

Overview

- In May 2000 the Cerro Grande Fire severely burned several watersheds upstream from Los Alamos, NM, and the Los Alamos National Laboratory (LANL).
- Altered rainfall-runoff relations, fire debris, and inadequate drainage and spillway facilities increased the risk of dam failures at Los Alamos Reservoir and several large highway embankments, threatening civil infrastructure and LANL facilities.
- An Interagency Burned Area Emergency Rehabilitation (BAER) team was formed by the USDA-Forest Service and DOI-National Park Service to assess fire damage and develop and implement a rehabilitation plan to minimize loss of life and damage to property and natural resources.
- Watershed treatments reduce hydrophobicity and runoff, but only by about 30 percent during the first season.
- The U.S. Bureau of Reclamation's Technical Service Center assisted the Interagency BAER Team with emergency dam-break analyses and assessments of alternatives for dealing with the threats posed by potential dam failures.

Emergency Dam Break Analyses Following the Cerro Grande Fire near Los Alamos, New Mexico

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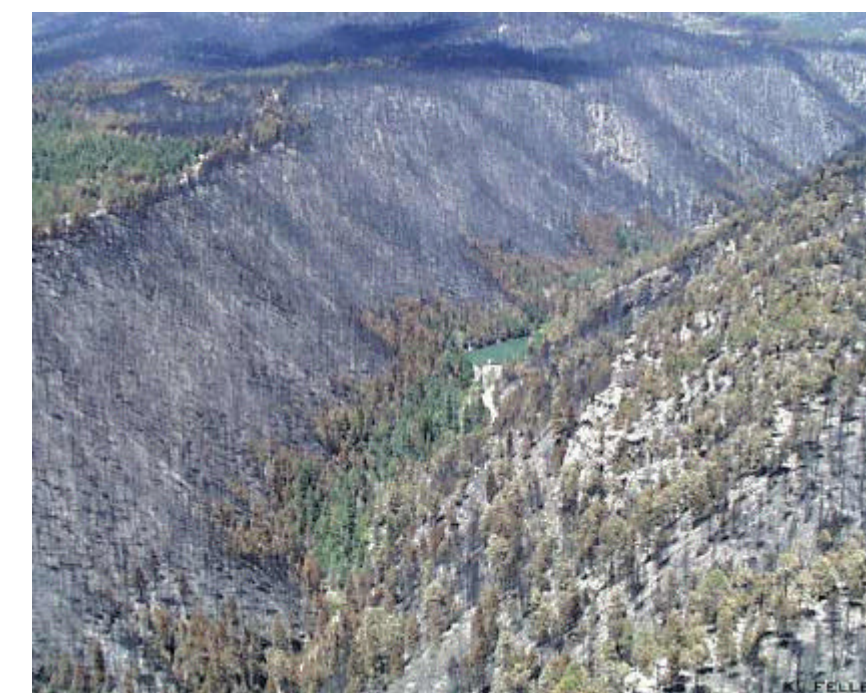
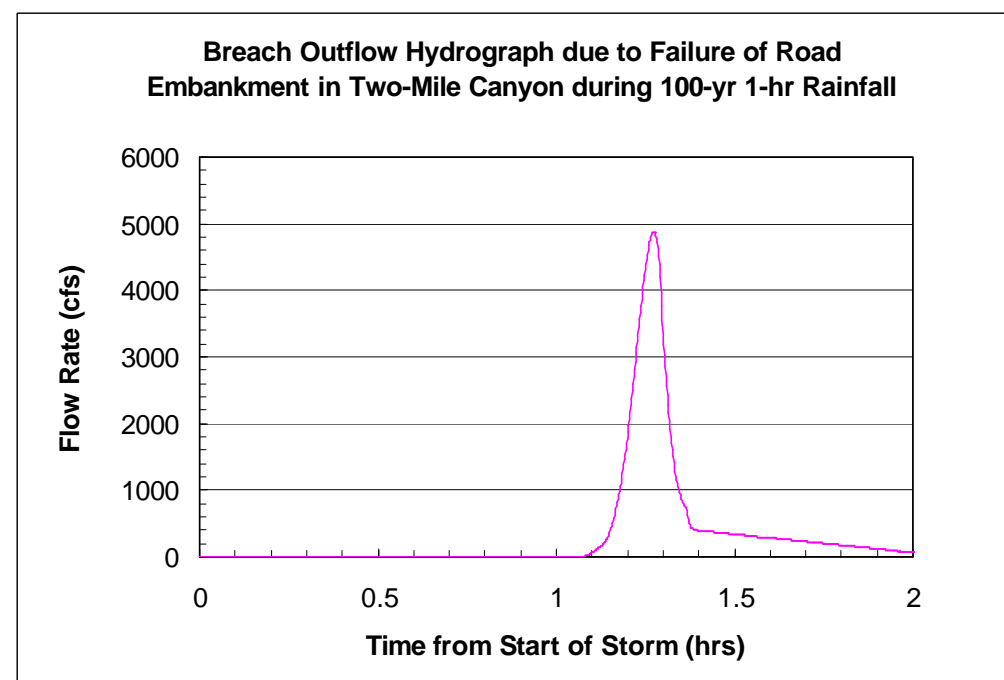
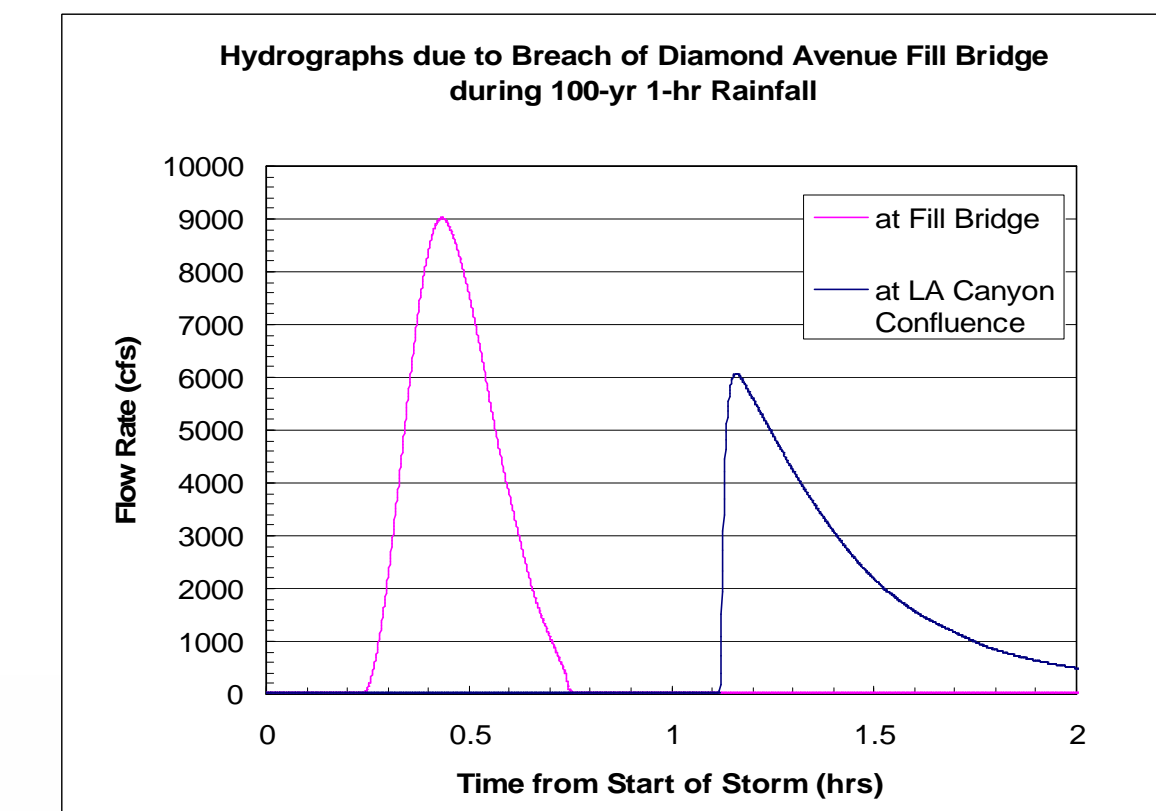
Upstream side of Diamond Ave. roadfill – existing 18-inch culvert after June 2, 2000 storm



The U.S. Army Corps of Engineers installed a new 84-inch diameter culvert through the Diamond Ave. fill bridge to reduce risk of breach and protect municipal infrastructure



