**Figure 1. Graphical abstract of workflow.**

**Figure 2. Box plots of the number of gene copies of DNA enteric viruses across each wastewater stage throughout Events 1-4.**

Figures 2A and 2C visualize the number of gene copies per mL or g of sample, while *Fig. 2B* and *Fig. 2D* visualize the number of gene copies per ng of DNA. In *Fig. 2C*, this quantity was log10-transformed for aesthetic purposes. The unit for the SC in *Fig. 2A* and *Fig. 2C* is gene copies per g of sample.

**Figure 3. Box plots of the number of genes copies of PMMV across each wastewater stage throughout Events 1-4.**

Figure 3A visualizes the number of gene copies per mL or g of sample, while *Fig. 3B* visualizes the number of gene copies per ng of DNA. Both quantities were log10-transformed for aesthetic purposes. The unit for the SC in *Fig. 3A* is gene copies per g of sample.

**Figure 4. Box plots of the number of gene copies of *uidA* across each wastewater stage throughout Events 1-4.**

Figure 4A visualizes the number of gene copies per mL or g of sample, while *Fig. 4B* visualizes the number of gene copies per ng of DNA. Both quantities were log10-transformed for aesthetic purposes. The unit for the SC in *Fig. 4A* is gene copies per g of sample.

**Figure 5. Principal Component Analysis of log­10-transformed EF parameters, PC1 versus PC2.**

The only variable not log10-transformed was precipitation due to presence of zero values.

**Figure 6. Heatmap showing Spearman’s rank correlation analysis between parameters collected for EF sampling events.**

**Figure S1. Box plots of the number of gene copies of Noroviruses GI and GII across each wastewater stage throughout Events 1-4.**

The unit for the SC in Figures S1A and S1C is gene copies per g of sample.

**Figure S2. Box plots of the number of gene copies of Rotavirus across each wastewater stage throughout Events 1-4.**

The unit for the SC in Figure S2A is gene copies per g of sample.

**Figure S3. Principal Component Analysis of log­10-transformed EF parameters, PC1 versus PC3.**

The only variable not log10-transformed was precipitation due to presence of zero values.

**Figure S4. Principal Component Analysis of log­10-transformed EF parameters, PC2 versus PC3.**

The only variable not log10-transformed was precipitation due to presence of zero values.