Improving performance of the Hong Kong sewers with flow monitoring

When flooding and an increase in sewer overflows led to complaints from residents, the utility responsible for Hong Kong's waste water network turned to HWM for help.

If undetected, pipe blockages have the potential to cause untreated sewage to back up and flood drains, streets and buildings. This can result in huge problems, particularly in urban areas, and is becoming more prevalent as the demands on sewer systems increases.

In Hong Kong, incidents were commonly occurring in densely populated high rise apartment blocks and the subsequent hygiene concerns and mounting pressure necessitated the utility to invest in a proactive overspill management solution.

The previous system, which consisted of using CCTV to identify issues and high-pressure jetting to clear the network, was completely reactionary and did not have the ability to recognise issues before they arose.

The utility looked to upgrade their monitoring capabilities by investing in a system of depth and velocity sensors with highly versatile telemetry data loggers at the heart.

Depth and velocity data is used by the utility to monitor the capacity of their sewer system and the flow of its contents. Fluctuations in the data can indicate problems, such as blockages, which can be investigated and corrected before flooding and pollution incidents develop. This was crucial to the utility because of the negative press they were receiving for not being out in front of the issue.

Additionally, the data can be used to better understand the network and help to build forecasts and predictions of trouble spots or areas of interest. This is particularly useful where extreme weather events, such as sudden and heavy rainfall, add additional pressure to the network.

Intelligens WW Compatibility

Intelligens WW is a truly flexible data logger specifically engineered for the rigours of waste water applications.

Intrinsically safe, Intelligens WW is compatible with a wide variety of third-party sensors including RavenEye and Microflow-i.

MONITORING ASSETS, DELIVERING DATA, BRINGING CONTROL

Intelligens WW

The utility chose Intelligens WW as the core of this system, installing 80 data loggers throughout their network. In selecting Intelligens WW, the utility recognised its ability to seamlessly connect to multiple third-party sensors, including RavenEye and Microflow-i. Intelligens WW was also chosen for its competitive pricing. As a cost-effective solution, selecting Intelligens allowed the utility to mass deploy throughout their network.

In larger sewer mains, the utility connected velocity and level sensors to the Intelligens WW loggers, while in proximity to residential and business properties the loggers were equipped with level sensors. Installing various sensors in different locations provided the most comprehensive network coverage for the utility, which was made possible because of the Intelligens WW compatibility.

The sewers in Hong Kong are particularly hazardous and so reliability was also a factor. Intelligens WW has a track record of consistency and holds ATEX certification, which demonstrates its dependability. The logger also benefits from a long life battery, allowing for 'fit and forget' deployments, which was an attractive proposition for the utility.

To be effective, the system relies on consistent transmission of data, something at which Intelligens WW excels. Our advanced modem is LTE-M and NBIoT-enabled, but also contains a 2G fallback for environments when an NBIoT connection cannot be achieved. This ensures continual data transmission, but also future proofs the loggers in an ever-developing cellular landscape.

As well as the reliable transmission of data, the utility was impressed by the smooth transfer of data from our DataGate system to its own system. Providing the data seamlessly is beneficial to not just the day-to-day operations of the utility's control room, but also to their modelling team, which uses the data for support long term planning decision making.

The Result

As a result of installing of the system, the utility now has a much greater understanding of the real-time situation within its network.

It now has the ability to identify problem areas and proactively send teams to resolve issues before they develop. At the very least, in situations where it is unable to remove a blockage before an overspill, the utility is in a favourable position of being aware of the issue, rather than hearing about it because of a customer complaint.

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The benefits of NBIoT and LTE-M

Future Proofing:
Out telemetry data loggers use NBIoT as standard with a 2G fallback should an NBIoT signal become unavailable.

Including NBIoT now future proofs our loggers against the eventuality of the 2G signal being switched off.

Low Power:
Narrow Band data transfer is low power, meaning less battery power is used for transferring data, expanding the longevity of the logger.

Greater Coverage:
Newer data transfer technologies, such as NBIoT are able to provide improved coverage for devices to call in.

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