



Dam Terminology

Abutment: Valley side against which dam is constructed (with left and right abutments defined by observer looking downstream from the dam).

Acre-foot: Unit of volume (equal to 1 foot depth of water covering an acre of land).

Berm: Nearly horizontal step (bench) in upstream or downstream sloping face of dam.

Boil: Disruption of soil surface due to water discharging from below the surface often carrying eroded soil that is deposited in form of ring (miniature volcano) around disruption.

Breach: Opening through dam that allows reservoir draining; *controlled* is intentionally constructed opening and *uncontrolled* is unintended failure of the dam.

Crest of dam: Uppermost elevation of dam embankment.

Conduit: Closed channel that conveys water through, around, or under the dam; usually a pipe.

Control section: Location in profile of open channel spillway at the downstream end of the level section below which spillway flows are critical or supercritical.

Cross section of dam: On plans a view showing a slice through dam; normally elevations are shown vertically on the page and the direction of water flow is shown horizontally from left to right.

Dam: Artificial barrier generally constructed across a watercourse for purpose of impounding or diverting water.

Dam failure: Uncontrolled release of a dam's impounded water.

Dam operator: Person(s) or entities with responsibility for operation and maintenance of dam.

Drain, toe or foundation: Water collection system of sand and gravel within the embankment of a dam typically on the downstream side of the dam drained by pipes which collect seepage and convey it to a safe outlet.

Drainage area (watershed): Geographic area from which water from precipitation flows to a single point in a stream (a dam for example).

Drawdown: Lowering of reservoir water level over time by releasing stored water, often through a valve and pipe through the dam expressly installed for this purpose.

Emergency: Condition that develops unexpectedly, endangers structural integrity of dam or downstream human life and property, and requires immediate action.

Emergency Action Plan: Formal document identifying potential emergency conditions that may occur at dam and

specifying preplanned actions to minimize potential failure of the dam or minimize failure consequences including loss of life, property damage, and environmental impacts.

Evacuation map: Map showing geographic area downstream of a dam that should be evacuated during an emergency such as a breach of dam or other large discharge.

Failure mode: Process resulting from an existing inadequacy or defect leading to dam failure and uncontrolled release of the reservoir.

Filter: Layers of sand and gravel in a drain that collect seepage through an embankment and prevent internal erosion of the embankment.

Foundation: Natural soil or rock on which the dam is placed.

Freeboard: Vertical distance between a stated water level in reservoir and dam or levee top.

Gate: Operable, watertight valve to manage discharge of water.

Groin: Area along intersection of dam face and abutment.

Hazard classification: System that categorizes dams (high, significant, or low) according to the degree of their potential to create adverse incremental consequences such as loss of life, property damage, or environmental impacts of a failure or misoperation of a dam.

Height, dam: Vertical distance between the lowest point along the top of the dam and lowest point at downstream toe, which usually occurs in bed of outlet channel.

Hydrograph, inflow or outflow: Graphical representation of either the flow rate or flow depth at a specific point above, at or below the dam over time for a specific flood occurrence.

Hydrology: Science of the water — its properties, distribution, use, circulation — of the earth and their environmental relationships and also of the atmosphere.

Incident Commander: Highest predetermined official available in emergency situation.

Instrumentation: Devices installed into or near dams that provide measurements to evaluate the structural behavior and other performance parameters of the dam and appurtenant structures.

Inundation area or map: Geographic area downstream of dam that would be flooded by a breach of the dam or other large discharge.

Jurisdictional dam (in Kansas): State-regulated dams are 25' or more in height or 6' high with storage capacity at the top of dam of 50 or more acre-feet.

Levee: Long, low embankment alongside a river constructed to protect land from flooding.

Outlet works: Appurtenant structure that provides for controlled passage of normal water flows through the dam (also primary or principal spillway).

Piping: Progressive seepage damaging an embankment or foundation by internal erosion.

Probable Maximum Precipitation (PMP) or Flood (PMF): The theoretically greatest precipitation or resulting flood meteorologically feasible for a given duration over a specific drainage area at a particular geographical location.

Reservoir: Body of water impounded or potentially impounded by dam.

Riprap: Layer of large rock, precast blocks, bags of cement, or other suitable material, generally placed on an embankment or along a watercourse as protection against wave action, erosion, or scour.

Risk: Measure of the likelihood and severity of an adverse consequence.

Seepage: Natural movement of water through the embankment, foundation, or abutments of the dam.

Slide: Movement of a mass of earth down a slope on dam embankment or abutment.

Slope: Side of an embankment usually measured as a ratio of the horizontal run to the vertical rise (3:1 for example).

Spillway (auxiliary or emergency): Appurtenant structure, usually an open channel, that provides controlled conveyance of excess water, beyond the primary spillway's capacity, through, over, or around dam.

Spillway capacity: Discharge rate the spillway safely conveys with reservoir at maximum design elevation.

Spillway crest: Lowest level at which reservoir water can flow into spillway.

Stilling basin: Area constructed to dissipate energy of fast-flowing water discharged by a spillway to prevent erosion.

Stream (in Kansas): Any watercourse that has a well-defined bed and well-defined banks and that has a watershed exceeding a certain number of acres in three set zones in the state.

Tailwater: Body of water immediately downstream of a spillway at a specific point in time which may reduce the rate of flow from the spillway.

Toe of dam: Junction of the upstream or downstream face of an embankment with ground surface.

Trashrack: Device located at an intake to prevent floating or submerged debris over a certain size from entering intake and to protect the intake from impacts by debris.

Tributary: Stream that flows into a larger stream or body of water.

Watershed: See drainage area.

Weir: Low dam across a stream intended to raise upstream water level.

Sources for this publication include the Natural Resources Conservation Service; Association of State Dam Safety Officials; U.S. Department of the Interior (*Dams and Public Safety*); Environmental Protection Agency; State of Kansas regulations; and National Dam Safety Program, U.S. Department of Homeland Security, Federal Emergency Management Agency (*Federal Guidelines for Dam Safety: Glossary of Terms*)