

GLOSSARY

Abutment	That part of the valley side or other supporting structure against which the dam is constructed
Annual exceedance probability	The probability that an event of specified magnitude will be equaled or exceeded in any year
Appurtenances	Structures and equipment on a site, other than the dam itself, including such facilities as intake towers, powerhouse structures, tunnels, canals, penstocks, low-level outlets, surge tanks and towers, gate hoist mechanisms and their supporting structures, and all critical water control and water release facilities. Also included is mechanical and electrical control and standby power supply equipment located in the powerhouse or in remote control centres
As low as reasonably practicable	The principle that the residual risk from a system should be "as low as reasonably practicable." For a risk to be ALARP it must be possible to demonstrate that the cost involved in reducing the risk further would be grossly disproportionate to the benefit gained
Classification	A system of assigning dams to categories, usually on the basis of the consequences of failure, so that appropriate dam safety standards can be applied. Some classification systems go beyond the consequences and consider other dam characteristics, such as vulnerability to various hazards
Consequences of failure	Impacts on the downstream or upstream area of a dam as a result of failure of the dam or its appurtenances. In these guidelines, the term <i>consequences</i> refers to the damage above and beyond the damage that would have occurred in the same event or conditions had the dam not failed. These may also be called incremental consequences of failure
Dam	<p>A barrier constructed for the retention of water, water containing any other substance, fluid waste, or tailings, provided the barrier is capable of impounding at least 30,000 m³ of liquid and is at least 2.5 m high. Height is measured vertically to the top of the barrier (i) from the natural bed of the stream or watercourse at the downstream toe of the barrier, in the case of a barrier across a stream or watercourse; or (ii) from the lowest elevation at the outside limit of the barrier, in the case of a barrier that is not across a stream or watercourse</p> <p>In these guidelines, the term <i>dam</i> includes <i>appurtenances</i> and systems incidental to, necessary for, or connected with the barrier. The definition may be expanded to include dams less than 2.5 m high or</p>

	with an impoundment capacity of less than 30,000 m ³ if the consequences of dam operation or failure are likely to be unacceptable to the public, such as dams that create hydraulic conditions posing a danger to the public; dams with erodible foundations that, if breached, could lower the reservoir by more than 2.5 m; or dams retaining contaminated substances
Dam Safety Review	A comprehensive, formal review carried out at scheduled intervals to determine whether an existing dam is safe, and if it is not safe, to determine what improvements are required
Decommissioned dam	A dam that has reached the stage in its life cycle when both its construction and its intended use have been permanently terminated in accordance with a decommissioning plan
Deterministic	A term applied to a process whose outcome is always the same for a given set of inputs. Deterministic design is typically based on either (i) worst-case values of the input variables or (ii) nominal values with a safety factor applied to the result. Contrasts with <i>probabilistic</i>
Earthquake design ground motion	The level of earthquake ground motion at the location for which a dam structure is designed or evaluated
Failure (of a dam)	An uncontrolled release of the contents of the reservoir
Failure mode	The mode in which elements or components fail, causing a loss of the system function. At a general level, there are three dam failure modes: (i) overtopping, (ii) collapse, and (iii) contaminated seepage
Foundation	The rock and (or) soil mass that forms a base for the structure, including its abutments
Freeboard	The vertical distance between the still water surface elevation in the reservoir and the lowest elevation at the top of the containment structure
Hazard	A system state or set of conditions that together with other conditions in the system environment could lead to a partial or complete failure of the system. Hazards may be external (originating outside the system) or internal (errors and omissions or deterioration within the system)
Headwater	The water upstream from a structure or point on a stream
Incremental consequences of failure	The incremental losses or damage that a dam failure might inflict on upstream areas, on downstream areas, or at the dam itself, over and above any losses or damage that would have occurred in the same event or conditions had the dam not failed
Inflow design flood	The most severe inflow flood (peak, volume, shape, duration, timing) for which a dam and its associated facilities are designed

OMS Manual	A manual that documents the requirements and procedures for the safe operation, maintenance, and surveillance of a dam
Owner	The person or legal entity, including a company, organization, government department, public utility, or corporation, that is responsible for the safety of the dam. This person or legal entity may hold (i) a government licence to operate the dam; (ii) the legal title to the dam site, the dam, and (or) the reservoir; or (iii) both
Probabilistic	A term applied to procedures that are based on the application of the mathematics of probability and take explicit account of random variations in natural and other events and properties. Probabilistic design is based on an assessment of the probabilities of failure for specific design points
Probable maximum flood	An estimate of a hypothetical flood (peak flow, volume, and hydrograph shape) that is considered the most severe that is “reasonably possible” at a particular location and time of year. The estimate is based on a fairly comprehensive hydrometeorological analysis of critical runoff-producing precipitation (snowmelt if pertinent) and hydrologic factors favourable for maximum flood runoff
Regulator	A government ministry, department, office, or other unit of the national or provincial government entrusted by law or administrative Act with the responsibility for the general supervision of the safe design, construction, and operation of dams and reservoirs, as well as any entity to which all or some of the executive or operational tasks and functions have been delegated by legal power
Reservoir	The body of water, fluid waste, or tailings that is impounded by a dam, including its shores and banks and any facility or installation necessary for its operation
Risk	A measure of the probability and severity of an adverse effect on health, property, or the environment. Risk can be estimated by the mathematical expectation of the consequences of an adverse event occurring (that is, the product of the probability of occurrence and the consequence)
Risk assessment	The process of deciding whether existing risks are tolerable and present risk control measures are adequate, and if not, whether alternative risk control measures are justified or will be implemented. Risk assessment incorporates risk analysis and risk evaluation
Spillway	A weir, channel, conduit, tunnel, chute, gate, or other structure designed to permit discharges from the reservoir

Standards-based approach	The traditional approach to dam engineering, in which risks are controlled by following established rules for defining design events and loads, structural capacity, safety coefficients, and defensive design measures
Surveillance	The close monitoring of dam behaviour, including systematic collection, analysis, and interpretation of data through visual inspections and instrumentation
Tailings	Generally fine-grained, residual material remaining after the valuable resources have been extracted from the ore at a mineral processing plant
Tailings dam	A dam, including foundations, water control structures, and base of the impounding basin, that is constructed to retain tailings from mining or mineral processing operations
Tailwater	The water in the discharge channel immediately downstream of dam