

**Table S2: Mean concentrations obtained by (RT-)ddPCR for viral and AMR targets across the evaluated concentration and extraction methods.** Targets included SARS-CoV-2 (ORF1a & RdRP\_IP4), RSV A, RSV B, Influenza A (FluA), Influenza B (FluB), Norovirus GI (Noro GI) and GII (Noro GII), and the AMR targets blaCTX-M and tetM. The evaluated methods include InnovaPrep, Nanotrap, ultracentrifugation, and PEG precipitation each paired with the QIAamp RNeasy PowerFecal Pro Kit (RNeasy), PEG precipitation combined with the QIAamp Viral RNA Mini Kit (Qiagen Viral RNA kit), and the ZymoPURE Water DNA/RNA Kit. Values represent the mean measured concentrations (cp/μL) across replicates for each target and method. Cell colouring follows the same scheme as in Table 3 to facilitate visual comparison with the fold-change-based analysis: orange cells denote significantly lower performance, white cells indicate comparable performance, and green cells indicate significantly higher performance relative to the reference method (PEG precipitation + QIAamp RNeasy PowerFecal Pro Kit), based on the statistical comparisons reported in Table 3. Respiratory targets were assessed separately for raw and spiked wastewater samples, whereas AMR genes and norovirus targets were assessed only in raw wastewater. The elution volume for each method is provided in the final column.

	<i>bla</i> CTX	<i>tet</i> M	Noro GI	Noro GII	ORF1a Raw	ORF1a Spike	RdRP_IP4 Raw	RdRP_IP4 Spike	FluA Raw	FluA Spike	FluB Raw	FluB Spike	RSVA Raw	RSVA Spike	RSVB Raw	RSVB Spike	Elution Volume
<b>Precipitation Rneasy (reference)</b>	627.96	15 565.10	77.22	345.95	5.29	762.27	5.19	963.14	10.71	2 107.00	6.11	2 544.03	8.20	2 732.62	18.15	14 468.30	100 μL
<b>Precipitation Qiagen Viral RNA kit</b>	616.66	25 762.00	106.85	457.00	1.64	3 133.02	1.54	3 740.44	3.43	4 063.84	0.17	5 787.98	1.90	3 429.58	1.53	17 778.20	60 μL
<b>InnovaPrep Rneasy</b>	24.49	908.55	46.06	244.26	4.72	785.91	4.30	1 021.13	11.78	1 054.35	5.57	1 996.23	5.72	1 405.80	12.04	4 009.17	100 μL
<b>Nanotrap Rneasy</b>	349.34	4798.31	52.87	556.38	5.70	2 940.30	5.15	2 852.30	8.98	6 043.40	4.07	13 377.32	5.31	14 446.30	11.33	105 985.00	100 μL
<b>Ultracentrifuge Rneasy</b>	459.50	12 030.41	34.56	221.68	4.22	1 738.49	3.56	1857.17	11.40	1 843.27	5.99	4 882.35	7.03	1 268.40	14.21	8 049.00	100 μL
<b>Zymo</b>	412.83	13 587.75	63.13	337.15	5.66	4 704.70	6.16	4 594.70	15.65	4 855.84	9.17	12 958.00	8.18	2 460.26	16.56	7 519.60	60 μL