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**SAUR RESEARCH STUDY into the presence of the virus responsible for Covid-19 in wastewater**

**SAUR ACTIVATES ITS REGIONAL MONITORING NETWORK**

*The questions that emerged at the end of March this year around the possibility of wastewater contamination prompted Saur to take measurements during and after the lockdown as the basis for conducting a research study at 20 representative facilities to assess the presence of the Sars-CoV-2 coronavirus responsible for Covid 19. Although the analysis results revealed no traces of Sars CoV-2 in wastewater and sludge at wastewater treatment plants, the monitoring network remains active to continue making measurements during any further upsurge in the pandemic, since traces of the virus in wastewater treatment plant discharges are detectable for around one week before infected people experience symptoms*.

***54 water analyses*** *conducted to identify any presence of Sars-CoV-2*

***34 sludge analyses*** *conducted to identify any presence of Sars-CoV-2 (and RNA phages = tracers for faecal contamination indicating the effectiveness of treatments)*

***20 locations*** *studied*

***4 weeks of study****: from 18/5 to 9/6/2020*

This study focused on a sample of twenty facilities selected as representative of the diversity of wastewater treatment plants in terms of size, process and region, and the types of influenced waters (reused treated wastewater, irrigation, bathing waters, shellfish farming, etc.). The investigations were conducted in areas with identified clusters and those deemed ‘healthy’ and free of Covid-19 risk in urban, semi-urban and rural settings. The research study had two central goals: to protect employees, and to protect those communities exposed to these ‘influenced waters’, i.e. those with uses downstream of the wastewater treatment process. The protocol developed as a result of the study has demonstrated its suitability, and could be replicated or expanded in the event of a new spike in the pandemic.

**Controlled health challenges**

Having quickly ruled out the possibility of drinking water system contamination - as a result of ozone-UV-chlorine treatment - the researchers turned their attention to wastewater and residual treatment sludge. As Saur Technical Director Fabrice Nauleau explains: *“There was an urgent need to determine not only whether the virus had been able to migrate through wastewater, but also to become concentrated in the sludge. Our challenge was to do whatever it took to avoid our operators and their neighbouring communities being exposed to health risks that we may have assessed inaccurately”.* Led by Frédérique Nakache-Danglot, an engineer with expertise in wastewater processes and microbiology, the pace of work accelerated when the Paris water supply company *Eau de Paris* detected traces of the virus in surface waters, including the River Seine at the beginning of April. The coincidental publication of an interministerial circular, followed by a ministerial order upgrading the current standards governing the hygienisation of sludge used for agricultural spreading, added a regulatory dimension to what was already seen as a major issue in the run-up to spring sludge spreading. Two laboratories were appointed to analyse the samples: *Eau de Paris* for wastewater and influenced waters, and Inovalys Nantes for sludge.

The first samples were taken in early April while the country was still in lockdown. In Brittany, where a cluster of infections had been identified, the virus was detected in the influent of a wastewater treatment plant at a concentration of around 1 million genomic units per litre, i.e. 1,000 times the limit of quantification, before being removed by the purification process. Tests conducted at the same plant at the end of the lockdown showed that values had returned to ‘normal’ (undetectable). *“So if, as specialists fear, the virus starts to circulate again, we’ll be able to detect it at an early stage by ‘reading’ it in wastewater”,* continues Fabrice Nauleau.

**A promising outlook for research in conjunction with the Obépine sentinel network**

In the initial study, *“no traces of the virus were found in wastewater, influenced waters or sludge, including sludge in cluster locations, where significant levels were found at the beginning of the study. It proves the effectiveness of the lockdown, without a doubt,”* says Frédérique Nakache-Danglot. This research study will remain ongoing. The collaboration with the *Eau de Paris* laboratory has given Saur the opportunity to join the Obépine (wastewater epidemiological observatory) network - a working group that brings researchers in virology, microbiology, epidemiology, hydrology, mathematics and other disciplines working in public and university laboratories together with local authorities and the public- and private-sector wastewater operators working on their behalf.

The purpose of the Obépine network is to develop a national observatory to monitor the dynamics of virus circulation through wastewater networks, and to use this new tool to anticipate a possible resurgence in the pandemic (on the basis that experience has shown that the detection of coronavirus in wastewater can precede the emergence of the disease in the general population). By providing the network with data gathered at its treatment plants, Saur therefore has a contributory role to play in the early detection of any resurgence of the pandemic in France. This medium- and long-term research project involves 150 treatment plants operated by water service providers across a representative regional coverage.

***About Saur****: As a longstanding water services leader, SAUR serves local authorities and industrial companies in the successful implementation of development projects in water supply and treatment, environmental services (engineering, infrastructure services). SAUR worldwide presence: Saudi Arabia, Cyprus, Colombia, Scotland, Spain, Italia, Netherlands, Poland. 2019 key figures: EUR 1.5 billion Group net revenue, 7,000 local authorities contracted, 10,000 employees and 12.5 million consumers in France and worldwide.*

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