

DAM FAILURE

GENERAL SITUATION

Dam failures can result from a number of natural or manmade causes such as earthquakes, erosion of the face or foundation, improper siting, rapidly rising flood waters, and structural/design flaws. There are three general types of dams: earth and rockfill, concrete arch and concrete gravity. Each of these types of dams has different failure characteristics. The earth-rockfill type dam (represented by all four dams affecting Oxnard) will fail gradually due to erosion of the breach. A flood wave will build gradually to a peak and then decline until the reservoir is empty. In addition to the above characteristics, warning ability is generally determined by the frequency of inspections for structural integrity, the flood wave arrival time (the time it takes for the flood wave to reach its maximum distance of inundation), or the ability to notify persons downstream and their ability to evacuate.

A dam failure will cause loss of life, damage to property, and other ensuing hazards, as well as the displacement of persons residing in the inundation path. Damage to electric transmission lines could impact life support systems in communities outside the immediate hazard areas. A catastrophic dam failure, depending on size of dam and population downstream, could exceed the response capability of local communities. Damage control and disaster relief support would be required from other local governmental and private organizations, and from the state and federal governments. Mass evacuation of the inundation areas would be essential to save lives, if warning time should permit. Extensive search and rescue operations may be required to assist trapped or injured persons. Emergency medical care, food, and temporary shelter would be required for injured or displaced persons. Identification and burial of many dead persons would pose difficult problems; public health would be a major concern. Many families would be separated, particularly if the failure should occur during working hours.

These and other emergency operations could be seriously hampered by the loss of communications, damage to transportation routes, and the disruption of public utilities and other essential services. Governmental assistance could be required and may continue for an extended period. Actions would be required to remove debris and clear roadways, demolish unsafe structures, assist in reestablishing public services and utilities, and provide continuing care and welfare for the affected population including, as required, temporary housing for displaced persons.

SPECIFIC SITUATION

Oxnard lies in the inundation path of four dams: Santa Felicia, Castaic, Pyramid, and Bouquet. These dams are located at least 35 miles from the Oxnard plains area. Although the potential for a dam failure is considered low, should one or more of these dams fail, the entire city is located within the Dam Inundation Zone. Damage to the city could be in the form of a wall of fast-moving water, mud, and debris.

Bouquet Canyon Reservoir

Bouquet Canyon Reservoir is located east of Interstate 5 and north of Castaic Junction, Highway 126. This dam is an earth filled dam capable of holding 36,500 acre feet. This dam is owned by the Los Angeles City Department of Water and Power. (Note: this dam is within 5 miles of the southern San Andreas Fault zone.

Castaic Reservoir

Castaic Reservoir is located just north and east of the intersections of Highway 126 and Interstate 5. The dam is an earth filled dam capable of holding 325,000 acre feet. This dam is owned by the California Department of Water Resources.

Pyramid Reservoir

Pyramid Reservoir is located 15 miles north of Castaic Junction on the west side of Interstate 5. This dam is an earth and rock filled dam capable of holding 179,000 acre feet. The dam is owned by the California Department of Water Resources.

Santa Felicia Dam (Lake Piru)

Santa Felicia Dam is located north of Highway 126, just north east of the community of Piru. This dam is an earth filled dam capable of holding 83,244 acre feet. This dam is owned by the United Water Conservation District.

Failure of these dams during a catastrophic event, such as a severe earthquake, is considered a very unlikely event. Due to the method of construction of these dams, they have performed well in earthquakes; and failure is not expected to occur.

CITY OF OXNARD HAZARDS – DAM FAILURE

Maximum Dam Inundation Zone

