



## About us

VCS Denmark – formerly Odense Water Ltd. – is known as a frontrunner in the Danish water and wastewater sector.

We have supplied the city of Odense with clean drinking water since 1853, and as a company, we embody more than 150 years of experience in water supply and wastewater management.

Today we are a modern water and wastewater company with 170 employees, all highly skilled professionals within their field.

We have a strong tradition of innovation, and always apply the most advanced technologies when carrying out our operational tasks within water supply and wastewater treatment. We have extensive experience in efficient and energy-saving operation of waterworks and wastewater treatment plants, as well as pipeline networks.

## Values and vision

At VCS Denmark we practice sustainability. We are very much aware of how our activities impact the natural water cycle, and we apply a holistic approach in all our processes – from water catchment to water supply, and wastewater removal to wastewater treatment.

We strive to follow our 5 company values in everything we do: *professionalism, responsibility, commitment, innovation, and loyalty.*

Our vision for the future is clear:

*We wish to be a role model – locally, nationally and internationally. We wish to create maximum value for our customers – and to exceed their expectations.*

## Research and development

We participate in a number of R&D projects, including benchmarking projects in the areas of water supply and wastewater. We also share our knowledge through national and international projects, joint ventures, and associations.





## Certifications

- ISO 9001 (Quality)
- ISO 14001 (Environment)
- ISO 22000 (Water Quality)
- OHSAS 18001 (Occupational Health and Safety)



## Water supply

- 6 waterworks
- 11,000 million litres pumped per year
- 1000 km water pipelines
- 8 pumping stations
- 45 production wells



## Wastewater

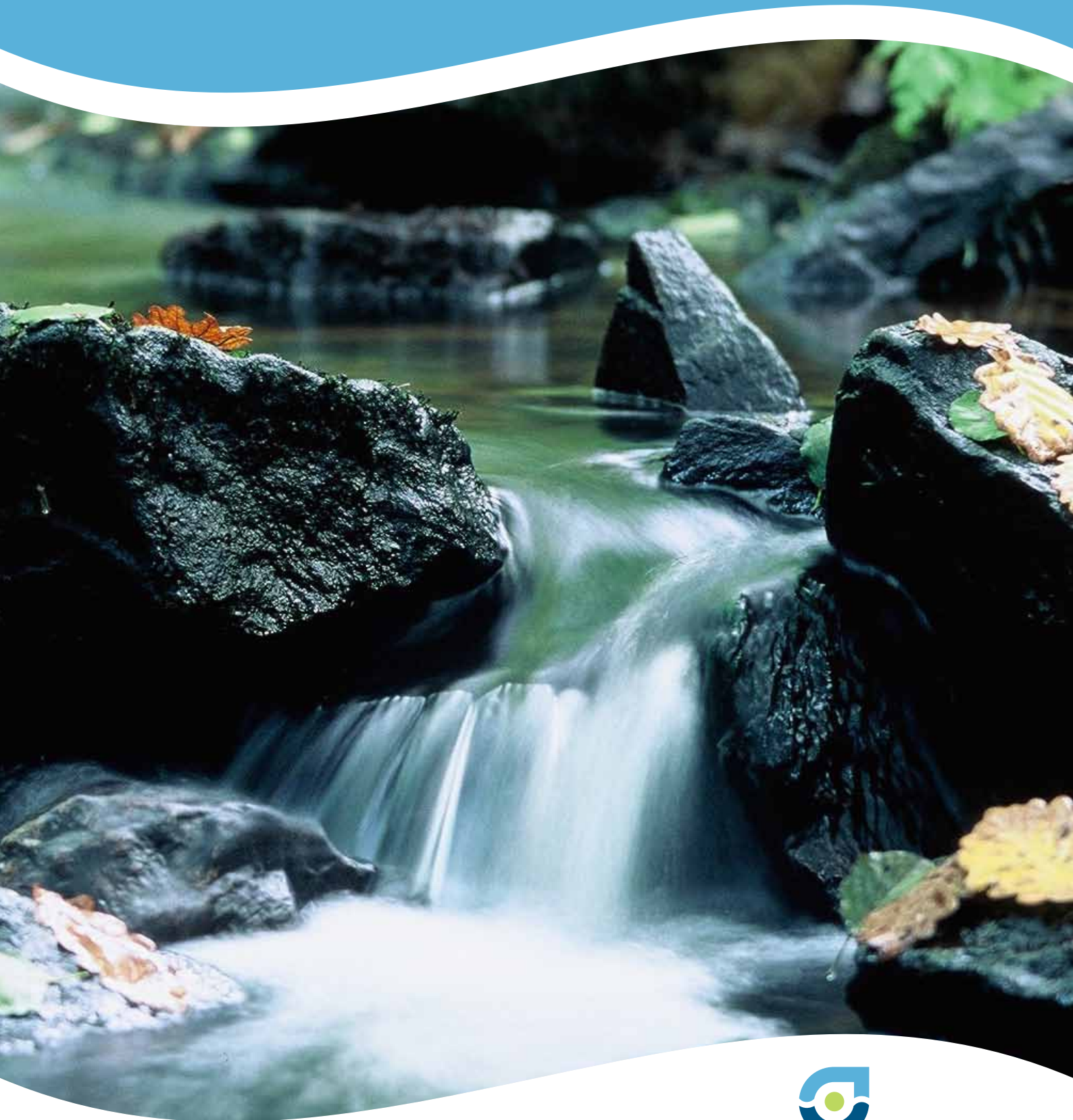
- 3 wastewater treatment plants
- 30,000 million litres treated per year
- 1,400 km sewers
- 117 pumping stations

