ODOR MONITORING AT THE CITY OF MONTREAL WASTE WATER TREATMENT PLANT

PIERRE PURENNE*, **THIERRY PAGE****, DR. CHRISTOPHE GUY*****,

* Waste Water Treatment Plant, Environmental Department, 12001 Maurice Duplessis, Montreal, Quebec, Canada, H1C 1V3, pierre.purenne@cum.qc.ca
** Odotech Inc., 3333, Queen Mary Rd., Suite 501, Montreal, Quebec, Canada, H3V 1A2, tpage@odotech.com
*** Research and Innovation Department, École Polytechnique de Montréal, 2500 chemin de Polytechnique, Montreal H3T 1J4, Quebec, Canada, christophe.guy@polymtl.ca

The Problem

The City of Montreal Waste Water Treatment Plant (the Plant) is located in an urban area and has a treatment capacity of 3 million people-equivalents. In the summer of 1998, a major odor problem arose within the sludge treatment section. Odors do not constitute an acute public health hazard. On the other hand, they give rise to complaints and disputes. The sequence of record-breaking hot summers since 1998 contributed to a marked increase in the number of odor complaints linked to the Plant.

It is very difficult or even impossible to manage odor emissions if one is unable to measure them and to predict their impact. Hence the need to develop tools for measuring odor emissions quickly and objectively and to accurately assess their impact over the next few hours.

Solutions

The odour complaints forced the Plant to set up a supervisory committee to protect its staff working within the areas affected, to find the factors or procedures that were causing this problem, and to determine the corrective measures required. Since 1998, the Plant has implemented an action plan to reduce odor emissions that were incomodating neighboring residents or travellers using the adjacent highway.

Over the years, various complementary measures were implemented for ever-tighter odor monitoring designed to identify, quantify and mitigate nuisance odors:

A residents' committee was set up to identify the various odors potentially emitted by the Plant, and the Plant set up a mechanism to allow these people to communicate their observations to the Plant;

Several chemical tracer monitoring campaigns were carried out by the technical staff of the Plant, in conjunction with the residents' observations, in order to determine the odor-emitting sources;

A chemical monitoring of the odor treatment units was implemented in order to optimize their operation;

Finally, a system of electronic noses was implemented for continuous monitoring of the main nuisance odor sources.

Conclusion

Electronic nose systems can be a very useful, practical odour impact monitoring tool: with OdoWatch™ an operator is aware in advance of the impact of ongoing operations or of a flaw in an odor treatment system, and can therefore take proactive steps to prevent the odor from reaching neighboring residents.