



STANSTED AIRPORT FREEZES OUT GLYCOL IN STORM WATER

PROTOC on-line TOC analysers from Pollution and Process Monitoring (PPM) Ltd have recently been installed at Stansted Airport.

As Britain's third largest airport, Stansted handles over five and a half million passengers a year. By the year 2000, this will have risen to an estimated seven million. The airport sees activity around the clock - passenger flights by day and mostly cargo flights by night - and presently offers parking for between sixty five and eighty aircraft with plans to increase this facility further.

Obviously, the airport can't afford to stop when temperatures drop below zero, so glycol is used plentifully to de-ice aircraft, runways, taxi-ways and standing areas when the weather deteriorates.

However, the use of glycol can pose a problem for those responsible for ensuring the quality of water the airport discharges. It is washed away by rain or snow into the main drainage system - and contaminates it.

'Prior to installing the PPM PROTOC units, the airport was only monitoring the flow and temperature of the discharge explains Stansted's Water Quality Manager Barry Carter. 'This only enabled us to make general assumptions about the quality of storm water discharge. For example, if we experienced poor flow, coupled with low ambient temperature, it was assumed de-icing had taken place in the airport and the run off was diverted for treatment.'

With increasingly strict EPA guidelines and discharge consents, Stansted recognised that it needed a more thorough and accurate monitoring and alarm system on site. Consultants Balfour Mausell recommended the PROTOC on-line analyser from PPM Ltd and it was one of several instruments evaluated for the site. After a six month on-site test period, PROTOC was selected and four units purchased to monitor critical areas around the site. All four were installed in November 1997, providing Stansted with critical monitoring and alarm facilities.

The airport has three catchment areas, taking storm water from a comprehensive drainage system. The three areas are designated 'Urban', 'Runway' and 'Stands'. All three discharge in turn into a holding area called 'Pond C'. A PROTOC unit is situated at the spilling chamber from each catchment area, monitoring the TOC content of the water.

Real time information is then back indicated from the PROTOC units to the Airport Duty Engineer's Office via a Faros radio linked telemetry system. High alarms are set at 25ppm and, should high concentrations of Glycol or other contaminants be present, an automatic divert comes into effect. The storm water is diverted away into a storage pond where it is aerated and then pumped away to the Thames Water Utilities Plant at nearby Rye Meads for treatment.

Uncontaminated storm water is allowed through to 'Pond C' where rope mops and oil traps are used to tackle surface pollutants and suspended solids.

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From 'Pond C', the storm water runs through a water course to an outlet on Pinchy Brook, which itself eventually feeds into the River Stort. The flow from 'Pond C' is highly seasonal and can vary from a low of 20 litres per second right up to 350 litres per second in periods of high precipitation.

The fourth PPM PROTOC unit is located at the outlet into Pinchy Brook and provides a real time fail-safe check that discharge consents are being adhered to. Information from this unit is also sent back via radio link telemetry to the Airport Duty Engineer's Office.

In addition to manufacturing and supplying the four PROTOC units, PPM Ltd are also providing a weekly on-site service, maintenance and consultation facility.

Stansted are now consistently meeting or improving their discharge consent levels. In the near future, they plan to further refine their PROTOC system by customising valve controls and infra-red sensors.

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