



2. Regulations

2.1 Regulations Related to Wastewater Treatment

The main objective of these regulations is to ensure appropriate quality of the treated wastewater.

2.1.1 Treated Wastewater - NPDES Permit

The National Pollutant Discharge Elimination System (NPDES) permit program addresses water pollution by regulating point sources that discharge pollutants to waters of the United States.

- The NPDES permit program was created in 1972 by the Clean Water Act (CWA) and is administered by the federal USEPA.
- Applies to sources that discharge pollutants to waters of the United States.
- Requires all facilities discharging “pollutants” into any body of water in the USA to obtain and comply with a **NPDES permit**.
- NPDES permit **establishes** **discharge limits, monitoring and reporting requirements**
- In California, the responsibility of implementing the federal NPDES program is delegated to the State of California through the State Water Resources Control Board (State Water Board or SWRCB) and finally to the nine Regional Water Quality Control Boards (Regional Water Boards or RWQCB), collectively known as Water Boards.
- The RWQCB issues the NPDES permit.

2.1.2 Influent Wastewater - National Pretreatment Program

Municipal wastewater treatment plants also known as Publicly Owned Treatment Works (POTWs) implement and enforce their Pretreatment or Industrial Discharge Control programs to meet Federal and State regulations requirements related to wastewater discharges from industrial sources. The national pretreatment program is a component of the NPDES program and is also known as the Source Control Program

The Pretreatment/Source Control program is for controlling industrial (non-domestic) wastewater discharges with the following objectives:

1. Protect the treatment plant operations so that the industrial discharge does not contain pollutants or have certain characteristics (including pH, temperature) which could adversely effect the treatment process or impact public safety and the safety of the people working at the treatment plant.
2. Prevent the introduction of pollutants that could pass through untreated and into the receiving body of water.
3. Improve opportunities for reuse or recycling of wastewater and sewage sludge.

In California:

1. Wastewater treatment plants are required to have a Pretreatment Program when their total design flows are greater than five million gallons per day (5 mgd).
2. Facilities with smaller flows (5 mgd or less) may also be required to implement a Pretreatment Program if they receive industrial waste and pretreatment is warranted.
3. The Pretreatment Program for a wastewater treatment entity is reviewed and approved by the State and Regional Water Boards, and
4. The Pretreatment Program's monitoring and reporting requirements are incorporated in the facility's NPDES permit.

2.2 Sewage Sludge/Biosolids Regulations

Sewage sludge or biosolids is a byproduct of wastewater treatment. The biosolids produced are disposed or used using methods including land application, landfill and incineration. Federal Regulation 40CFR Part 503 also known as Rule 503 establishes the standards for the use or disposal of wastewater biosolids - as stipulated under the Clean Water Act. The facility's NPDES permit incorporates the applicable federal, state and local requirements as they apply to its biosolids.

- Part 503 rule applies to any person who applies biosolids to the land or fires biosolids in a biosolids incinerator, and to the owner/operator of a surface disposal site, or to any person who is a preparer or generator of biosolids for use, incineration, or disposal.
- Part 503 standard includes:
 1. General requirements which establishes the purpose and applicability of the rule, the compliance period, and exclusions from the rule.
 2. Limits on heavy metals content
 3. Solids management practices related to use and disposal of wastewater biosolids
 4. Operational standards related to biosolids management, and
 5. Requirements for the frequency of monitoring, record-keeping, and reporting

Part 503 requirements are factored in when establishing the heavy metals concentration limits for the Pretreatment or Industrial Control Program as a significant portion of the heavy metals in the influent wastewater are removed as part of the wastewater solids.

2.3 Air Quality Regulations

- Air emissions from wastewater collections and treatment systems are subject to federal, state and local air quality related rules and regulations established to protect human health and comfort, and the environment.
- Typically, a local agency such as the South Coast Air Quality Management District (SCAQMD) is designated to enact and enforce air quality rules and regulations, through its permitting process, applicable to all sources of air emissions including wastewater treatment plants.
- Systems/processes subject to air quality regulations at air quality regulations include:
 - Fugitive emissions: Foul air containing compounds such as hydrogen sulfide and organics, which escape from process tanks, pipes and associated structures such as

- manholes and wetwells, is potentially harmful for the affected public and also cause odors.
- Digester gas combustion: Digester gas a product of wastewater solids treatment contains methane and is either combusted in power generation equipment or burned in flares.
 - Odor control systems: These commonly used systems are for controlling emissions of regulated pollutants such as ammonia and to prevent odors associated with compounds such as hydrogen sulfide.
 - Related to its air pollutants emissions, wastewater treatment plants are required to:
 - Obtain air quality related operating permits for equipment and processes which emit air pollutants and for its systems treating foul air.
 - Implement air emission pollutants control measures
 - Comply with record keeping and reporting requirements
 - Comply with air quality rules to prevent public nuisance and protect public health and safety

