

Comparison Between CDA (2007) and ANCOLD (2012) Guidelines

Recommended Design Earthquake Loadings

Dam Category	CDA (2007)	ANCOLD (2012)		
	EDGM	OBE	MDE	Post Closure
Low	1/500	1:50	1:100	MCE
Significant	1/1000	1:100	1:1000	MCE
High	1/2500 (note 1)	NA	NA	NA
Very high	1/5000 (note 1)	NA	NA	NA
Extreme	1/10,000	NA	NA	NA
High/Extreme	NA	1:1000	1:10000	MCE

Notes:

1. The EDGM value must be justified to demonstrate conformance to societal norms of acceptable risk. Justification can be provided with the help of failure

Recommended factors of safety

Loading Condition	CDA (2007)		Loading Condition	ANCOLD (2012)	Shear strength to be used for evaluation
	Minimum factor of safety [note 1]	Slope		Recommended Minimum for Tailings Dams	
End of construction before reservoir filling	1.3	Upstream and downstream	Short-term undrained (potential loss of containment)	1.5	Effective Strength
Long term (steady-state seepage, normal reservoir level)	1.5	Downstream	Long Term Drained	1.5	Consolidated Undrained Strength
Full or partial rapid drawdown	1.2-1.3 (note 2)	Upstream	Short-term undrained (no potential loss of containment)	1.3	Consolidated Undrained Strength
Pseudo-static	1		Post-seismic	1.0 -1.2 (Note 3)	Post Seismic Shear Strength (Note 4)
Post-earthquake	1.2-1.3				

Notes:

1. Factor of safety is the factor required to reduce operational shear strength parameters to bring a potential sliding mass into a state of limiting equilibrium (using generally
2. Higher factors of safety may be required if drawdown occurs relatively frequently during normal operation.
3. To be related to the confidence in selection of residual shear strength. 1.0 may be adequate for use with lower bound results.
4. Cyclically reduced undrained/drained shear strength and/or liquefied residual shear strength for potentially liquefiable materials.