Case Study

RAGLAN WASTEWATER TREATMENT WORKS

Our client

Dŵr Cymru Welsh Water

(Bentley)

Project | Chemical Dosing

Location | Raglan, Wales

Colloide were appointed as Mechanical and Electrical sub-contractor to complete the Design, Manufacture, Delivery, Installation, Offloading, Commissioning and Testing of Ferric Dosing for JN Bentley on behalf of Welsh Water. These works are part of the ongoing framework contract Colloide have in place for package dosing systems with Welsh Water.

Colloide's scope of works included:

The chemical dosing system consisted of a chemical storage tank, chemical fill point and dosing kiosk. The dosing kiosk contained a chemical dosing marshalling panel and all associated pump and instrumentation.

Colloide

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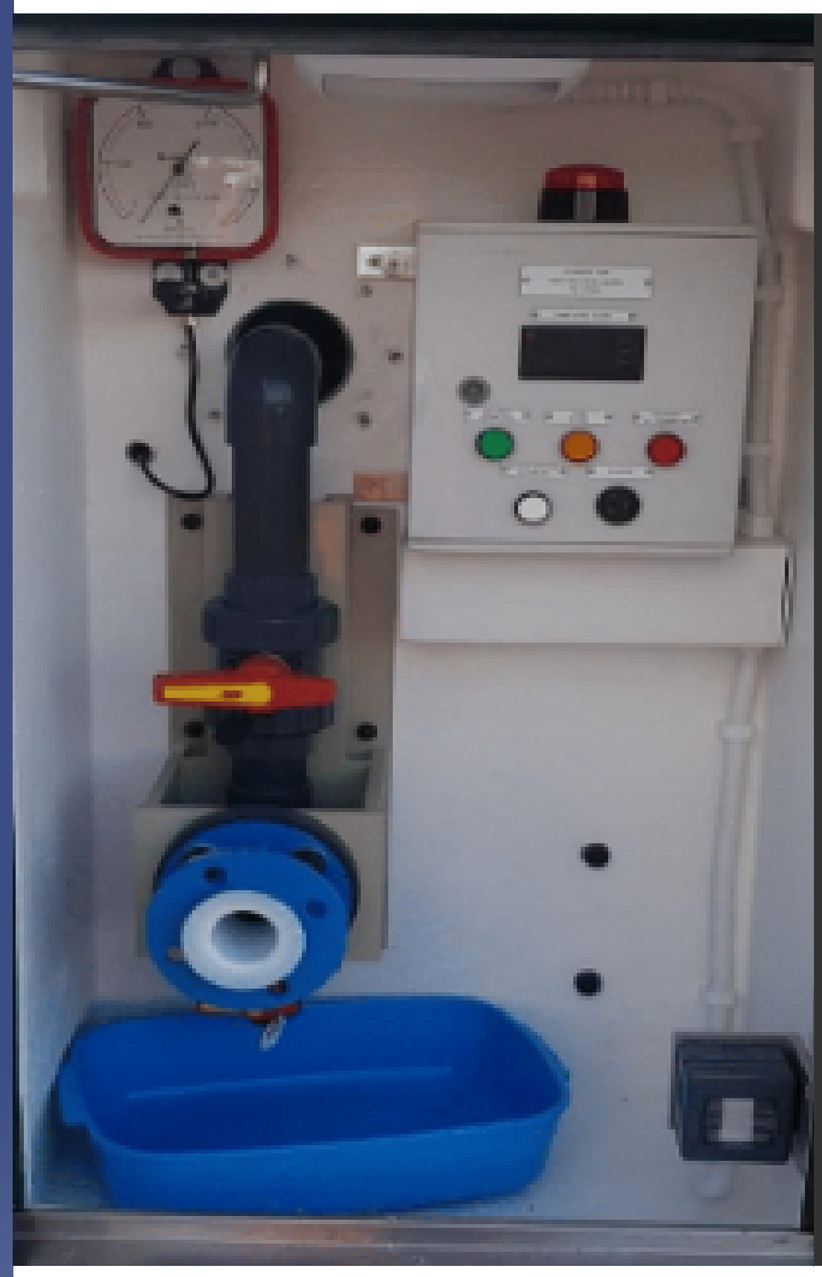
Case Study