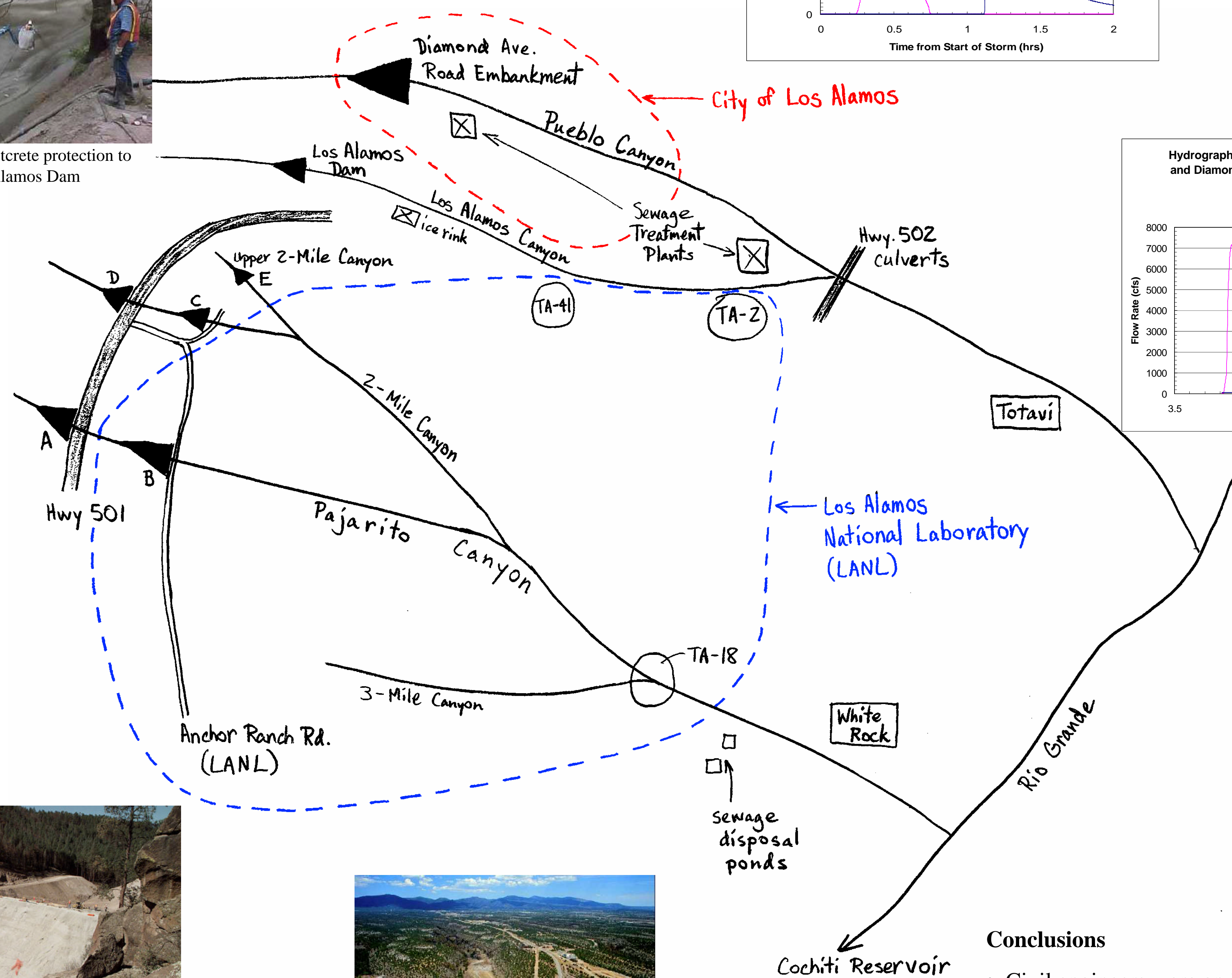
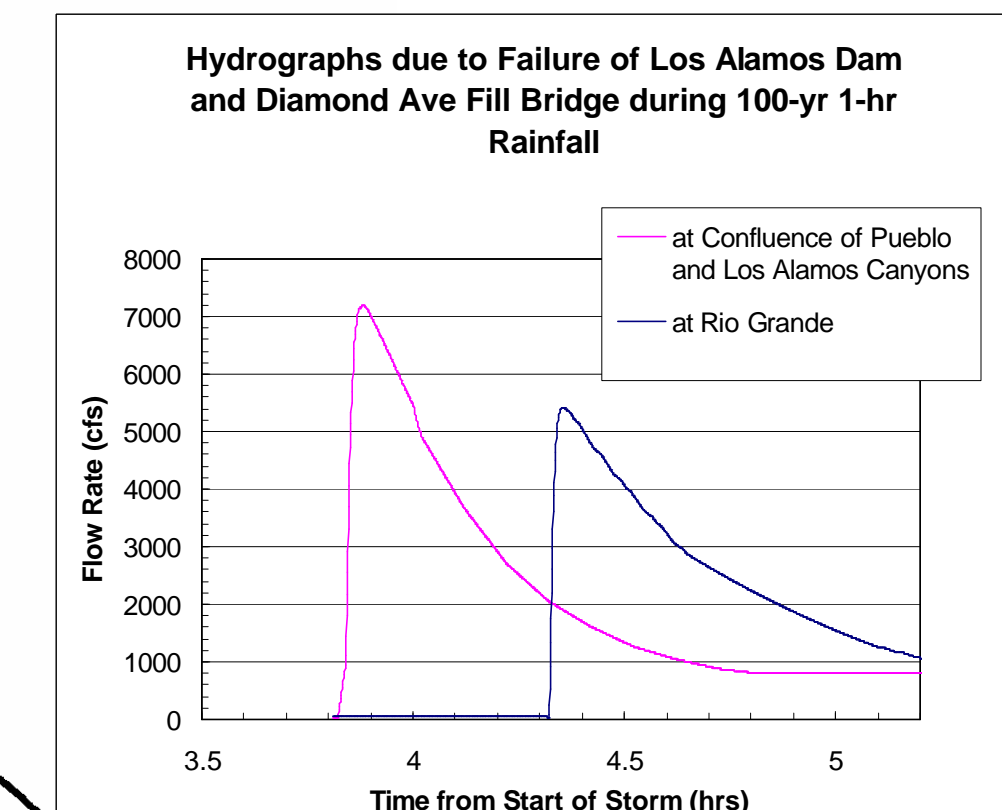
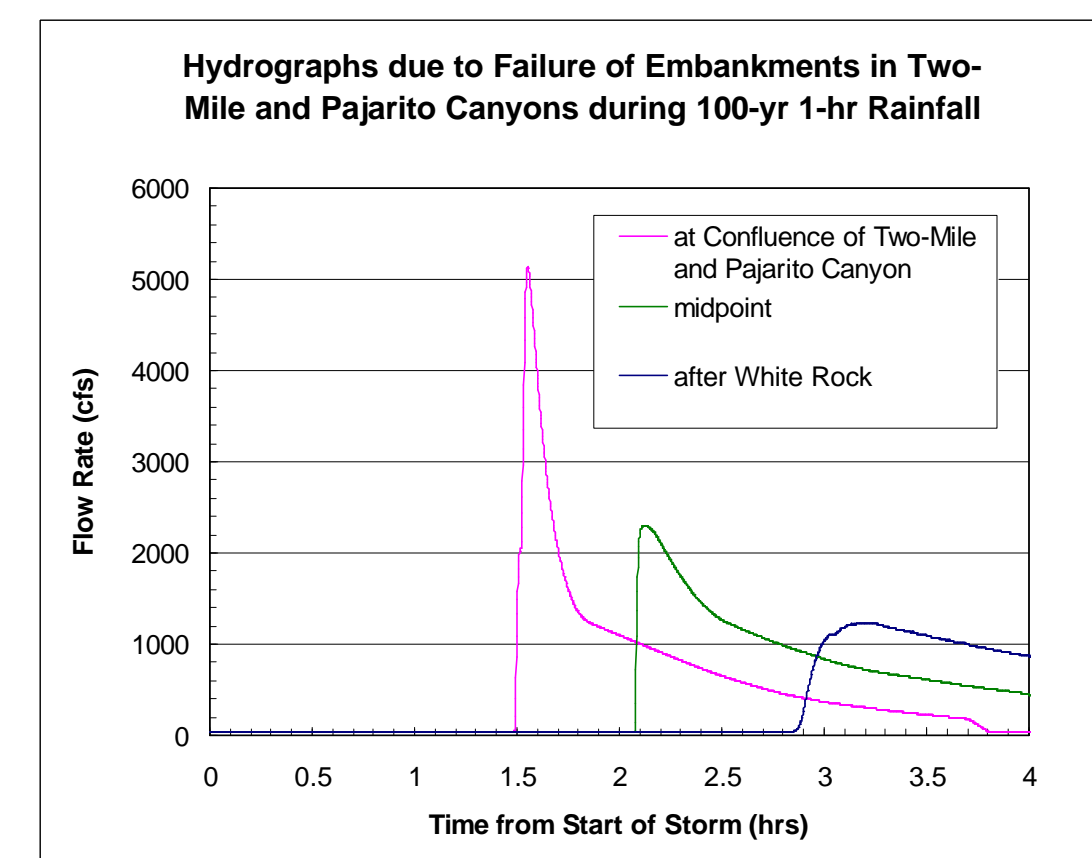
Applying shotcrete protection to Los Alamos Dam



Los Alamos Reservoir and burned watershed



Upper Pueblo Canyon watershed



Several watersheds experienced moderate to high burn intensities over 80-90 percent of their area



Intense heat produces hydrophobic soils, which yield nearly 100 percent runoff



New RCC flood and debris-control dam constructed by U.S. Army Corps of Engineers in Pajarito Canyon



Nuclear research facilities in Pajarito Canyon are now protected by the flood-control dam

Conclusions

- Civil engineers were an important addition to the Interagency BAER team for this urban interface fire.
- A short (one-week) inspection and analysis was able to identify priorities for construction of flood protection facilities