



BG

WASTEWATER TREATMENT PLANTS (WwTP)



BG, YOUR PARTNER FOR WwTP PROJECTS

PROCESS
OPTIMISATION

RECOVERY

ENERGY EFFICIENCY

MICROPOLLUTANTS

Treatment efficiency at the service of the environment and the economy.

Wastewater treatment plants are at the heart of our urban and technological development. After having ensured the treatment of wastewater and thus protected our rivers and lakes, WwTPs are today facing new challenges today such as micropollutants, the energy transition and circular economy.

Technical and human challenges

Changes in both technology and society lead to technical and human challenges, which BG Consulting Engineers are able to surmount. Thanks to its vision, its experience and its capacity to develop a global approach, BG supports and helps you throughout the different stages of decision-making, be it either in the field of treatment process, energy recovery or operation optimisation.

Micropollutants

BG is a pioneering company in the field of micropollutant treatment. A large ozonation project has already been commissioned in 2013 and several other projects are currently ongoing. Our experts can support you in technical as well as administrative matters.

Integrated design and regionalisation

The WwTP is a centralised treatment point and its longer-term design must integrate data of the upstream network and the general sewerage plan. The infiltration of clean waters has an important impact on the investment and operation costs of a WwTP.

BG can offer a comprehensive analysis thanks to the synergy between sewers and

hydraulics engineers and wastewater infrastructure specialists. In the context of the regionalisation of wastewater treatment, BG is proficient to lead and set up projects of all sizes.

Technological watch and independence

The new challenges in wastewater treatment have led to an intense development of processes and solutions. BG ensures a constant technological watch and is in contact with the major Swiss, French and European research institutes as well as with companies active in the field of water treatment. Thus, BG is capable of integrating these technologies into your projects and of ensuring that your WwTP is ready to tackle today's and tomorrow's challenges.

Life Cycle Analysis (LCA)

BG has been active in the field of LCA applied to WwTPs for the past 15 years. This technique allows to find a balance between economical as well as environmental imperatives in a broad manner to choose the technology that is the most suited to each site.

Local presence

BG is present in Switzerland, in France as well as internationally through a dense network of offices, guaranteeing a strong local presence. The proximity, the contact and the understanding of our client are at the heart of the BG approach for each project.



OUR PROJECTS



TREATMENT OF MICROPOLLUTANTS AT THE SOPHIA ANTIPOLIS WwTP (FRANCE)

BG executed the first WwTP treating micropollutants in France. Located at Sophia Antipolis, it can process a load of up to 50 000 population equivalents. The confined space available for the new plant implied a compact process, in this case biofiltration. The stringent requirements with regards to effluent discharge have led to a multistage process.

The micropollutant treatment solution that was retained is ozonation just upstream from the last denitrification stage.

Since its commissioning in 2012, an analytical follow-up of the station made in the scope of the research project "Micropolis - processes" has validated the efficiency of the process.

BG was in charge of the whole project execution and accompanied the client from design stage to commissioning and operation.



NEW VIDY WwTP (SWITZERLAND)

The Vidy WwTP, which treats the wastewater of the city Lausanne and its neighbouring communities, has arrived at the end of its service life. Thus, a reconstruction concept was proposed by the engineering consortium Creal led by BG.

Based on this concept, the project for a new treatment plant was developed, including for the first time a treatment of micropollutants in accordance with the new industry standards.

The Vidy project offers a unique challenge due to the extensive pha-

sing of the work, which is required to ensure that the plant can maintain an adequate treatment during the construction works. The available surface area also led to an extensive process solution for the biological treatment, namely biofiltration.

An energy study coupled with a life cycle analysis has been carried out on the sludge valorisation process, leading to the construction of a digestion plant.

The WwTP capacity is 400 000 PE.



SAILLON WwTP REHABILITATION PROJECT (SWITZERLAND)

The Saillon WwTP with a capacity of 6200 population equivalents, was no longer sufficient to guarantee the necessary treatment efficiency.

After a data review, BG proposed a rehabilitation concept advocating the addition of two treatment streams for carbon removal using fluidised bed technology upstream

from the two existing fluidised beds which were transformed into a nitrification stage.

The project allowed for the renewal of the electrical components and the positive displacement blowers. Also, it led to a large improvement of the treatment quality and the plant's operation.



MARTIGNY WwTP REHABILITATION PROJECT (SWITZERLAND)

A diagnostic study by BG highlighted the inconsistencies in the wastewater treatment process and confirmed the ageing and insufficiency of some of the installations.

The necessity to upgrade the installations has led to the complete and gradual rehabilitation of the WwTP.

These works have allowed the WwTP to handle the development of the urban basin and to extend its capacity to 65 000 population equivalents as well as to increase its treatment efficiency, especially with regards to nitrification. A study on the micropollutant treatment is currently ongoing.

OUR PROJECTS, SUITE



BIOGAS RECOVERY (ANNECY, FRANCE)

The sludge treatment plant at the SILOE (Syndicat du Lac d'Annecy) WwTP has a capacity of 230 000 population equivalents. It includes 2 digestion units that currently operate in the mesophilic mode, but will switch to thermophilic mode in the future as the treatment load evolves.

The released biogas is recovered after the treatment and upgraded to biomethane. Then, it is reinjected into the natural gas network or used for heating the installations. The selected treatment process consists in a pre-treatment involving granulated activated carbon (GAC) followed

by a 3-stage membrane purification process. In order to improve the production of biomethane, the sludge heating process, which consumes large amounts of biogas, is partly performed using two sludge-sludge heat exchangers to recover energy from the digested sludge, as well as two heat pumps recovering calories from the treated water.

BG was in charge of the complete execution of this exemplary facility in terms of energy recovery for the Syndicat du Lac d'Annecy (SILA). It is the first biomethane production unit operated by a public operator in France.



CHAMBÉRY WwTP RETROFIT (FRANCE)

The retrofit project of the Chambéry WwTP aims to meet the new standards for this 260 000 population equivalents facility. The project has led to a complete overhaul of the site over 5 construction stages and to the creation of an exemplary plant in terms of energy recovery, reuse and generation.

On the water side, the existing pre-treatments and primary treatment have been completed by a biofiltration stage. On the sludge side, the new methanisation stage leads to a reduction in sludge production which is burned in a nearby incineration plant after dewatering.

The BG assessment studies made it possible to reach ambitious energy targets: biogas recovery from the methanisation process by cogeneration, heat recovery for the treatment process as well as for heating the installations, hydropower production on the treated water, installation of 700 m² PV panels, heat pumps on the treated water for heating the installations, internal production of industrial water for the process.



KILLWANGEN WwTP REHABILITATION AND EXTENSION PROJECT (SWITZERLAND)

BG was in charge of the rehabilitation and extension of the Killwangen WwTP (25 000 population equivalents) between 2010 and 2016.

These works allowed to ensure nitrification by transforming the activated sludge process into 5 batch reactors (SBRs).

An upgrade of the pre-treatment and the modification of the sludge treatment were also included in the scope of the engineering works.

BG executed the project from design to commissioning, including general project and construction management.



SCHÖNAU WwTP BIOLOGICAL TREATMENT REHABILITATION (SWITZERLAND)

BG was the general planner for the rehabilitation of the biological treatment of the Schönau WwTP (180 000 population equivalents).

This project includes the renewal of the complete aeration system (positive displacement blowers and aeration grids), the improvement of

the operation, and an energy optimisation.

BG provides its services from the design stages to the commissioning of the plant. The construction works are scheduled from 2016 to 2018.

