

ORGANIC AND INORGANIC CONTAMINANTS ON SUSPENDED SOLIDS FROM CSO/SWO DISCHARGES AND TRIBUTARIES TO THE LOWER PASSAIC RIVER

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Lower Passaic River sediments are known to be heavily polluted with 2,3,7,8-TCDD, a contaminant with a relatively well known release history. However, the sediments are also known to contain many other contaminants including metals, PAHs, and pesticides, whose sources are less well known. A study of the Lower Passaic River sediments and the external sources of contamination to the river was conducted as part of EPA's Lower Passaic River Restoration Project. The study of the external source contributions focused on particle-reactive contaminants whose mass is primarily carried on suspended matter. To this end, suspended matter samples were obtained during rainfall events to characterize solids-borne loads from a range of point sources including: combined sewer overflows (CSOs), stormwater outfalls (SWOs) and major tributaries. Typically, when a sample from a CSO source is analyzed for contaminants, samples are taken as whole water composites of the combined storm water-sanitary sewage discharge or as whole water stormwater discharge. Standard wastewater constituents, *e.g.* fecal coliform (*E. coli*) are usually analyzed in this manner. The persistent pollutants, such as PCBs, dioxins, and metals are not typically analyzed, and if they are analyzed, it is on a whole water basis. This approach often leads to high variability in the reported values, as whole water concentrations of particle-reactive contaminants are dependent on the instantaneous suspended solids concentrations. To avoid this problem, this investigation directly measured the contaminants concentrations associated with the suspended solids portion of the discharge. Samples were collected from CSOs, SWOs and tributaries during six rainfall events to represent periods with elevated solids discharge to the river over a 3 month period. During these events, samples were collected by peristaltic pump and solids were filtered prior to being analyzed. These results showed a close level of agreement among multiple events as well as among similar discharge types (*e.g.*, among CSO discharges) and permitted the estimation of contaminant loads to the water column of the Lower Passaic River from these external sources relative to those internally generated by sediment resuspension.