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**LOS ALAMOS/PUEBLO WATERSHED MITIGATIONS AND STORMWATER PERFORMANCE DURING 2010**

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**ABSTRACT:** An analysis of analytical monitoring and discharge measurements associated with watershed mitigations in the Los Alamos/Pueblo (LA/P) Watershed on Los Alamos National Laboratory property from May through October 2010 is presented. Monitoring objectives were to collect data for evaluating the effect of watershed mitigations installed in the LA/P Watershed, including: DP Canyon grade-control structure; Pueblo Canyon cross vane structures, wing ditch, willow planting, and grade-control structure and associated wetland; Los Alamos Canyon low-head weir; and the stormwater retention basins below the Solid Waste Management Unit (SWMU) 01-001(f) drainage in Los Alamos Canyon. These mitigations have been implemented with the goal of working in concert with each other to minimize the potentially erosive nature of stormwater runoff, to enhance deposition of sediment, and to reduce or eliminate access of contaminated sediments to flood erosion. Overall, peak discharges from up to downstream of the mitigations were reduced: DP Canyon decreased for 26 of 32 events (72% average); Pueblo Canyon decreased for 34 of 35 events (97% average); and LA Canyon decreased for all 10 storm events (77% average). Two storm events (July 9 and 30) were sampled up and downstream of the DP Canyon mitigations. On July 9, these mitigations reduced suspended sediment concentrations (SSCs) by 46% and 40%, and on July 30, the first sample showed increased SSCs (29%) and the last sample showed decreased SSCs (16%). Analytical results for samples collected at the retention basins and wetland below the SWMU 01-001(f) drainage show total polychlorinated biphenyl (PCB) concentrations at the terminus of the wetland are almost 30 times less than the concentrations in samples collected in the upper retention basin, SSC is reduced 2 times in the same samples, and lead is reduced almost 5 times. While these mitigations are relatively new, some positive effects were observed during the 2010 monitoring year. Continued monitoring in 2011 will enhance the dataset and further enable performance assessment of the mitigations.

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