



Maryland Department of the Environment

Maryland's Dam Safety Program

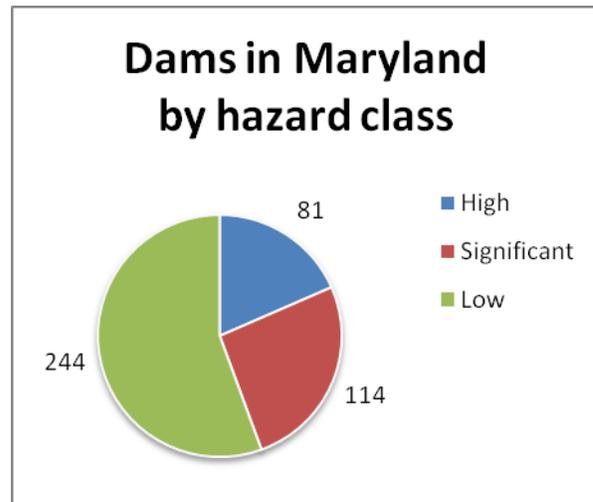
Hazard Classification of Dams

The Hazard Classification of a dam is based on the downstream damage that would result if the dam were to fail. The hazard classification has no relationship to the condition of the dam, its structural integrity, operational status, or flood storage capability. In general accordance with dam safety practices nationally, Maryland uses three categories to classify dams: High, Significant, and Low hazard:

High Hazard Dam - Failure would likely result in loss of human life, extensive property damage to homes and other structures, or cause flooding of major highways such as State roads or interstates. High Hazard dams are referred to as "Category I" dams in the Code of Maryland Regulations (COMAR 26.17.04.05) and "Class C" ponds by the US Natural Resources Conservation Service (NRCS). There are 81 high hazard dams in Maryland.

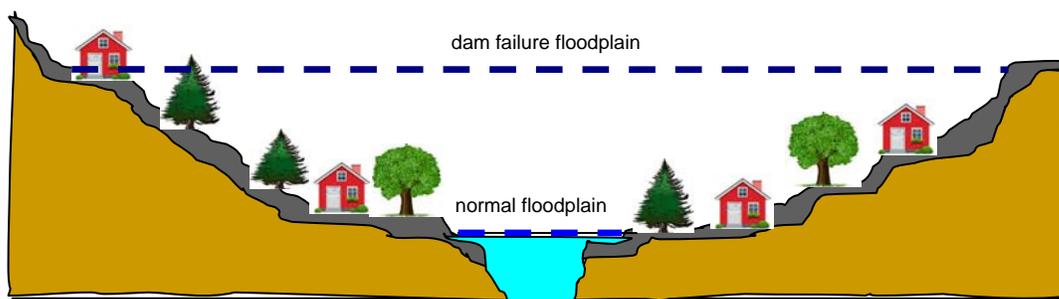
Significant Hazard Dam - Failure could possibly result in loss of life or increase flood risks to roads and buildings, with no more than 2 houses impacted and less than six lives in jeopardy. These are referred to as "Category II" dams in COMAR and "Class B" by NRCS. There are 114 significant hazard dams in Maryland. (As of February 2015)

Low Hazard Dam - Failure is unlikely to result in loss of life and only minor increases to existing flood levels at roads and buildings is expected. These structures are referred to as "Category III" dams in COMAR and "Class A" by NRCS. There are more than 240 low hazard dams in Maryland.



Danger Reach

The area below a dam that would be flooded as a result of dam failure is called the "**Danger Reach.**" The depth of flooding from a dam failure is generally much greater than the normal floodplain, as



shown on the figure above. Maps of the danger reach, sometimes referred to as "inundation maps," are prepared by an engineer based on hydrologic and hydraulic analyses and topography of the affected

area. A danger reach analysis will typically include evaluation of several failure scenarios, including “Sunny Day” (dam fails on a sunny day, i.e., not during a storm), “Brim-Up” (reservoir filled to the very top of the dam, perhaps as a result of failed or plugged spillways), and during events such as the 100-year storm or Probable Maximum Flood (PMF).

The main objective is to identify the downstream properties that would be affected by the sudden release of stored water caused by dam failure. Danger reach inundation maps serve as the basis of Emergency Action Plans (EAPs).

EAPs

The primary purpose of an EAP is to establish procedures to warn the population at risk to reduce the potential for loss of life and property damage in the event that dam failure is imminent or has already occurred. Some EAPs also include procedures for operation of a dam if spillway releases may cause downstream flooding and actions to be taken if an emergency situation is identified during routine inspection by the dam’s owner or MDE’s Dam Safety Division. Agencies and individuals involved with the development and execution of EAPs include dam owners, local government and emergency response agencies, consulting engineers and field inspection staff, local equipment suppliers, police and fire officials, radio and television outlets, and Maryland’s Dam Safety Division for technical advice. The goal of all EAPs is to ensure public safety by monitoring general conditions during extreme weather events, inspecting high and significant hazard dams for problems, mobilizing emergency agencies, enlisting technical advice to inform decision making, and evacuating downstream communities if needed. Dam owners are responsible for developing and updating EAPs.



The figure above is an example of a danger reach delineation. It shows the dam in the upper left hand corner of the image, and the area expected to be inundated should the dam fail. Homes which would be flooded are shown in red.

For more information, please call MDE’s Dam Safety Program at 410-537-3538.

**Or write to: Maryland Department of the Environment
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Or visit www.mde.maryland.gov/damsafety