TECHNICAL INFORMATION

The main components of the chemical dosing system are as follows:



Fill Point Kiosk

The fill point kiosk is the point for chemical delivery into the storage tank. For delivery to be permitted, the green “delivery permitted” lamp in the fill point kiosk must be lit. If the green light is not lit, no chemical delivery is permitted, regardless of the indicated tank level.

Inside the fill point kiosk there is a beacon and sounder, which warn:

- that the storage tank has reached its FULL level, or
- that the ultrasonic level transmitter has failed or
- that the leak detection probe in the storage tank bund has been activated

Chemical Storage Tank

The chemical storage tank is situated inside a bund, which is equipped with a float switch that is activated if liquid enters the bund (level around 1 inch). This can indicate that there is a leak on the storage tank or on the pipework exiting the storage tank, but the liquid can also come from the dosing skid bund.

The storage tank itself is equipped with:

- fill pipework
- outlet pipework with isolation valve
- overflow pipe (leading into the bund)
- drain valve
- vent
- ultrasonic level transmitter (with displays in fill point kiosk and on control panel)
- pressure gauge tube (gauge dial in fill point kiosk)

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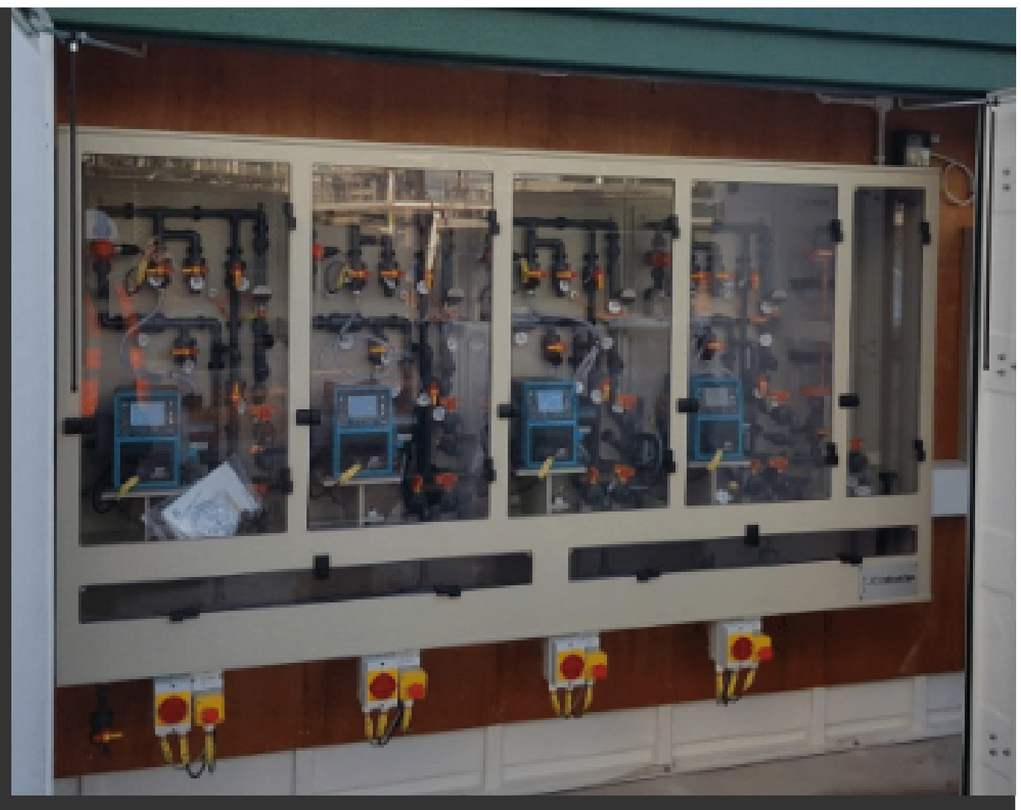
Dosing Kiosk

