

pH Monitoring Fact Sheet

Prevent pH Violations

- Report ALL pH deviations **within 24 hours** of discovery to your inspector
- Continuously record pH **at ALL TIMES**
- Develop a **back up** pH monitoring and recording plan
- **Inspect pH equipment**, check pH alarms, and review pH data daily
- Document daily pH chart inspections with the **date, time, and staff initials**
- Perform and document **weekly pH calibrations**, cleaning, and checks
- Report, document, and **repair malfunctioning or broken** equipment as soon as possible
- Maintain pH records onsite for **3 years**



Environmental Services

www.sanjoseca.gov/pretreatment

Why Is Continuous pH Monitoring Important?

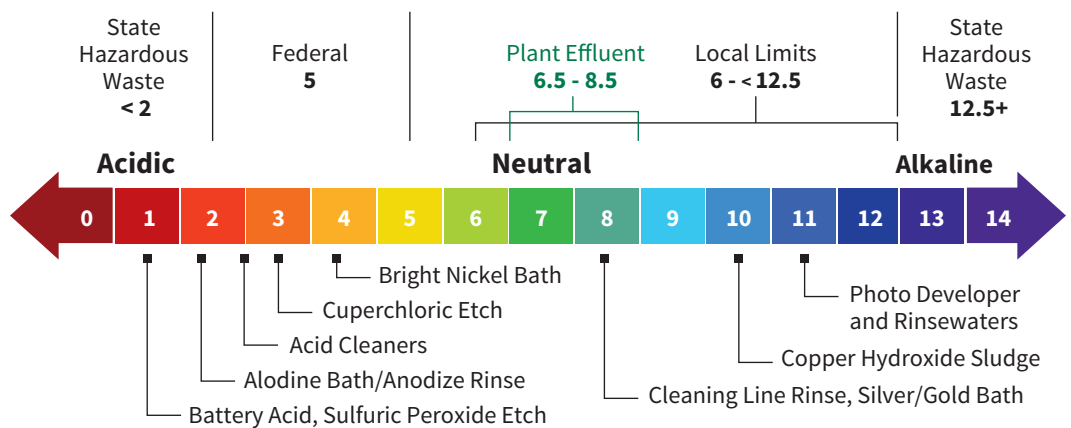
As a permitted Industrial User, you have an obligation to meet the conditions of your Industrial Wastewater Discharge Permit (Permit) and the requirements of your local municipal code (Industrial Waste Discharge Regulations section), which states:

“No person shall discharge, cause, allow or permit to be discharged into the Sanitary Sewer System or any part thereof, any liquid, solid, vapor, gas, or thing having a pH lower than six (6.0) or equal to or greater than twelve and one-half (≥12.5)...”

The San José-Santa Clara Regional Wastewater Facility (Wastewater Facility) has a National Pollutant Discharge Elimination System (NPDES) Permit discharge limit of pH 6.5–8.5. A pH value above or below this range can cause the Wastewater Facility to be in violation of its discharge limits, leading to toxic releases of wastewater to the South San Francisco Bay. In addition, acidic discharges (i.e., pH less than 7) from your facility can cause sewer corrosion, generate sewer odors, and endanger sewer workers. Continuously monitoring and regulating the pH of sewage discharge into the collection system will help protect the sewer infrastructure, the Wastewater Facility, the public, and the health of the Bay.

pH Scale

The power of Hydrogen (pH) is a measure of the hydrogen ion concentration in a solution. Water for example, has a neutral pH of 7.0. A pH below 7 is on the acidic side of the scale, while a pH above 7 is on the alkaline side of the scale. pH below 6.0 or pH equal to or greater than 12.5 is a violation of local limits.



Effects of Low/High pH

On Your Facility

A pH value outside of the desired range can promote separation of metals in your onsite treatment system. In addition, acutely acidic/caustic solutions can endanger the safety of your workers, releasing toxic fumes and causing chemical burns. Not only are pH fluctuations potentially hazardous, they're also costly. When pH fluctuates, excess chemicals are required to neutralize wastes resulting in lost time and higher costs.

On the Sanitary Sewer

Low pH also affects the collection system and equipment by producing hydrogen sulfide gas (H₂S), which is the primary cause of sewer odors. In high enough concentrations, H₂S can generate explosive conditions in the sewer, endangering collection system workers and the general public. H₂S in sewers is eventually oxidized to form strong sulfuric acid (H₂SO₄), which attacks the concrete in sewer pipes, causing severe corrosion. Long-term exposure to acidic discharges can result in pipe failure, pump station failure, collection interceptor breakdown, disruption of service, and uncontrolled releases of wastewater.

On the Wastewater Facility

High pH interferes with the biological processes at the Wastewater Facility, precipitating unwanted sludge and generating ammonia gas (NH₃). Because optimum biochemical oxygen and nitrogen removal at the Wastewater Facility can only be achieved at neutral pH, neutralizing the wastewater to effect optimal pollutant removal will influence the economics of waste treatment.

Continuous pH Monitoring Requirements

Section B.3 of your Permit states whether continuous pH monitoring equipment is required for compliance.

Either electronic or paper chart recorders can be used to maintain compliance; however, keep the following in mind:

- Recorders must record from 0-14 pH scale
- To be considered "continuous," recorders must record data every few seconds. Avoid time gaps when switching out paper charts or downloading electronic data. Time gaps greater than 59 seconds may be considered a violation.
- The pH record is a legal document and must be tamper proof
- pH records must be kept onsite for at least 3 years (back up electronic records to prevent loss of data)

- Current daily and historical pH records must be easily accessible and reviewable for announced and unannounced inspections

Causes of pH Fluctuation at Your Facility

The pH of your wastewater stream may fall outside the desired pH range if:

- The pH equipment is insufficiently calibrated
- The acidic/caustic baths are discharged in slugs
- The equipment is not inspected frequently
- The equipment is broken and/or malfunctioning
- The onsite treatment system is poorly maintained

How the City of San José Monitors pH

Programs in place that monitor and assess the quality of the Wastewater Facility influent:

- Reviewing your daily pH logs during Compliance Inspections
- Reviewing your historical (past 3 years) pH logs during Annual Inspections
- Sampling your wastewater during Sampling Inspections and checking for violations
- Reviewing your Self Monitoring Reports (SMRs) for violations
- Measuring and recording the Wastewater Facility's influent pH at the Headworks
- Performing Surveillance Monitoring in the sanitary sewer line and analyzing the collected wastewater samples for compliance with local regulations

In accordance with the Americans with Disabilities Act, City of San José Environmental Services Department materials can be made available upon request in alternative formats, such as Braille, large print, audio-tape, or computer disk. Requests may be made by calling (408) 535-8550 (Voice) or (800) 735-2929 (California Relay Service).

Consequences of pH Violations and Failure to Report:

- Violates not only permit conditions, but also local, state, and federal regulations
- Penalties ranging from a verbal warning to legal action to monetary fines
- A referral to the City Attorney's or the District Attorney's Office for prosecution
- Increased Permit requirements
- Revocation of Permit



Ask your inspector for a pH Reporting Requirements Poster

The San José-Santa Clara Regional Wastewater Facility serves the cities of San José, Santa Clara, Milpitas, Cupertino Sanitary District, West Valley Sanitation District (including Campbell, Los Gatos, Monte Sereno, and Saratoga), County Sanitation Districts 2-3, and Burbank Sanitary District.