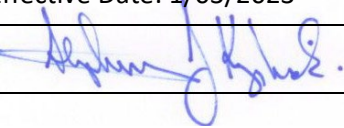


User Guidance Information	pH Monitoring Plans	
Version: 2023-02	Effective Date: 1/03/2023	Pages: 1
Authorization Signature		
Replaces:		

Objectives & Scope

This guidance describes the compliance requirements necessary to meet the requirements of Section II-302 (b) for developing a pH Monitoring Plan. This information is provided for guidance purposes only and addresses the general case. Specific facts about an individual User may result in a different result.

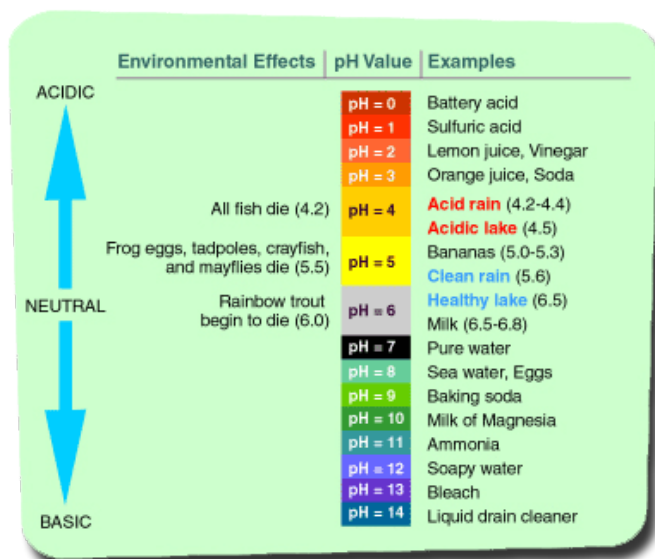
Introduction:

pH is a value used to specify the acid or basic character of an aqueous solution using a scale of 0 – 14, with a value of 7 indicating a neutral solution (See graphic). pH is defined as the negative log of the hydrogen ion activity, which is the product of the hydrogen ion concentration and the activity coefficient¹ of hydrogen at that concentration.

The pH of an aqueous solution is important to wastewater treatment to ensure (i) an appropriate environment exists for biological waste treatment operations and (ii) an appropriate environment exists to remove dissolved pollutants (e.g., metals) as insoluble solids (precipitates).

The pH of an aqueous solution can be increased or decreased by adding caustic materials (i.e., Sodium Hydroxide) or adding acidic materials (i.e., sulfuric acid) to achieve the desired pH condition. The GLWA rules specify a General Pollutant Prohibition for pH as “...less than 5.0 units or greater than 11.5 units...”.

pH measurement can be accomplished using colorimetric methods (pH paper) and more accurately using electrochemical methods (pH meter). There are a variety of metering devices which permit recording individual measurements to a storage device or recorder (e.g., charting).



¹ Activity refers to the thermodynamic characteristic.

The frequency of measuring pH is determined by site-specific operating requirements and/or regulatory compliance requirements.

Discussion:

Part I: Who is Required to Develop a pH Monitoring Plan?

A pH Monitoring Plan may be a stand-alone document or part of a comprehensive Sampling Plan developed by a Significant Industrial User.

SIUs who, for operational or treatment purposes, perform (i) on-site pH adjustment, or (ii) process acidic and/or caustic wastes and wastewaters, to develop a specific pH monitoring plan. [See section II-302(b)].

Part II: What are the minimum requirements for a pH Monitoring Plan?

Plan requirements include the elements specified in section II-302(b)(1) and a description of the pH monitoring equipment² and related devices used at a specific facility.

Part III: What permit requirements are specified for pH?

The permit will include:

- Recognize submission of pH Monitoring Plan
- pH Monitoring & Reporting frequency
- Protocol for reporting single pH daily value and max/min for day
- 15-minute limit to pH excursion (below 5 or greater than 11.5).

Part IV: Are there requirements for pH monitoring devices?

Yes. SIUS who discharge more than 25,000 gpd or who are classified under 40 CFR 437 as a Central Waste Treatment facility, must employ continuous measuring devices SIUs discharging less than 25,000 gpd may track pH by means other than continuous (e.g., 4-measurements over discharge period). Users not required to file a pH monitoring plan must address pH sample collection in their sampling plan and describe sampling and measurement protocols and method(s).

² No specific manufacturer or device is recommended by GLWA, TBD by SIU.