</i>	<i>2.08</i>		

*Note:

Violations of these discharge limits are subject to enforcement actions and other penalties defined in Canby Ordinance No. 1153.

Fats, oils, and grease (FOG)

FOG from petroleum, mineral, or nonbiodegradable cutting oil origin (non-polar FOG) can harm the biological treatment process. Oil/water separators used to treat oily wastewater must be approved before installation. Plans for separators should be submitted to the local sewer utility or to Industrial Pretreatment Program for review and approval. Contact your local Industrial Pretreatment program to obtain a copy of the *Oil/Water Separator Fact Sheet* for information on plan submittal and installation guidelines.

FOG from an animal or vegetable origin (polar FOG) can block sewer lines. Although polar FOG may have no numerical limit, dischargers are required to minimize free-floating polar FOG to prevent sewer line blockage. Adding agents to emulsify free-floating polar FOG may be a prohibited practice. Companies discharging polar FOG may be required to complete a FOG control plan for review and approval from your local municipality.

Corrosive substances (pH)

Wastewater with a pH either above or below the permitted level can damage the sewer lines and disrupt treatment plant operations. It can also react with other substances in the sewage to create noxious fumes. Discharging acidic waste with a pH below 5.0 is federally prohibited. Caustic waste with a pH above 12.5 is considered a hazardous waste, and is prohibited from discharge into the municipal system. Most municipalities in Oregon have established pH discharge limits (upper and lower) somewhere between the prohibited discharge levels (for example, pH 6.0-11.0).



Flammable or explosive materials

Sewer lines have been known to explode, causing severe damage to people and property as a result of explosive or flammable materials entering the sewer. To prevent this hazard, certain pollutants are prohibited from the sewer system. Prohibited pollutants include, but are not limited to: gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substance the local municipality, the fire department, EPA, or the State of Oregon recognizes as a hazard to the system. When discharging solutions containing any amounts of flammable or explosive substances, contact your local Industrial Pretreatment Program. The type of material, degree of hazard, and amount present will determine whether discharge approval is granted.



Organic Compounds

Organic compounds such as solvents, cleaners, thinners, pesticides, and laboratory chemicals may cause toxic gases and fumes in sewer lines. Discharges of pure organic products and discharges of compounds that may affect worker safety or health problems are prohibited.