2.4 Regulations Related to Operations and Maintenance

2.4.1 Operator Certification

- The requirements of the Operator Certification program is established for each state. These meet the Operator Certification Requirements of the regulations stemming from the 1996 Amendments to the Safe Drinking Water Act.
- The goal is to ensure that operators of wastewater treatment facilities in the State meet the minimum level of competence; thereby, protecting public health and the environment.
- In California, the Wastewater Operator Certification program (WWOCP) administers Wastewater Treatment Plant Certification examinations, certifications (grades I to V), and certification renewals.
- WWOCP classifies Wastewater Treatment Plants and stipulates that no person shall operate a wastewater treatment plant unless that person has been certified by the division as a wastewater treatment plant operator or operator-in-training at a grade appropriate for the class of plant being operated.
- A certified operator or operator-in-training may be subject to administrative sanctions including reprimand or denial, suspension, probation, or revocation of the operator certification for performing, or allowing or causing another to perform acts which include:
 - Operating or allowing the operation of a wastewater treatment plant by a person who is not certified at the grade necessary for the position
 - failing to use care or good judgment in the course of employment as an operator or failing to apply knowledge or ability in the performance of duties.
 - Negligence causing the violation of appropriate waste discharge requirements of the NPDES permit

Classification of Wastewater Treatment Plants

<u>Class</u>	<u>Treatment Process</u>	<u>Design Flow</u> (in million gallons per day)
I	Pond.....	All
	Primary.....	1.0 or less
II	Primary.....	Greater than 1.0 through 5.0
	Biofiltration.....	1.0 or less
	Extended Aeration.....	All
III	Primary.....	Greater than 5.0 through 20.0
	Biofiltration.....	Greater than 1.0 through 10.0
	Activated Sludge.....	5.0 or less
	Tertiary.....	1.0 or less
IV	Primary.....	Greater than 20.0
	Biofiltration.....	Greater than 10.0 through 30.0
	Activated Sludge.....	Greater than 5.0 through 20.0
	Tertiary.....	Greater than 1.0 through 10.0
V	Biofiltration.....	Greater than 30.0
	Activated Sludge.....	Greater than 20.0
	Tertiary.....	Greater than 10.0

Certificate Requirements for Water Recycling Treatment Plants

Wastewater Treatment Plant Classification	Water Treatment Plant Operator Certificate	Wastewater Treatment Plant Operator Certificate
I	T1	Grade I
II	T2	Grade II
III	T3	Grade III
IV	T4	Grade IV
V	T5	Grade V

Grade Levels of Operator Certifications

Wastewater Treatment Plant Classification	Minimum Grade Level of Chief Plant Operator	Minimum Grade Level of Designated Operator-in-Charge
I	I	I
II	II	I
III	III	II
IV	IV	III
V	V	III

**OPERATOR CERTIFICATION
REQUIREMENTS TABLE**
 (Effective April 1, 2013)

Note: Applicants must take and pass the Office of Operator Certification Wastewater Treatment Plant Operator Examination before applying for Certification:

PATH	EXAMINATION EDUCATION REQUIREMENTS		CERTIFICATION QUALIFYING EXPERIENCE REQUIREMENTS
GRADE I			
1	High school diploma or equivalent and 6 educational points	and	1 year of full-time qualifying experience
GRADE II			
1	High school diploma or equivalent and 9 educational points	and	18 months of full-time qualifying experience as a Grade I operator
2	High school diploma or equivalent and 12 educational points	and	2 years of full-time qualifying experience
3	Associate's degree, a higher degree, or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	and	1 year of full-time qualifying experience
GRADE III			
1	High school diploma or equivalent and 12 educational points	and	3 years of full-time qualifying experience as a Grade II operator
2	High school diploma or equivalent and 18 educational points	and	4 years of full-time qualifying experience
3	Associate's degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	and	2 years of full-time qualifying experience
4	Bachelor's degree or a higher degree, including a minimum of 30 semester units of science courses	and	1 year of full-time qualifying experience

GRADE IV			
1	High school diploma or equivalent and 32 educational points	and	6 years of full-time qualifying experience
2	Associate's degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	and	4 years of full-time qualifying experience
3	Bachelor's degree or a higher degree, including a minimum of 30 semester units of science courses	and	3 years of full-time qualifying experience
4	Valid registration as a chemical, civil, or mechanical engineer issued by the California Board for Professional Engineers and Land Surveyors or by another state, territory, or Indian tribe	and	2 years of full-time qualifying experience
GRADE V			
1	High school diploma or equivalent and 48 educational points	and	10 years full-time qualifying experience
2	Associate's degree or a minimum of 60 college semester units, including a minimum of 15 semester units of science courses	and	6 years of full-time qualifying experience
3	Bachelor's degree or a higher degree, including a minimum of 30 semester units of science courses	and	5 years of full-time qualifying experience
4	Valid registration as a chemical, civil, or mechanical engineer issued by the California Board for Professional Engineers and Land Surveyors or by another state, a territory, or an Indian tribe	and	4 years of full-time qualifying experience

Units (Semesters)	Educational Points
1	2.5
2	5.5
3	8.0
4	10.5
5	13.5
6	16.0

Units (Quarter) 12 weeks	Educational Points
1	1.5
2	3.5
3	5.5
4	7.0
5	9.0
6	10.5

2.4.2 Worker Safety

- Wastewater treatment facility can be an extremely unsafe occupational field
- It involves most of the major categories of workplace hazards: biological, chemical, physical, safety and ergonomic, accentuated with other factors such as shift work and diverse tasks.
- Entities including The Occupational Safety and Health Administration(OSHA) National Electrical Code (NEC), National Fire Protection Association (NFPA), Underwriters Laboratory (UL) have recognized these hazards and implemented codes and standards to protect the affected persons and wastewater workers.

