



# APPLICATION REPORT

Water & Wastewater

## Flow measurement in the abstraction of drinking water from dunes

- Environmentally friendly alternative for the abstraction of water without chemicals
- Burial installation with short-term flooding, maintenance-free measurement
- Reliable and accurate drinking water flow measurement for monitoring purposes



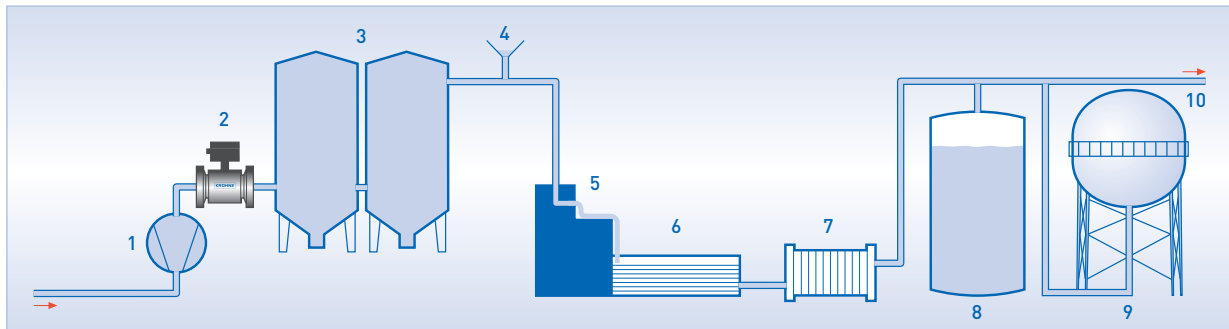
### 1. Background

Water utility company dunea supplies approx. 1.2 million Dutch residents with high quality drinking water. Dune passage is a natural treatment method that forms an environmentally friendly alternative to the purification of water with chemicals. The method for preparing drinking water is unique and not used anywhere else in the world. The water reservoir in the dunes is sufficient for months but must be constantly monitored to comply with environmental criteria.

### 2. Measurement requirements

The process of extracting water from the dunes must be constantly documented so that counter-measures may be implemented in a timely manner to prevent any environmental damage. For one pipeline (DN 900), dunea required a reliable and accurate volume flow measurement with an electromagnetic flowmeter. dunea was looking for a device that could be installed in the ground and could also be used during short-term flooding. The measurement solution also had to be maintenance-free because digging the device out of the ground would involve considerable cost.

## Process of natural purification of drinking water



1 Water pumped from dunes, 2 Flowmeter, 3 Water softening, 4 Carbon dosage, 5 Cascades, 6 Filters, 7 Slow filters, 8 Clean water basements, 9 Water tower, 10 Supply line to consumers

### 3. KROHNE solution

KROHNE supplied the OPTIFLUX 2300 F electromagnetic flowmeter for this application. F stands for remote version, i.e. sensors and converters are connected to one another via signal and field current lines. The stainless steel housing for the sensor is in protection category IP68. The fully welded construction is 100% water tight and leak free. Special burial ('bitu') tape is not needed. The connecting lines were firmly connected to the stainless steel connection box in the factory in the length specified by the customer and potted and sealed in accordance with the protection category. There were no plastic parts used, which can age and wear permanently, if installed underground. The flow sensor was provided with a ground coating especially developed for buried installations.



Burial installation of flow sensor

### 4. Customer benefits

dunea decided on KROHNE's solution because the maintenance and wear-free design of the OPTIFLUX 2300 F minimises the risk of having to dig out the sensor for repairs, for example. On top of that, the easy installation of the device, already tried and tested in many burial applications, was a huge plus. The measuring device boasts many different maintenance and diagnostic functions, informing dunea staff early on about potential problems in drinking water production.

### 5. Product used

#### OPTIFLUX 2300 F

- Electromagnetic flowmeter for advanced water and wastewater applications
- All relevant approvals for potable water
- Liner: PP, PO or hard rubber
- Cost-saving option without grounding rings, variant for burial installation and constant flooding (IP68) etc.
- Flange: DN25...3000 / 1...120", max. PN40 / ASME Cl 300



#### Contact

Would you like further information about these or other applications?  
Do you require technical advice for your application?  
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Please visit our website for a current list of all KROHNE contacts and addresses.

