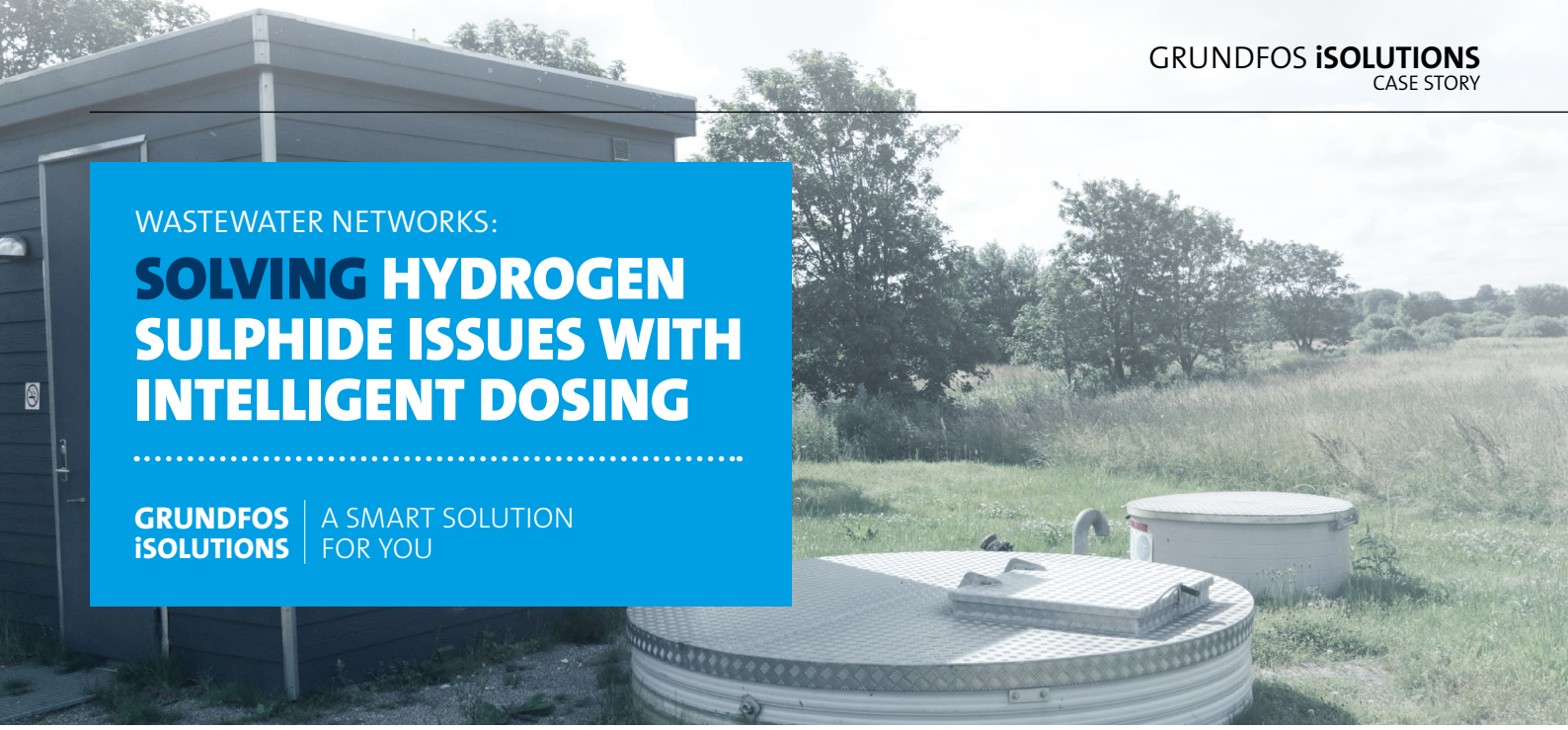

WASTEWATER NETWORKS:

SOLVING HYDROGEN SULPHIDE ISSUES WITH INTELLIGENT DOSING

GRUNDFOS iSOLUTIONS | A SMART SOLUTION FOR YOU

REDUCED **MAINTENANCE**

REDUCED **H_2S DEVELOPMENT**

70%
REDUCTION IN CHEMICAL COSTS

Mariagerfjord Vand A/S

DISCOVER HOW A DANISH UTILITY COMPANY ELIMINATED H_2S ODOURS AND SAVED UP TO 70% IN CHEMICAL COSTS WITH GRUNDFOS ISOLUTIONS

Mariagerfjord Vand is a Danish public utility company wholly owned by Mariagerfjord county. The company operates the municipal water and sewage works and pipe networks, which serves approximately 42,000 citizens, including 12,000 in the city of Hobro. The company aims to handle wastewater efficiently and environmentally while cost-effectively providing its services.

Recently, residents of a neighbourhood in Hobro were plagued by the smell of H_2S. The odour came from manholes outside the city where a pumping main transports wastewater. Pressurized pipes were producing enough H_2S that manhole measurements were up to 500 ppm. Not only does H_2S create an odious smell, but it also corrodes pipes and creates a potentially hazardous work environment for the operational staff.

H_2S problems can be hard to predict, which makes them hard to solve. The presence of H_2S depends on many factors, including temperature, the composition of the wastewater, its retention time in the pipes, and when and for how long the manhole pump is running. All of these variables must be considered when determining the right dosage of chemicals to combat the issue.

Grundfos has developed an adaptable, intelligent solution for exactly such H_2S issues, which are becoming more prevalent in utilities around the world. Based on several Grundfos components, the Grundfos Hydrogen Sulphide Solution automatically monitors actual conditions in sewers and manholes. It measures all H_2S occurrences and automatically releases the optimal chemical dosage in the wastewater over subsequent days. Over time, the dosage is regulated to meet daily and seasonal variations.

The solution

After a visit with a Grundfos Application Manager, Mariagerfjord Vand implemented the Grundfos Hydrogen Sulphide solution. The heart of the solution is an advanced control algorithm installed in Grundfos Remote Management (GRM). GRM receives signals from a gas phase logger installed in a manhole. The gas logger performs a measurement once every 15 seconds and sends measurements for the last 24 hours to GRM. Based on the data received, the solution automatically calculates the correct dosing amount of iron sulphate.

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OUTCOME

- **ELIMINATED H_2S ODOURS COMPLAINTS**
- **70% REDUCTION IN CHEMICAL COSTS**
- **REDUCED PRICE PER CUBIC METRE OF TREATED WASTEWATER**
- **A SAFER, MORE COMFORTABLE WORK ENVIRONMENT**

RESULT

The results of using the Grundfos Hydrogen Sulphide Solution have been very positive. Not only have odour complaints completely stopped but Mariagerfjord Vand has cut chemical costs by 70% and reduced the price per cubic metre of treated wastewater to EUR 0.05. Also, the staff no longer need to spend time monitoring the system and manually adjusting the chemical dose to match current demand. This reduces workload and lets staff focus on other tasks.

As a bonus, Mariagerfjord Vand expects to be able to save money on pipe network maintenance. The reduced H_2S means that pumps and pipes do not corrode as quickly as before and do not need to be replaced as often.

"After installing the Grundfos solution, the odour problem is completely gone. The hydrogen sulphide sensor in Hobro indicates zero, and the complaints have stopped."

Brian Frost
Mariagerfjord Vand A/S

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