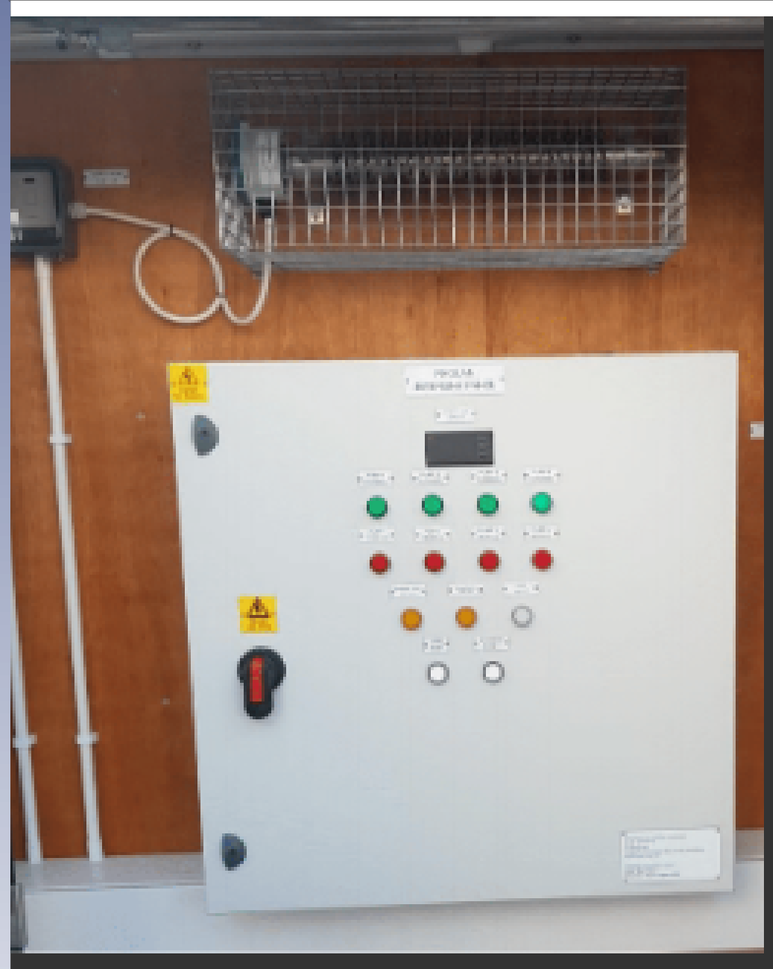


The dosing kiosk contains:

- dosing skid
- marshalling panel
- heater
- distribution board

Each pump draws chemical from the storage tank through the common suction pipework. A flow switch installed on the outlet pipework in each pump compartment indicates if there is any flow from the pump. There is a pressure relief valve (set to 3.5 bar) on the pipework of each pump compartment.

Each pump compartment in the dosing skid is equipped with its own leak detection float switch, where a pump is physically installed. In addition, any leaks inside the pump compartments will eventually overflow into a raised hole in the bottom of the pump compartment. It then flows to the common bund of the dosing kiosk, and then through the dual containment of the suction pipework, ending up in the storage tank bund. The storage tank bund is also equipped with a float switch.



Marshalling Panel

The Marshalling Panel is controlled via the site MCC to supply all pumps with signals for pump speed, run/stop and illumination of lamps for the front of the panel and fill point.

Panel Lamps Include:

- Pump Running
- Pump Failed/Tripped
- Storage Tank High High
- Storage Tank Low Low
- Mains Healthy

The Marshalling Panel will marshal fault signals from the system to the MCC, including pumps, flow switches, pressure relief valves, leak detection switches in both the pump bund and tank bund.

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