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### Western Water Company - 2002 Cherry Creek Flood Event

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*Cherry Creek Reservoir*

During the extremely severe drought of 2002, the Cherry Creek drainage experienced a major storm event that resulted in a large surge of water moving down the creek in the reach above the Cherry Creek Reservoir and below Castlewood Canyon dam. The large flood flow peaked at 5,400 cfs at

the Franktown gage, immediately below the canyon, but just 11 miles downstream, the Parker gage reflected only a minimal flow increase. Martin and Wood personnel analyzed the 15-minute interval streamflow gage data and integrated the resulting time-flow rate curve to estimate the volume of water that had apparently gone into storage in the alluvial aquifer in a very short time (approximately 900 acre-feet in less than one day). This information was of great value to Western Water in its ongoing efforts to characterize the alluvial aquifer more accurately and to aid in the development of its water delivery plans utilizing the aquifer as a storage vessel.

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### Bromley Companies, LLC - Plum Creek Dry-up Analyses

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The Bromley Companies' plans for delivery of nontributary water pumped from high capacity Denver Basin aquifer wells in the Castle Rock area involved the use of Plum Creek as a transport mechanism to move the water to the South Platte River and then to delivery points downstream of the Denver metropolitan area. To optimize delivery plans and to develop a delivery schedule that could reliably be applied in all but the most severe drought years, Martin and

Wood analyzed gage data from several points on Plum Creek and developed a gage correlation and live flow frequency analysis that revealed that a critical reach of the creek typically dried up for a fairly consistent period every year, as evidenced by the historical gage data. This information was integrated into a delivery agreement with the Town of Lochbuie that provided the needed volume under reliable and predictable conditions.