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**AWRA 2011 ANNUAL WATER RESOURCES CONFERENCE**  
**Albuquerque, New Mexico**

November 7-10, 2011

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**POLYCHLORINATED BIPHENYL (PCB) IN PRECIPITATION, SNOWPACK, BASEFLOW AND  
STORMWATER IN THE UPPER AND MIDDLE RIO GRANDE WATERSHED**

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**ABSTRACT:** Recently issued fish consumption advisories (2006 - 2011) for polychlorinated biphenyls (PCBs) in the Rio Grande and the inclusion of PCB monitoring requirements in recent MS4 stormwater permits underscore the need to understand and quantify potential sources of PCBs within the watershed. PCBs in the Rio Grande are derived from a variety of sources including precipitation falling as rain and snow, stormwater runoff from regional background locations, runoff from urban environments and runoff from PCB spill or disposal sites. The New Mexico Environment Department, along with Los Alamos National Laboratory, is developing reference concentrations for PCBs in some of these matrices using EPA analytical Method 1668A. This method reports PCB congener concentrations at detection levels that are several orders of magnitude less than commonly used analytical methods for PCB Aroclors. Precipitation and snowpack samples (n=45) were collected to determine baseline levels of PCBs in precipitation. Average total PCB in precipitation is 188 pg/L relative to 5780 pg/L measured in stormwater runoff from ephemeral tributaries (n=69) containing no known PCB sources. Samples from the upper Rio Grande under baseflow (n=43) and stormwater (n=33) conditions are used to compare with samples collected in the Rio Grande in Albuquerque (n=13) downstream from the North Diversion confluence. Average total PCB in the Rio Grande range from 107 pg/L in baseflow to 5,278 pg/L in regional stormwater flow, compared to 152,000 pg/L in stormwater below the Albuquerque North Diversion confluence. Urban stormwater runoff samples (n=43) were collected in Los Alamos County to determine contributions to PCB levels found in stormwater runoff samples (n=210) collected in watersheds downstream from solid waste management units (SWMUs) at Los Alamos National Laboratory (LANL) where PCBs were used and may have been released. Average total PCB in Los Alamos County urban runoff was 27,000 pg/L compared to 1,890,000 pg/L in stormwater collected below LANL SWMUs. The role of suspended sediment concentration in assessing PCB levels in stormwater is discussed along with the use of PCB homologue distributions to differentiate potential source terms.

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