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Effect of antecedent dry periods on the accumulation of potential pollutants on parking lot surfaces using simulated rainfall

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ABSTRACT

The relationship between antecedent rainfall and pollutant build-up is difficult to quantify, particularly in arid environments, due to the inherent unpredictability and natural variability in rainfall. To overcome this variability, a rainfall simulator was constructed to mimic storm events under controlled conditions. Simulated storm events at monthly intervals were used to measure increasing contaminant concentrations in parking lot runoff over a three-month dry period. Secondly, the rainfall simulator was used to measure changes in runoff water quality from parking lot surfaces with varying traffic use and maintenance practices. Virtually all of the accumulation occurred within one month for total suspended solids, total trace metals, and dissolved trace metals. Mean concentrations in runoff from simulated storm events in subsequent sampling months remained steady relative to Month 1. Factors such as traffic use and maintenance did not affect the monthly accumulation of pollutants in runoff during the simulated storm events.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2001_02AnnualReport/22_ar38-liesl.pdf