

ANALYZING STORM WATER RUNOFF IN DOWNTOWN SILVER CITY, NEW MEXICO

Raven Jackson

Western New Mexico University, 1000 W College Ave, Silver City, NM, 88062, jacksonr4@wnmu.edu

Downtown Silver City, New Mexico has longstanding problems with storm water runoff, especially during high-intensity monsoon storms that occur annually from June to September. As storm water flows through an urbanized area it collects and transports heavy metal contaminants. The Environmental Protection Agency (EPA) recognizes urban runoff as one of the leading causes of water quality issues ("National Water Quality Inventory: 1998 Report to Congress", 2013). Urban runoff is especially concerning when it is discharged into a natural body of surface water, as is the case in the study area for this project. The storm water runoff from the study area is diverted into San Vicente Arroyo, which recharges the aquifer downstream that Silver City uses for municipal water.

Heavy metal contaminants pose varying degrees of risk to human health and the presence of multiple heavy metals in the same water source can be detrimental (Ma, 2016). The scope of this project focuses on analyzing the hydrology of downtown Silver City in order to understand to what extent storm water runoff over the urbanized study area affects soil and water quality. The pollutants that are being investigated in this study are copper, lead, and zinc. The working hypothesis is that as the storm water runoff flows down-gradient, the concentration of heavy metal contaminants will increase near the lower portion of the drainage pattern along San Vicente Arroyo.

References:

"National Water Quality Inventory: 1998 Report to Congress." Environmental Protection Agency. 11 Sept. 2013.
https://archive.epa.gov/water/archive/web/html/98report_index.html

Ma, Yukun, et al. "Human Health Risk Assessment of Heavy Metals in Urban Stormwater." *NeuroImage*, Academic Press. 17 Apr. 2016. www.sciencedirect.com/science/article/pii/S004896971630490

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