METTLER TOLEDO APPLICATION NOTE

Primary Wastewater Treatment: Influent Monitoring

BACKGROUND

The raw sewage entering a wastewater treatment plant comes from a variety of sources. In addition to effluent from domestic users, effluent from industrial users and storm water run off can be present.

Off-spec effluent from industrial users or accidental spills entering the sanitary sewer system can cause problems in the wastewater treatment process by killing the bacteria used in the activated sludge process or by upsetting the disinfection process.

THE PROCESS

Monitoring the influent can alert the plant operators that contaminated raw sewage is entering the plant. This allows the influent to be diverted and treated to avoid process upsets.

pH is used to detect excess acid or base in the raw sewage that can come from a spill or abnormally large discharge from an industrial user.

The raw sewage being monitored is obviously a very dirty sample, and large masses of solid material can accumulate on the pH sensor. The usual practice is to routinely remove the sensor and hose it off.

INSTRUMENTATION

A flat bulb design for self-cleaning, PVDF body and the Xerolyt® reference system combine to make the InPro® 4500VP the ideal choice for dirty applications. It is easily submersed in the stream on a length of pipe and, being disposable, has the advantage of reducing maintenance requirements. Although raw sewage has a potential to coat the electrode, it does not usually contain components that poison the reference electrode or pose material compatibility problems.

The Model 2050 pH analyzer provides a cost-effective solution for the wastewater industry. The 2100/2X transmitter can be used when intrinsically safe standards must be met.

Other Analyzers

In certain situations, other analyzers are used in addition to pH. This occurs when there is an industrial user on the sanitary sewer system with the potential of releasing large amounts of a certain chemical that can upset the treatment plant. Depending on the potential chemical contaminant, ORP or conductivity analyzers can be used for monitoring or alarming.

PRODUCTS

2050 pH Analyzer

- Economically priced, full featured transmitter
- Large, easy-to-read LCD allows quick view of information
- Two relays as limit contacts with delay timer to minimize false alarms and one relay as alarm or wash contact

2100 pH/ ORP Analyzer

- Detachable front panel and plug-in terminals for ease of installation
- All functions accessible through the keypad for increased ease of use
- Continuous sensor and transmitter diagnostics to monitor performance
- FM certification for Class I, Div 1 & 2 Environments and CSA General Purpose Approval
- 3 year warranty

InPro® 4500VP Solid Polymer pH Electrode

- Patented Xerolyt® solid polymer reference system maintains a stable potential for accurate and repeatable pH measurement and low maintenance
- Open junction eliminates reference clogging and extends sensor life
- High pressure resistance eliminates requirement for pressurizable housing
- Xerolyt solid polymer is particularly suitable for use in emulsions, suspensions, heavily contaminated or sulfide-containing media, and solutions with a high concentration of suspended solids

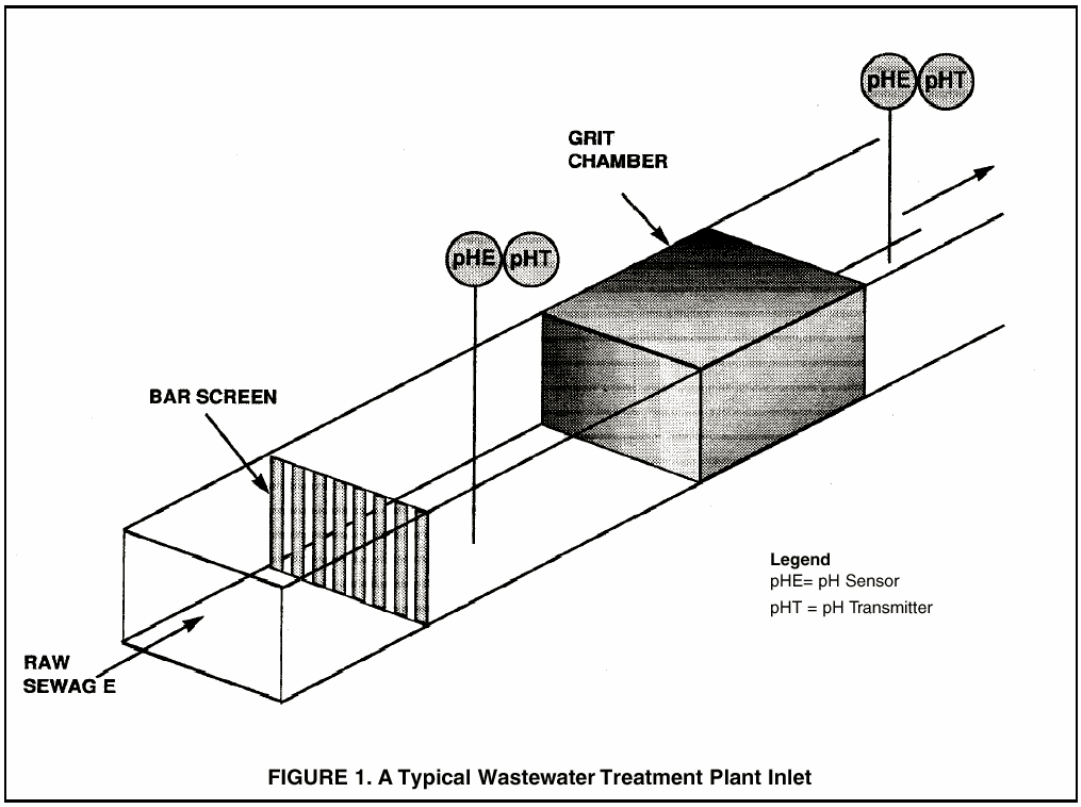

FIGURE 1. A Typical Wastewater Treatment Plant Inlet

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