



Client:

Water Treatment Works

Location:

West Midlands

Featured Product Range:



EnviroHub®
Water Treatment
Solutions

Sophisticated RVT Water Management System installed during an upgrade project at a Water Treatment Works

Project Overview

This project was based at a Water Treatment Works which treats raw water from a local reservoir, and provides quality drinking water to 1 million domestic, commercial and industrial customers. The raw water is fed by gravity aqueducts from a lake to the nearby reservoir. From here it is gravity fed 50 miles by aqueduct pipelines to the supply service reservoirs in nearby towns.

The Water Treatment Works was undergoing an extensive project to upgrade the plant to a 21st century standard. Once the upgrade project is complete, the works will be able to provide up to 210 megaliters per day of wholesome drinking quality water to the latest standards well into the future.

Challenge

The contractor was tasked with carrying out the modification and upgrade to the existing rapid gravity filters (RGFs) from direct filtration to conventional post-clarification filtration. The materials from the redundant sand filters would then be recycled and reused where appropriate with the aim of having no waste going to landfill.

A river flows near the site and there was a risk that any uncontrolled drainage from the site may end up there. With this in mind, it was essential that dealing with surface water run-off and groundwater during excavations was carefully controlled. Excavations, especially where there is a risk to existing plant and water supply, have to be very carefully controlled. This presented a major challenge for the contractor because works were taking place during a period of record high rainfall.

Solution

Due to the sensitive nature of the site, RVT worked closely with the contractor to better understand the expected contaminants and the water flow volumes to be treated.

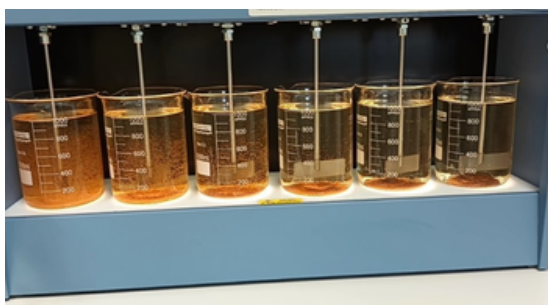
RVT performed a free site survey, took water samples from site and carried out jar tests to better understand what type of chemicals and dose rate would be required. The jar test is a laboratory procedure that simulates the coagulation and flocculation process using differing chemical doses. The purpose of the procedure is to estimate the minimum coagulant and/or flocculant dose required to achieve adequate water quality. Coagulants are primarily used to remove extremely small suspended particles in water which do not settle rapidly. The flocculant primary use is to bind and agglomerate suspended particles in water to form large particles to assist in their settling and facilitate removal through particle and water separation processes. If a jar test is not performed, the site may risk chemical overdosing or underdosing, which can be detrimental to the receiving water body.

Taking the result of the jar test into consideration, RVT proposed a bespoke water treatment solution. This included EnviroHub® TT10 Treatment Tanks to pre-treat surface water run-off and groundwater with coagulant and flocculent polymer to improve the settlement of solids. EnviroHub® Chemical Dosing Systems were used with the water treatment tanks to automatically add the correct dose of flocculant and coagulant. CO₂ dosing for pH correction was also part of the water treatment process.

EnviroHub® HL50 Lamella Plate Settlement Tanks were used to remove suspended solid particles from the water. EnviroHub® Monitoring Units were installed to generate automatic text and email alerts to warn the site team when the system was approaching the set compliance limits. This gave the site team peace of mind that they would remain compliant with their environmental water discharge permit.

RVT initially supplied two water management systems capable of treating 14l/s each, to manage water from excavations, as well as surface water run off from site, and the systems performed outstandingly. However, during a period of higher rainfall, the client requested two extra EnviroHub® systems to deal with the higher water flow volumes. The water management systems gave the contractor peace of mind that water was being effectively managed on site.

EnviroHub® Water Treatment Systems



Jar test



- ▶ When carrying out activities on a plot of land, including construction work, the main contractor or landowner is responsible for any water that is to be moved or discharged from the site.
- ▶ EnviroHub® is easy to use, therefore reducing the burden or stress that site managers might feel when managing water on site.
- ▶ The Environment Agency states that contractors must have a plan for the control and disposal of water from site, and must distinguish between excess water due to rainfall and water arising from the construction process.
- ▶ EnviroHub® helps to ensure compliance with environmental regulations, giving you peace of mind that you have protected the environment.
- ▶ EnviroHub® is a fully modular system, allowing RVT to create a tailored set-up for your site. Furthermore, water can be neutralised using CO₂ or chemicals.
- ▶ With RVT, customers are supported throughout every step of the hire, receiving technical support and consultations whenever necessary.
- ▶ The EnviroHub® Monitoring Unit (MU02) is a simple way to give ultimate reassurance about the compliance of your site water.