Landfill Leachate Contributes Per-/Poly-Fluoroalkyl Substances (PFAS) and Pharmaceuticals to Municipal Wastewater

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Supporting Information Tables

Supporting information tables are contained in the corresponding supporting information spreadsheet "xxxxxxx_si.xlsx". The individual table titles are:

#Table SI-1. Summary statistics of relative percent differences (RPDs) calculated between field and replicate samples.

#Table SI-2. Summary statistics of recoveries for isotope-dilution standard (IDS) and surrogate compounds added to field and quality-assurance samples.

#Table SI-3. Concentrations of target-organic chemicals (in nanograms per liter) detected in landfill leachate, wastewater influent (-INF), and wastewater effluent (-EF) samples. Sorted alphabetically by analytical method then by parameter name.

#Table SI-4. Target-organic chemicals not detected in landfill leachate, wastewater influent, and wastewater effluent samples. Sorted alphabetically by analytical method then by parameter name.

#Table SI-5. Percent of total concentration and total load for chemicals detected in at least one sample matrix for paired samples of leachate, wastewater influent, wastewater effluent, and percent of total load contribution from leachate to paired wastewater influent samples. Sorted alphabetically by analytical method then by parameter name.

#Table SI-6. Load estimates for target-organic chemicals (in grams per day) detected in landfill leachate, wastewater influent (-INF), and wastewater effluent (-EF) samples. Sorted alphabetically by analytical method then by parameter name.

Supporting Information Figures



Figure SI-1. Total number of detections and concentration (A), distribution of concentrations (B), and loads (C) for detected per- and polyfluoroalkyl substances (PFAS) in three landfill leachate, five wastewater treatment plant (WWTP) influent, and five WWTP effluent samples.



Figure SI-2. Maximum and median concentrations for per- and polyfluoroalkyl substances (PFAS) measured in wastewater treatment plant (WWTP) influent, landfill leachate, and WWTP effluent (A); and maximum and median concentrations for PFAS measured in landfill leachate and WWTP effluent but not WWTP influent (B), sorted from top to bottom from decreasing frequency of detection. [PFPeA, perfluoro-n-pentanoic acid; FDUEA, 2H-perfluoro-2-dodecenoic acid; PFOA, perfluoro-n-octanoic acid; PFHxA, perfluoro-n-hexanoic acid; PFHpA, perfluoro-n-heptanoic acid; PFBS, perfluoro-1-butanesulfonate; MeFBSAA, methyl perfluorobutane sulfonamido acetic acid; PFHxS, perfluoro-1-hexanesulfonate; 6-2 FtS, 1H,1H,2H,2H-perfluoro-1-octanesulfonate; 8:2 diPAP, 8:2 disubstituted polyfluoroalkyl phosphate; 8,10:2 diPAP, 8:2/10:2 fluorotelomer mercaptoalkyl phosphate diester; PFDA, perfluoro-n-decanoic acid]



Figure SI-3. Maximum and median concentrations for per- and polyfluoroalkyl substances (PFAS) measured in wastewater treatment plant (WWTP) influent and landfill leachate, sorted from top to bottom from decreasing frequency of detection. [FPePA, 3-perfluoropentyl propanoic acid (5:3); 6:2 diPAP, 6:2 disubstituted polyfluoroalkyl phosphate; PFOS, perfluoro-1-octanesulfonate; EtFOSAA, ethyl perfluorooctane sulfonamide acetic acid; 6,8:2 diPAP, 6:2/8:2 disubstituted polyfluoroalkyl phosphate; MeFPeSAA, methyl perfluoropentane sulfonamido acetic acid; FHpPA, 3-perfluoroheptyl propanoic acid (7:3); MeFHxSAA, methyl perfluorohexane sulfonamido acetic acid; FHUEA, 2H-perfluoro-2-octenoic acid]



Figure SI-4. Maximum and median concentrations for per- and polyfluoroalkyl substances (PFAS) measured in landfill leachate but not in wastewater treatment plant (WWTP) influent and WWTP effluent, sorted from top to bottom from decreasing frequency of detection. [EtFPeSAA, ethyl perfluoropentane sulfonamido acetic acid; MeFOSAA, methyl perfluorooctane sulfonamide acetic acid; PFNA, 3-Perfluorononyl propanoic acid (9:3); FOEA, 2-perfluorooctylethanoic acid; EtFBSAA, ethyl perfluorobutane sulfonamido acetic acid; MeFHpSAA, methyl perfluoroheptane sulfonamido acetic acid; PFPeS, perfluoro-1-pentanesulfonate; FHEA, 2-perfluorohexylethanoic acid; FOUEA, 2H-perfluoro-2-decenoic acid; FPrPA, 3-perfluoropropyl propanoic acid (3:3); EtFHxSAA, ethyl perfluorohexane sulfonamido acetic acid; PFDoA, perfluoro n-dodecanoic; SAmPAP, n-ethyl perfluorootanesulfonate; FDEA, 2-perfluorodecylethanoic acid]



Figure SI-5 Maximum and median concentrations for pharmaceutical and steroid hormones measured in wastewater treatment plant (WWTP) influent, landfill leachate, and WWTP effluent, sorted from top to bottom from decreasing frequency of detection.



Figure SI-6. Maximum and median concentrations for pharmaceutical and hormones measured in wastewater treatment plants (WWTP) influent and landfill leachate but not in WWTP effluent, sorted from top to bottom from decreasing frequency of detection.