## Contact us

For more information about our services, please contact:

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# Practical water knowledge



**VCS Denmark**  
PRACTICAL WATER KNOWLEDGE



## Our services

VCS Denmark is the 3rd largest water and wastewater company in Denmark. We operate 6 waterworks, 3 wastewater treatment plants and 2400 km of water and wastewater pipeline network.

As a water and wastewater company with more than 150 years of operational experience, our areas of expertise cover all aspects of water and wastewater management.

We offer a wide range of consultancy services, innovative solutions and hands-on training programmes – turning advanced theory and technologies into practical water knowledge.



## Training and consultancy services

We offer consultancy and hands-on training programmes as well as technical assistance within all our areas of expertise. Among our services are consultancy and training in:

- Water catchment, protection and treatment
- Operational optimization of waterworks and wastewater treatment plants
- NRW reduction – strategies and management
- Planning and implementation of leakage detection
- District zoning of the water supply network
- Planning of pipeline rehabilitation
- Process optimization
- Energy optimization
- SCADA systems
- Development and implementation of Management Information Systems
- Financial planning and control – including tariff calculations
- Capacity building
- Customer services and public communication

## International references

Over the years, we have provided professional assistance and training to many clients and partners all over the world.

- Malaysia, Langkawi: 2-year project focusing on energy optimization, NRW reduction, welding of PE pipes and public awareness of water scarcity.
- Lithuania: 2-week training programme focusing on improving efficiency of work, quality of service and the ability to adapt to market change.
- Grenada: 18 month project focusing on capacity building and introducing best practices in water utility management.
- India, Chennai: Technical assistance from our pump trading specialist.
- Croatia: Training and capacity building for water, pump, and drainage technicians.
- Latvia: Advice and assistance regarding the commissioning of waterworks.
- Russia, St. Petersburg: Training programme in leakage detection.
- Russia, Kaliningrad: Capacity building for Vodokanal.
- Sri Lanka: 3-week training programme in Denmark on capacity building, operation of waterworks and wastewater treatment plants, laying of sewage pipes, no-dig rehabilitation methods, and customer service. Followed by a 2-week refresher course in Sri Lanka, supplemented by courses in CCTV inspection, flushing of sewers, and issues related to the work environment.
- Ukraine, Kiev: Training programme on rehabilitation of sewerage systems.
- Vietnam: Client consultancy, technical assistance, and training in supply network rehabilitation.



