

Overview

Industry:
Pharmaceuticals

Focus:
Innovative Design
Full Engineering
Procurement & Fabrication
Start-up Support

Effluent Treatment

Maintaining Acceptable Levels

Control of effluent pH was required to maintain levels acceptable to the Ministry of the Environment. pH upsets occurred most often after washdowns were performed in the process rooms of the pharmaceutical manufacturing facility.

A system was designed to divert the raw effluent from an existing manhole, treat it to correct the pH, and return it to the discharge stream.

A hole was dug and a break made in the existing sewage line between two manholes. An in-ground collection/equalization tank was installed to intersect the existing sewage line. The effluent treatment building was built on top of the tank at ground level to provide a room to add neutralizing solutions.

Raw effluent from the first manhole was collected in the collection/equalization tank which was designed to hold sufficient volume to allow the effluent of various pH values to mix and maintain a somewhat stable pH level. The effluent was then pumped up to the effluent treatment building where the pH was measured by the first pH meter

If the pH level was not within an acceptable range, a three-way valve diverted the flow into the treatment stream. The diverted

effluent stream was neutralized and passed through a mechanical mixing vane to ensure good mixing. A second pH meter at the discharge of the treatment stream ensured that the discharge was within acceptable limits. The effluent then dropped back through the discharge pipe to the second manhole for release into the municipal sewer system.

The treatment system was comprised of:

- Collection/equalization tank
- Duty sump pump
- Standby sump pump
- Effluent treatment building
- Sodium hydroxide solution storage tank
- pH control system
- Metering pump
- Injection port
- Mixing vane
- Diverting valve
- Two pH meters

The new system was installed while the facility remained in operation.

JNE provided the following design services:

- Civil
- Electrical
- Mechanical
- Control System
- Instrumentation
- Equipment & Construction Specifications
- System Fabrication (Equipment & Controls)

