

Hazard Classification Cornish Plains Reservoir Dam Weld County, CO

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Anderson Consulting Engineers, Inc. (ACE) determined the Hazard Classification of a proposed dam (Height=17 feet, Surface Area=300 acres, Volume=2,600 acre-feet) near Barnesville, Colorado. The dam was located on an unnamed tributary to Crow Creek which is tributary to the South Platte River. A phased approach to the Hazard Classification was utilized due to:

- The Crow Creek main channel having a limited capacity;
- The overbank areas, where the majority of the large dam break flow would be conveyed, were very wide and flat;
- The limited number and sporadic nature of critical facilities (buildings, bridges, road crossings, etc.) in the inundation zone; and
- The potentially lengthy inundation zone (12 miles from the dam to the South Platte River).

By phasing the Hazard Classification resources were focused on the area or reach which provided the highest probability of providing the evidence required for determining the appropriate Hazard Classification. The staff of Anderson Consulting Engineers completed the following general steps for this Hazard Classification:

- Utilized the BREACH model to determine the time of failure and the width of failure;
- Simulated the dam failure and the routing of the flood wave downstream using HEC-1;
- Determined the velocities and depths at critical structures utilizing HEC-RAS in the shallow-sheet flooding inundation zone with several split flow paths; and
- Evaluated 8 homes, 2 bridges, 1 irrigation siphon, 3 paved road crossing, and 2 unpaved access roads to determine the Hazard Classification.

A Class III/Low hazard designation was recommended by ACE and approved by the Colorado State Engineers Office.

