



Sanitation Districts Embark on Novel Coronavirus Research

The Los Angeles County Sanitation Districts (Sanitation Districts) manage wastewater for more than 5.6 million residents in 78 cities and unincorporated areas in Los Angeles County. Since the outbreak of the COVID-19 pandemic, we have been closely following developments and taken all appropriate measures to ensure that we are protecting the health of our workers, the general public, as well as the environment. We have also recently started research that could potentially help public health officials manage the pandemic.

Recent studies by others have reported that the novel coronavirus (SARS-CoV-2) is present in the feces of infected individuals.^{1,2,3} Genetic material (RNA, not viable virus) from the novel coronavirus has been found in wastewater (sewage) entering treatment plants. To date, it is unknown whether the virus is capable of causing infection, nor is there evidence that the disease is transmitted even by raw sewage, and experts agree that wastewater treatment processes should effectively kill the coronavirus.^{4,5,6} We have started taking daily samples of the wastewater entering our two largest treatment plants (the Joint Water Pollution Control Plant and the San Jose Creek East Water Reclamation Plant) and are analyzing the wastewater for the level of RNA from the novel coronavirus.

Because wastewater treatment plants collect wastewater across large regions, measuring the level of RNA in untreated wastewater may provide valuable insight into the percentage of people infected within a region. These measurements may provide additional information for decision making because these tests count all people currently infected, not just those who have sought an individual test.

Sanitation Districts staff are measuring RNA levels using the test that the Centers for Disease Control and Prevention (CDC) developed for patient diagnosis in the United States. We are also sending samples to researchers at the University of Arizona who are measuring RNA levels for comparison with our results. In addition, we are providing samples for a project sponsored by the State Water Resources Control Board and for studies conducted by other universities and organizations.

If you have questions regarding our research efforts, please contact Mr. Nikos Melitas at nmelitas@lacsds.org or (562) 908-4288, extension 2816.

References

1. Tang, A., Tong, Z. D., Wang, H. L., Dai, Y. X., Li, K. F., Liu, J. N., ... & Yan, J. B. (2020b). Detection of Novel Coronavirus by RT-PCR in Stool Specimen from Asymptomatic Child, China. *Emerging infectious diseases*, 26(6).
2. Wu, Y., Guo, C., Tang, L., Hong, Z., Zhou, J., Dong, X., ... & Kuang, L. (2020a). Prolonged presence of SARS-CoV-2 viral RNA in faecal samples. *The Lancet Gastroenterology & Hepatology*.
3. Xiao, F., et al. (2020). Evidence for gastrointestinal infection of SARS-CoV-2. *Gastroenterology March 2020*. DOI: <https://doi.org/10.1053/j.gastro.2020.02.055>
4. Center for Disease Control. Water and COVID-19 FAQs, Information about Drinking Water, Treated Recreational Water, and Wastewater. "Can the COVID-19 virus spread through sewerage systems?" www.cdc.gov/coronavirus/2019-ncov/php/water.html. Accessed 24-Apr-2020
5. Chen, Y., L. Chen, Q. Deng, G. Zhang, K. Wu, L. Ni, Y. Yang, B. Liu, W. Wang, C. Wei, J. Yang, G. Ye and Z. Cheng, 2020. The presence of sars-cov-2 rna in the feces of covid-19 patients. *J Med Virol*. DOI 10.1002/jmv.25825.
6. Scott, T., M. McLaughlin, V. Harwood, V. Chivukula, A. Levine, A. Gennaccaro, J. Lukasik, S. Farrah and J. Rose, 2004. Reduction of pathogens, indicator bacteria, and alternative indicators by wastewater treatment and reclamation processes. *Water Science and Technology: Water Supply*, 3. DOI 10.2166/ws.2003.0069.