# Water

## Catchment and treatment

VCS Denmark has extensive practical experience in hydrogeology, the establishment and protection of well fields, and the design and operation of waterworks.

Our work follows the natural water cycle. From the formation of water in the aquifer and rivers to the establishment, operation and monitoring of well fields – followed by water treatment at the waterworks and, finally, distribution to the consumer.

### We offer services within:

- preliminary analysis / water catchment investigations and establishment of well fields with a focus on sustainability
- operation, monitoring and protection of well fields
- design, renewal / rehabilitation, operation and monitoring of waterworks, pumping stations and storage reservoirs – with a focus on energy efficiency and pressure optimization



## Water quality

Clean drinking water is a vital resource. Denmark is known for its high quality of drinking water. We continuously monitor the quality of our drinking water with a comprehensive analysis programme. Quality control measurements are performed many times as the water runs from the well field to the consumer. Our preventive monitoring measures also include surveillance of sources of pollution and other threats to ground water.

At VCS Denmark we make a determined effort to protect our water resources and monitor the water quality. We have participated in a number of research projects, including the development of online quality control systems and real time management of ground water resources.

## Leakage detection and monitoring

One of the most important tasks for a water utility is to reduce water loss. At VCS Denmark we have systematically monitored leakage detection since 1994, in order to maintain the pipeline network in our supply area. This effort has led to a NRW rate of less than 8%.

Other important strategies to reduce water loss are district meter zoning and pressure management. By integrating DMZ and pressure management in our network monitoring system, we have improved supply reliability not only in the districts but in the whole supply area significantly.

### We offer services within:

- NRW strategies and management
- planning and implementing leakage detection
- district zoning of the water supply network
- digital monitoring of the pipeline network
- pressure management
- network modelling



## Wastewater

### Advanced biological and chemical wastewater treatment

VCS Denmark is known for finding innovative technical solutions and working methods, which we translate into energy efficient practices in our plants. We have years of experience in designing and operating advanced biological plants with effective removal of nutrient salts, phosphorus, and filtration of wastewater. Through continuous optimization of operations, SCADA systems and employee training, we have managed to maintain a stable and low effluent concentration for all parameters, including:

BOD:  $\leq 2.6$  mg/l  
COD:  $\leq 23$  mg/l  
Total N:  $\leq 3.5$  mg/l  
Total P:  $\leq 0.2$  mg/l  
SS:  $\leq 4.4$  mg/l

VCS Denmark has a tradition of keeping a close dialogue with the city's industries and controlling their discharge of wastewater. We analyse the content of the wastewater reaching the sewerage system in order to determine the appropriate treatment processes.

#### **We offer services within:**

- operational and process optimization at the wastewater treatment plants
- advanced wastewater treatment methods
- energy optimization

### From sludge to sustainable energy

At our wastewater treatment plants we have developed innovative solutions to optimize sludge treatment. By optimizing the digestion tank system at our plants, we have reduced the quantity of sludge from 38,000 t to 25,000 t per year, as well as achieved a significant increase in the production of biogas. This increase, along with our efforts within energy optimization, is part of our strategy to become self-sufficient with renewable energy – and thereby CO<sub>2</sub>-neutral – in 2014.

#### **We offer services within:**

- effective energy production (biogas)
- optimization of digestion processes/sludge treatment

## Pipeline rehabilitation

For many years, VCS Denmark has carried out regular rehabilitation planning of both the water supply and the wastewater systems. This planning is based on the integrated use of advanced GIS tools and a methodical database. In the case of sewer rehabilitation, our planning also derives from a specific assessment of the condition of the sewers. Among other things, we use systematic CCTV inspection, our practical experience, and record-keeping from operations over the years. The pipeline rehabilitation is primarily implemented by means of no-dig methods.

#### **We offer services within:**

- pipeline registration
- planning of pipeline rehabilitation
- no-dig methods

