

Wastewater Flow Monitoring & Control

Avedøre, Denmark

Case Study



Expertise in Flow

Isco 2150 Flow Logger



- Portable area-velocity flow logging
- Reliable, accurate and stable measurement for pipe sizes 150mm - 1500mm Ø
- Rugged, epoxy sealed IP68 environmental protection for deployment in sewer networks
- Variable data storage
- Digital electronics ensure stable readings and long battery life.

Isco 2103 Modem Module



- 2103G Modular GSM modem option offers remote communication
- Auto download features and power schedules.

The 2150 Flow Logger and 2103G GSM module from Teledyne Isco, Inc. are key elements involved in the monitoring and control of wastewater collection networks at Avedøre WWTP, Copenhagen, Denmark.



Avedøre WWTP

Avedøre WWTP collects wastewater from a catchment area of 400 km² through a pipe collection network of 2,300 km, located to the West of the Danish Capital, Copenhagen. This area comprises a population of 345,000, and the WWTP treats 25 million m³ of wastewater annually. The collection network and WWTP is shared between 10 different municipalities who have joint responsibility for identifying and reducing stormwater inflow and infiltration (I&I). Reliable and accurate flow measurement is therefore essential for this type of monitoring. Any areas that are identified where I&I is an issue will be considered a priority for a remediation scheme.

Partnership at Work

Hans Buch, Teledyne Isco's dealer in Denmark, worked closely with DHI Denmark to provide the required flow monitoring technology and control at Avedøre WWTP. DHI is a leading modeling software developer and worldwide environmental consulting company.

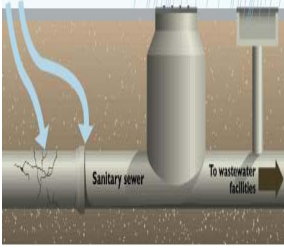
A number of Isco 2150 area velocity flow loggers are installed in the surface water and wastewater networks to monitor flow continuously in target areas. Flow data from these loggers is automatically retrieved via GSM through Isco 2103G modem modules, which stack easily onto the flow loggers. The system is battery-powered, and to reduce power consumption the modems are enabled only at times specified for data retrieval. Once the data is retrieved from the site, it is automatically imported to the hydraulic modeling software provided by DHI.

Isco 2150 Flow Loggers have been chosen for this project by DHI and Avedøre WWTP due to their consistent performance, reliability and accuracy in the field.

The Future of Flow![™]

Infiltration:

Ground water that enters the sewer network through cracks and holes in the pipes/joints.



Inflow:

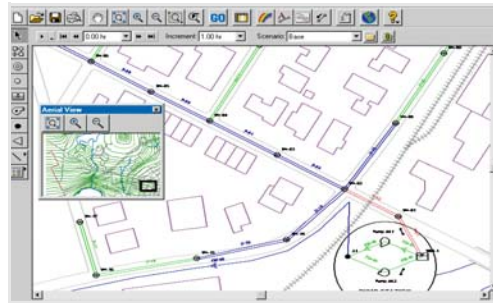
Rain water that enters the sewer through catch basins, manhole covers and improper connections.



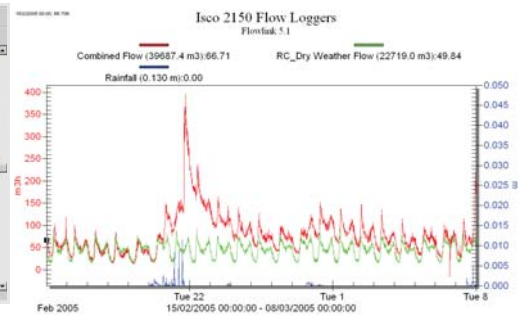
Sewer Network Flooding

Isco 2150 Flow Module Used in Wastewater Network Early Warning System

Isco 2150 flow data is used in conjunction with rainfall data and network modeling packages to identify problem areas in the network where inflow and infiltration may be an issue. This is an important tool in the maintenance of the wastewater network. The modeling software can also be used as an early warning system to predict flood surges. Any segment of the network exceeding expected flow rates will then be flagged. Remediation programs can be carried out on these segments of the network in order to control the potential flooding intensity, and reduce the amount of I&I that will reach the WWTP.



Typical hydro modeling program



Rainfall event graphically displayed with Isco Flowlink® software

Where large volumes of stormwater or I&I is discharged unchecked to a WWTP, the plant is likely to be operating at full capacity during storm events, resulting in a surge in operating costs. In areas where collection systems are maintained and managed correctly, the effect of storm events on operating costs are considerably reduced.

Feedback / Comments:

“The Isco 2150 logger is a competitive logger for our application at Avedøre WWTP.”
– Niels Henrik Eisum, Researcher, DHI.

“We are very pleased and surprised with how easy it is to install and set up the 2150 flow meter, all installations are working well...the addition of the 2103G modems have really reduced our operational costs on retrieving data from the flow meters.”
– Jakob Nørremark, Avedøre WWTP

2150EX Intrinsicly Safe Flow Module



ATEX-approved options available for Zone 0 & Zone 1 classified areas.

Teledyne Isco

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